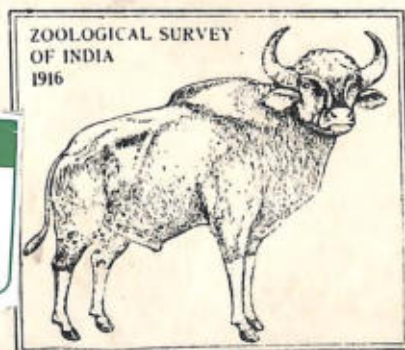
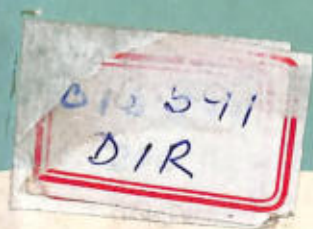




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The information regarding published work on Indian Zoology may please be forwarded to the Director, Zoological Survey of India 234/4 A. J. C. Bose Road, Calcutta 700 020 for incorporating in the **Bibliography of Indian Zoology**.

FOREWORD

The 23rd Volume of the **Bibliography of Indian Zoology**, dealing with the published zoological literature, refers mainly to the year 1980 and a part to the year 1979 on the fauna from the Indian Region including India, Bangladesh, Burma, Bhutan, Nepal, Pakistan and Sri Lanka.

The whole literature has been arranged according to a generally accepted zoological classification of the Animal Groups. This would greatly help the researchers in consulting the relevant chapter instantly. The detailed contents at the beginning will also help in consulting this volume. Besides, all other salient features of the **Bibliography**, i.e. *Subject Index*, *New Taxa List*, *Regional Bibliography*, etc., have been retained. A chapter at the end indexes all the authors, which are arranged alphabetically, quoting serial number of the papers. The co-authors have been shown in italics.

Efforts have been made to highlight some of the papers with brief abstracts. A perusal of the published literature reveals that a wide range of subjects have been covered, such as Wildlife, Environmental Science & Ecology, Aquatic Ecology, Economic Zoology, Behaviour, Histochemistry, Systematics, Faunistics & Zoogeography, Parasitology, Cytogenetics, Cytology, Palaeozoology, etc. These studies have brought to light over 350 taxa new to science, which have been listed separately. Of these, nearly three-fourths represent Arthropoda including Arachnida, Myriapoda, Crustacea and Insecta. All those workers who are interested in literature on a particular subject, or from a particular area, would find chapters III and IV quite useful, where figures in bold-face deal with new taxa.

It is not out of scope to mention that publication of the Bibliography by the Zoological Survey of India will benefit all the workers in several fields of Zoology. Though this Volume is for 1980, the consolidated references of Indian Zoology will be a ready tool in the hands of all the workers.

It will be highly appreciated if all the workers on Indian Zoology, continue to send us the reprints of their publications so as to enable us to give a wider coverage to their work.

Thanks are due to Dr. G. S. Arora, Scientist 'SE', Sri M. Z. Ansari, Asstt. Zoologist and other staff members of Information & Documentation Division, particularly for their sincere efforts in compiling the zoological literature and preparing the same in the desired format, and to staff of the Publication Division for bringing out the same.

Dr. Asket Singh
Joint Director-in-Charge

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The genus *Opisthorchis* Blanchard, has so far only two species from India, viz., *O. pedicellatus* Verma and *O. gorakhpurensis* Rai. This forms the 3rd species from Gwalior.
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Two species were collected from intestine of a bird, *Milvus migrans* (Boddaert) from Kanpur, one of which was described new to science as *Haplorchoides vinodei* n. sp.
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Six specimens were collected from the gill filaments of a marine fish *Cybbium guttatum* (Bl. Schn.) from Mandapam, and Kanya Kumari, Tamil Nadu.

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89. Gupta, V. and Agrawal, S. K. 1979. Studies on *in vitro* survival of *Gastrothylax crumenifer*. —*Indian J. Helminth.*, **29** (1-2) (1977) : 93-103.
In the present study an attempt has been made to find out the survival *in vitro* of *Gastrothylax crumenifer* in different media in the presence of simple carbohydrates the effect of pH on survival and absorption of carbohydrates through cuticle under aerobic conditions.
90. Gupta, V. and Agrawal, S. K. 1979. Amino acid composition in *Gastrothylax crumenifer* (Trematoda). —*Indian J. Helminth.*, **29** (1-2) (1977) : 140-143.
The study reports for the first time the presence of asparagine in the adult trematode, which was collected from the rumen of the buffaloes, slaughtered locally.
91. Deleted.
92. Gupta, V. and Jahan, A. 1979. On three trematodes of the family Psilostomidae Odhner, 1913 from avian hosts from Lucknow. —*Indian J. Helminth.*, **29** (1-2) (1977) : 46-56.
During the survey of trematode parasites of vertebrates, numerous specimens were collected from avian hosts from Lucknow. These represent three species, of which one is new to science.
93. Gupta, V. and Jahan, A. 1979. On four new trematodes of Echinostomidae Poche, 1926 from birds. —*Indian J. Helminth.*, **29** (1-2) (1977) : 57-72.
94. Gupta, V. and Jahan, A. 1979. A redescription of *Euclinostomum heterostomum* (Rudolphi, 1809) with a key to the species of the genus *Euclinostomum* Travassos, 1928. —*Indian J. Helminth.*, **29** (1-2) (1977) : 150-155.
Five specimens of this form were collected the trachea of white Egret, *Egretta garzetta* (Linn.) from Lucknow, and are redescribed here. A key has been provided to the two species, which are considered valid, of the genus.
95. Gupta, V. and Jahan, A. 1979. A redescription of *Cathaemasia hians* (Rudolphi, 1809) Looss, 1899 and *C. indicus* Wesley, 1940. parasitic in avian hosts. —*Indian J. Helminth.*, **29** (1-2) (1977) : 156-163.
Cathaemasia hians (Rudolphi) was collected from the oesophagus of a white-necked stork, *Dissorea episcopus* and *C. indicus* Wesley from the oesophagus and buccal cavity of a Painted Stork, *Ibis leucocephalus* (Pennant), from Lucknow.
96. Gupta, V. and Jahan, A. 1979. On two new trematodes of the genus *Astiotrema* (Family—Plagiorchiidae) (Luhe, 1901) Ward 1917 from reptiles. —*Indian J. Helminth.*, **20** (1) (1978) : 35-41.
Six exs. were collected from intestine of a turtle at Udaipur and two specimens were collected from intestine of *Varanus* at Lucknow and were discovered as new species to science.
97. Gupta, V. and Jahan, A. 1980. On a new trematode, *Plagiorchis funambulusi* sp. nov. and *Plagiorchis muris* Tanabe, 1922 (Digenea : Plagiorchiidae) (Luhe, 1901) Ward, 1917 from mammals. —*Indian J. Helminth.*, **30** (2) (1978) : 143-150.

Plagiorchis funambulusi sp. nov. were collected from the mammalian hosts, i.e. Palm squirrel *Funambulus palmarum* Linn. from Lucknow.

98. Gupta, V. and Puri, M. 1980. Four new species of digenetic trematode of fishes. —*Indian J. Helminth.*, 31 (1) (1979) : 54-64.

The trematodes recorded here were collected from the intestine of several marine fishes and freshwater fishes of Uttar Pradesh and Tamil Nadu.

99. Hafeezullah, M. 1980. Two digenetic trematodes of marine fish, *Kyphosus cinerascens* (Forsk.) from the gulf of Mannar with note on the systematic positions of the genera *Enenterum* Linton, 1910, *Cadenatella* Dollfus, 1946 and *Jeancadentia* Dollfus, 1946. —*Bull. zool. Surv. India*, 2 (2 & 3) : 145-151.

100. Hafeezullah, M. 1980. On the status of some genera of the sub-families Stomachicolinae Yamaguti, 1958, Dinurinae Looss, 1907 and Prolecithinae Yamaguti, 1971 (Digenea : Hemiuridae). —*Bull. zool. Surv. India*, 3 (1 & 3) : 69-76.

101. Hafeezullah, M. 1980. A new cryptogonimid trematode (Digenea : Cryptogonimidae) of marine fish from Orissa Coast, with a brief review of the genus *Paracryptogonimus* Yamaguti, 1934. —*J. mar. biol. Ass. India*, 17 (2) (1975) : 49-55.

102. Hafeezullah, M. and Dutta, I. B. 1980. Digenetic trematodes of marine fishes of Andaman. —*Rec. zool. Surv. India*, 77 (1-4) (1979) : 75-82.

The present study is a report based on a small collection of the digenean fauna of marine fishes of Andamans. It consists of four species, *Hysterolecithoides frontilatus* (Manter, 1969), *Hama-*

creadium interruptus Nagaty, 1941, *Mehracola ovocaudatum* Srivastava, 1937 and *Bivesicula australis* Crowcroft, 1947. New facts and records about these species have been noted in addition to the taxonomical observations. *Bivesicula congeri* Yamaguti 1970 has been considered as synonym of *B. australis* Crowcroft 1947. *Maculifer spiralis* Soota, Srivastava, C. B. and Ghosh, 1969 in the family Opisthoebidae is nothing but *Hamacreadium mutabile* Linton, 1910 in the family Opecoelidae.

103. Jain, S. P. and Chandra, D. 1979. Record of some known metacercariae and adult trematodes of fishes from Agra District —I. —*Indian J. Helminth.*, 29 (1-2) (1977) : 84-86.

The present study records four species of worms for the first time from Agra district.

104. Kacker, R. K., Singh, A. K. and Dua, P. S. 1980. Chromosomal studies in digenetic trematodes and small arthropods: The techniques for chromosome preparation for cytotaxonomical studies. —*Proc. Workshop Tech. Parasitol. zool. Surv. India* : 119-121.

The basic prerequisite for cytological studies of any group is procurement of live material. This live material is essential for cytological investigation.

105. Kalyankar, S. D. and Deshmukh, A. L. 1980. A new species of the genus *Allocreadium* Looss 1900 (Digenea : Allocreadiidae) from a fresh water fish *Labeo rohita* (Ham.). —*Bioresearch*, 4 (1) : 17-22.

A key to the Indian species of the genus *Allocreadium* is also given.

106. **Kanwar, U. and Kansal, M.** 1980. Cytochemical studies on the prostatic glands of the trematodes, *Paramphistomum epiclitum* and *Paradistomoides orientalis*. —*J. Helminth.*, **54** (4) : 263-266.

Pear-shaped prostatic gland cells which surround the ejaculatory duct of *Paramphistomum* and *Paradistomoides* secrete two types of products which contains phospholipids only.

107. **Kumar, R. and Agrawal, G. P.** 1980. On a new species of the genus *Lobotrema* Tripathi, 1959 (Monogenea Dactylogyridae, Bychowsky, 1933) from a freshwater fish, *Sciaenidae coitre* (Ham.) at Varanasi, India. —*Indian J. Helminth.*, **30** (2) (1978) : 90-95.
108. **Lal, A. K. and Prasad, D.** 1980. On *Postorchigenes rishikeshii* n. sp. (Lecithodendriidae, Prosthodendriinae, Trematoda) from *Hemidactylus flaviviridis*. —*Indian J. Helminth.*, **31** (1) (1979) : 28-30.

The paper gives an account of a new species collected from the intestine of lizard, *Hemidactylus flaviviridis* at Patna. Four specimens were collected. In all about 20 specimens of the host were examined, but only one was found to be infected.

109. **Majid, A. and Hussain, S. A.** 1980. Survey of sheep trematodes in Lahore Abattoirs. —*Pakist. J. Sci.*, **32** (3-4) : 149-155.
110. **Matta, S. C. and Ahluwalia, S. S.** 1979. Observations on occurrence and pathology of some helminth parasites in little cormorant *Phalacrocorax niger*. —*Indian J. Helminth.*, **29** (1-2) (1977) : 87-92.

Six types of trematodes, one cestode and one nematode were discovered from a little cormorant shot near Mathura (U. P.). *Echinochasmus* sp. and *Olinostomum* sp. were described for the first time from cormorant.

111. **Mukherjee, R. P.** 1980. Collection and study of larval trematodes (Platyhelminthes). —*Proc. Workshop Tech. Parasitol. zool. Surv. India* : 23-26.

The author has studied the collection method, the type of trematode infection, percentage of infection, mortality etc.

112. **Narasimhulu, S. V. and Madhavi, R.** 1980. A new aspidogastroid trematode *Lobatostoma hanumanthai* n. sp. from a marine fish in the Bay of Bengal. —*J. Helminth.*, **54** (4) : 233-239.

L. hanumanthai n. sp. is described from the intestine of the carangid *Trachinotus blocki* from Bay of Bengal.

113. **Pandey, K. C. and Agarwal, N.** 1980. A monogenean *Polystomoides chauhani* n. sp. from *Hardella thurgi* Gray. —*Indian J. Helminth.*, **30** (2) (1978) : 126-128.

Polystomoides chauhani n.sp. from freshwater tortoise *Hardella thurgi* Gray, was collected from river Ghaghra, Dist. Faizabad. The site of infection was urinary bladder of the host.

114. **Sahadev, K. V. and Sinha, S. S.** 1980. A new host record for *Isoparorchis hypselobagri* Billet 1898. —*Geobios*, **7** (6) : 272-273.

115. **Simha, S. S. and Narasimha Rao, L.** 1980. Observations on *Isoparorchis hypselobagri* (Billet, 1898) Southwell, 1913. —*J. zool. Soc. India*, **29** (1-2) (1977) : 80-85.

116. Singh, A. K. and Prasad, D. 1979. On a new digenetic trematode *Stomylotrema ultivitellaria* n. sp. from a freshwater fish *Mystus striatus* from Patna.—*Indian J. Helminth.*, **30** (1) (1978) : 1-4.
- The present paper gives an account of a new species *Stomylotrema ultivitellaria*, a solitary specimen recovered from the intestine of a freshwater fish, *Mystus striatus*.
117. Singh, S. P. and Sinha, D. P. 1980. The occurrence of some digenetic trematodes in freshwater fishes of Bihar—new host record.—*Indian J. Anim. Res.*, **14** (1) : 57-62.
- The trematodes have been redescribed and their taxonomic status has been discussed.
118. Soota, T. D. 1980. Collection and preservation of trematodes and cestodes.—*Proc. Workshop Tech. Parasitol. zool. Surv. India* : 27-28.
- Trematodes and cestodes play a very significant role in the economy of man and animals. The author has discussed their collection and preservation methods.
- 118a. Ubgade, S. R. and Agarwal, S. M. 1980. Seasonal infestation of *Channa marulius* (Ham.) and *Vivipara bengalensis* infected with *Azygia papillata* n. sp. at Budha Sagar Lake, (Rajnandgaon, M. P.) and notes on the biology of host species and effect of light on cercarial emergence.—*Bioresearch*, **4** (1) : 22-24.
119. Varma, T. K. and Ahluwalia, S. S. 1980. An unusual record of *Isoparorchis hypselobagri* (Billet, 1898), a trematode parasite of fishes from the bile duct of a pig.—*Indian vet. J.*, **57** (8) : 688-689.
120. Wajihullah, Siddiqi, A. H., Ansari, J. A. and Baqui, A. 1980. *In vitro* studies on the survival and morphogenesis of *Glinostomum complanatum metacercariae*.—*Indian J. Helminth.*, **32** (1) : 72-75.
- (b) Cestoda
121. Agrawal, R. D. and Pande, B. P. 1980. Cysticeroid of *Joyeuxiella pasqualei* in the wall lizard and its experimental development in kitten.—*Indian J. Helminth.*, **31** (1) (1979) : 75-80.
122. Chishti, M. Z. 1980. *Dilepis fotedari* n. sp. (Dilepididae Fuhrmann, 1907 : Cestoda) from *Anas platyrhynchos* in Kashmir.—*Indian J. Helminth.*, **32** (1) : 1-3.
- Dilepis fotedari* n. sp. was collected from intestines of common mallard duck, *Anas platyrhynchos*.
123. Gaur, S. N. S., Sethi, M. S., Tewari, H. C. and Om Prakash. 1980. Note on the incidence of *Cyticercus tenuicollis* in sheep and goats in certain parts of Uttar Pradesh.—*Indian J. Anim. Res.*, **14** (1) : 73-75.
124. Ghosh, R. K. 1980. On *Bertiella studeri* (Cestoda : Anoplocephatidae) from crab eating macaque of Great Nicobar Islands.—*Indian J. Parasitol.*, **3** (Suppl) : 18.
125. Gupta, S. P. and Sinha, N. 1980. On a new caryophyllaeid *Capingentoides heteropneusti* n. sp., from the intestine of freshwater fish *Heteropneustes fossilis* (Ham.) from Lucknow.—*Indian J. Helminth.*, **31** (1) (1979) : 65-68.
126. Gupta, S. P. and Sinha, N. 1980. On a new cestode *Duthiersia gomatii* n.sp. from a reptilian host *Varana niloticus* from Lucknow.—*Indian J. Helminth.*, **31** (1) (1979) : 72-74.

127. Malhotra, S. K. and Capoor, V. N. 1980. Introduction of taxonomic approach to differentiate *Vampirolepis somariensis* n.sp.—*Geobios*, 7 (Suppl.) : 302-308.
Report of a new cestode *V. somariensis* n.sp. from avian host *Turdoides striatus* (Dumont) from India is based on taxonomic differentiation (Capoor et al 1979, and Malhotra et al., 1980). New species is compared with close species of the genus *Vampirolepis*.
128. Malhotra, S. K. and Chauhan, R. S. 1980. Statistical analysis of cestode infection in relation to some ecological aspects of hill stream fishes in Garhwal Himalayas, India.—*Indian J. Helminth.*, 32 (1) : 43-52.
129. Matta, S. C. 1980. Efficacy of Mebendazole (Pantelmin-Ethnor) against some common cestodes of poultry. —*Indian J. Poult. Sci.*, 15 (3) : 207-210.
130. Mitra, K. B. and Shinde, G. B. 1980. Histopathology of the cestode *Amoebotaenia indiana* (Cohn. 1900) from *Gallus domesticus* at Aurangabad, India. *Curr. Sci.*, 49 (5) : 206-207.
131. Nigam, S. and Premvati, G. 1980. Presence of cholesterol in the neutral lipids of three sheep cestodes. —*J. Helminth.*, 54 (3) : 215-218.
The adult worms with immature, mature and gravid proglottids and having almost the same length were collected simultaneously from the sheep intestine.
132. Satpute, L. R. and Agarwal, S. M. 1980. Studies on seasonal infection of *Clarias batrachus* (Linn.) by *Lytocestus indicus* Moghe, 1925. —*Indian J. Helminth.*, 32 (1) : 9-17.
133. Srivastava, A. K. and Capoor, V. N. 1980. On a new cestode, *Hexacanalisa soonensis* n.sp. of the family Lecanicephalidae Braun, 1900 order Lecanicephalidea Baylis, 1920 from the Sting Rays *Trygon marginatus* (Blyth) from Sasoon Dock (Bombay). —*Indian J. Helminth.*, 32 (1) : 18-22.
134. Srivastava, V. C. and Pande, G. P. 1980. Cestode fauna of reptiles of India. Part I. *Ophiotaenia chattraji* n.sp. (Cestoda : Ophiotaeniidae, Freze, 1963) from the cobra, *Naja tripudians* from Allahabad (Indie). —*Indian J. Helminth.*, 32 (1) : 33-37.
Out of the two cobras, *Naja tripudians* (REPTILIA) examined, one was found to be infected with four cestodes in its intestine and was identified as *Ophiotaenia chattraji* n.sp.
135. Pathak, K. M. L., Gaur, S. N. S. and Verma, H. C. 1980. Quantitative estimation of amino-acids in cysticercus of *Taenia hydatigena*. —*Vet. Parasitol.*, 7 (4) : 375-378.
136. Rama Krishna, G. V. and Sinha, S. S. 1980. A study on the nerve arrangement and cholinesterase distribution on *Oochristica sigmoides* and *Raillietina tetragona* (Cestoda). —*J. Anim. Morph. Physiol.*, 27 (1 & 2) : 10-13.
The extension of longitudinal nerves from a bipartite brain and variation in the distribution of nerves to the suckers are described. The nervous system of species were traced by employing the cholinesterase techniques.

137. Roy, T. K. 1980. Histochemical studies on *Raillietina* (*Raillietina*) *johri* (Cestoda : Davaineidae). III. Esterases. *J. Helminth.*, **54** (3) : 219-222.
- Non specific esterase have been localised by histochemical methods in various tissues of a cestode *R. (R.) johri* obtained from the intestine of pigeon.
138. Shinde, G. B. and Deshmukh, R. A. 1980. Two new species of *Marsupiobothrium* Yamaguti, 1952 (Cestoda : Phyllobothriidae) from marine fishes. —*Curr. Sci.*, **49** (16) : 643-644.
139. Sircar, M. and Sinha, D. P. 1980. Histopathology of *Lytocestus indicus* infection in the fish, *Clarias batrachus*. —*Indian J. Anim. Res.*, **14** (1) : 53-56.
- L. indicus*, a monozoic caryophyllid cestode without any attachment organs penetrates the small intestine of its fish host,—has been studied histopathologically.
140. Deleted.
6. ASCHELMINTHES
- (a) Gastrotricha
141. Chandrasekhara Rao, G. 1980. On a new species of *Paradasys* (Gastrotricha : Lepidodasyidae) from Andhra Coast, India. —*Bull. zool. Surv. India*, **2** (2 & 3) : 213-215.
- (b) Nematoda
142. Agarwal, N. and Misra, R. P. 1980. *Neocamallanus thapari*, n. sp. a new nematode from a freshwater fish, *Channa striatus* (Bloch.). —*Indian J. Helminth.*, **30** (2) (1978) : 122-125.
143. Agarwal, R. K. and Johri, G. N. 1980. Experimental infection of chickens with *Ancylostoma caninum* : migration and distribution of larvae in tissues.—*J. Helminth.*, **54** (2) : 109-115.
- Two hundred one-day old male white leghorn chickens divided into 4 groups were inoculated with single dose of 500, 1000, 2000 or 4000 filariform larvae of *A. caninum*.
144. Ahmad, I. and Jairajpuri, M. S. 1980. Factors influencing sex attraction in *Chiloplacus symmetricus*. —*Indian J. Nematol.*, **10** (2) : 107-117.
145. Ahmad, M. and Jairajpuri, M. S. 1980. A review of the genus *Enchodelus* Thorne, 1939 with descriptions of species from India. —*Rec. zool. Surv. India, Occ. Pap. No. 15* : 1-42.
146. Alam, M. M., Siddiqi, Z. A., Khan, A. M. and Saxena, S. K. 1980. Effect of different cropping sequences on the population of plant parasitic nematodes. —*Indian J. Nematol.*, **10** (1) : 35-39.
147. Arya, S. N. 1979. A new species of the genus *Echinocephalus* Molin, 1858 from a fish, with a key to the species of *Echinocephalus* (Gnathostomatidae). —*Indian J. Helminth.*, **29** (1-2) (1977) : 42-45.
- A female specimen of *Echinocephalus* Molin, was recovered from the muscles of the edible fish *Cyprinus guttatus* (Blanch. Schn.) Day, from fish of Jodhpur market. This was described as new to science as *Echinocephalus oligocanthus*.

148. Arya, S. N. 1979. On a new nematode, *Comephoronema johnsoni* sp. n. (Family Rhabdochonidae Skrjabin, 1946) from a marine fish *Cybbium guttatum*. —*Indian J. Helminth.*, **30** (1) (1978) : 17-20.

Two female specimens, described here as a new species, *Comephoronema johnsoni*, were collected from the outer wall of the air bladder of a marine fish *Cybbium guttatum* (Bl. Schn.) obtained from the fish market of Jodhpur, India.

149. Arya, S. N. 1979. Nematode parasites of Rajasthan Deserts. I. Five new species of the genus *Physaloptera* Rudolphi, 1819 from Indian reptiles. —*Indian J. Helminth.*, **30** (1) (1978) : 21-34.

During survey of reptile parasites, four males and two females were collected from the intestine of common garden lizard, *Calotes versicolor* (Daudin) and four male and four female nematodes were collected from the intestine of *Varanus monitor*, at Jodhpur, Rajasthan, during July, 1976. Five new species were discovered and are described here, with a key to Indian species of the genus *Physaloptera*.

150. Arya, S. N. 1980. A new nematode of the genus *Goezia* Zeder 1800, from a marine fish of India. —*Indian J. Helminth.*, **30** (2) (1978) : 96-99.

Six males and ten females were collected from the intestine of a marine fish *Cybbium guttatum* (Bl. Schn.) Day, collected from the fish market of Jodhpur, and is described as new to science as *Goezia aspinulosa* sp. nov.

151. Arya, S. N. 1980. Nematode fauna of Kumaon region I. Three new camallanids from freshwater fishes of Nainital. —*Indian J. Helminth.*, **30** (2) (1978) : 110-121.

Several camallanid nematodes were recovered from the intestines of freshwater fishes of Nainital (U. P.) lake in 1977. The detailed study revealed three new species.

152. Arya, S. N. 1980. A new species of the genus *Rhabdochona* Rillet, 1916, from a fish, with a key to the species of *Rhabdochona* (Nematoda : Rhabdochonidae) from Indian waters. —*Indian J. Helminth.*, **30** (2) : 137-142.

Rhabdochona (*Rhabdochona*) *unispinata* sp. nov. represented by ten females was collected from the intestine of the edible fish *Cybbium guttatum* from the market of Jodhpur.

153. Arya, S. N. 1980. Nematoda fauna of Kumaon Region II. A new nematode. *Metaquimperia vagrae* n.sp. from the freshwater fish, *Barilius vagra*. —*Indian J. Helminth.*, **32** (10) (1979) : 15-19.

One male and four females specimens were recovered from the intestine of the freshwater fish, *Barilius vagra*, and described as new to science as *Metaquimperia vagrae*.

154. Arya, S. N. 1980. First record of male of *Indocucullanus guerreroi* Arya & Johnson, 1975, with a key to the species of the genus *Indocucullanus*. —*Indian J. Helminth.*, **32** (1) : 28-32.

Two male nematode parasites from marine fish, *Cybbium guttatum* were collected at Jodhpur. The study revealed that these belong to *Indocucullanus guerreroi* Arya & Johnson, 1975. This being the first record of the male. Keys to the species of *Indocucullanus* have been given.

155. Azmi, M.I. 1980. Resistance in cowpea cultivars to rootknot nematode. —*J. scient. Res.*, **2** (2) : 135.

156. Badra, T. 1980. Comparative effects of extra ammoniacal fertilization on growth of nematized and non-nematized tomatoes for limiting damage by *Rotylenchulus reniformis*. —*Indian J. Nematol.*, **10** (1) : 23-27.
157. Bajaj, H. K. and Bhatti, D. S. 1980. *Basiria loofi* nom. nov. for *Neopsilenchus affinis* F. A. Khan and A. M. Khan, 1976. —*Indian J. Nematol.*, **10** (2) : 255-256.
158. Baqri, Q. H. 1980. Two new species of Dorylaimidae (Dorylaimida : Nematoda) from Tamil Nadu, India. —*Bull. zool. Surv. India*, **2** (2 & 3) : 139-143.
159. Baqri, Q. H. and Jana, A. 1980. Nematodes from West Bengal (India) V. Review of the family Thorne-nematidae Siddiqi, 1969 (Dorylaimoidea : Nematoda). —*Nematologica*, **26** : 83-107.
160. Baqui, A. and Ansari, J. A. 1980. Studies on passive cutaneous anaphylaxis in rat *Setaria cervi* system. —*Indian J. Helminth.*, **30** (2) (1978) : 103-109.
161. Bhatti, D.S., Dalal, M. R. and Malhan, I. 1980. Effect of additional irrigation on population of *Heterodera avenae* and wheat yield. —*Haryana agric. Univ. J. Res.*, **10** (4) : 571-572.
162. Bhopali, M. K., Menon, S. and Kulkarni, L. 1980. *Necator americanus* in infant rabbits : complete development, humoral antibody, leukocyte response and serum protein changes following infection. —*J. Helminth.*, **54** (2) : 97-104.

N. americanus originally isolated from man, was developed completely in infant rabbits.
163. Chandrasekharan, A., Monto, F., Tulsi-das, A. and Rao, C. K. 1980. Awareness of cause and control of *Brugia malayi* filariasis. —*J. Com. Dis.*, **11** (3) (1979) : 146-147.
164. Chawla, M. L. and Samathanam, G. J. 1980. Three new species of the superfamily Criconematoidea (Tylenchida : Nematoda) from Tamil Nadu. —*Indian J. Nematol.*, **10** (1) : 59-68.
165. Chawla, M. L. and Samathanam, G. J. 1980. Two new species of the superfamily Longidoroidea (Dorylaimida : Nematoda) from India. —*Indian J. Nematol.*, **10** (2) : 205-210.
166. Chawla, M. L., Samathanam, G. J. and Sharma, S. B. 1980. Occurrence of citrus nematode (*Tylenchulus semi-penetrans* Cobb, 1913) on roots of mangosteen (*Garcinia mangostana*). —*Indian J. Nematol.*, **10** (2) : 240-242.
167. Chawla, M. L. and Yadav, S. M. 1980. Effect of pot culturing on morphometric characters of *Hoplolaimus indicus*. —*Indian J. Nematol.*, **10** (2) : 246-247.
168. Chhabra, H. K., Singh, I. and Sidhu, A. S. 1980. Effect of culture filtrate of *Rhizoctonia solani* on egg hatch and larval mortality of *Meloidogyne incognita*. —*Indian J. Mycol. & Pl. Path.*, **9** (1) (1979) : 111-112.
169. Dasgupta, A., Bala, S., Banerjee, A. and Chaudhury, A. 1980. Immunodiagnosis of human filariasis by counter-immunoelectrophoresis using *Litomosoides carinii* antigens. —*J. Helminth.*, **54** (2) : 83-86.
170. Deshmukh, P. G. and Choudhari, A. C. 1980. *Spinicauda hardwickii* n. sp. from *Eublepharis hardwickii*. —*Indian J. Helminth.*, **31** (1) (1978) : 20-23.

A single male specimen was collected from the intestine of the lizard, *Eublepharis hardwickii* and is described as new to science.

171. **Devamma, R.** 1979. Studies on some new species of *Oxyspirura* from birds in Hyderabad (Andhra Pradesh) India. —*Indian J. Helminth.*, **29** (1-2) (1977) : 1-24.

The paper deals with five new species under two subgenera, viz., *Oxyspirura* and *Cramispirura*. One new combination in subgen. *Oxyspirura* and two in subgenus *Cramispirura* are proposed.

172. **Devamma, R.** 1979. Three new species of spirurid nematode from birds in Hyderabad (A. P.) India. —*Indian J. Helminth.*, **30** (1) (1978) : 5-16.

Three new species in this genus are described and are compared with closely related species.

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175. **Dhanachand, C.H.** and **Jairajpuri, M.S.** 1980. Four new and one known species of Dorylaimida from Manipur, India. —*Indian J. Nematol.*, **10** (2) : 152-165.

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177. **Farooqi, T. N. A., Ganguly, A. K.** and **Dasgupta, D. R.** 1980. Some chemical changes in tomato plants infested with root-knot nematode *Meloidogyne incognita*. —*Indian J. Ent.*, **42** (2) : 226-232.

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184. Gupta, N. K. and Duggal, C. L. 1980. On *Zeylanema jullundurens* a new nematode parasite from a freshwater fish, *Mastacembelus armatus*, at Jullundur (Punjab) and a key to the species of its genus. —*Res. Bull. Panjab Univ.*, **28** (3-4) (1977) : 175-178.

This paper deals with the description of one new species *Z. jullundurens*, from a freshwater fish at Jullundur.
185. Gupta, S. P. and Gupta, R. C. 1979. On some nematode parasites of marine fish. —*Indian J. Helminth.*, **29** (1-2) (1977) : 104-112.

Four new species have been collected from intestines of a variety of fishes of Orissa and Kerala and are described as new to science.
186. Gupta, S. P. and Kazim, M. 1979. Nematode parasites of birds. —*Indian J. Helminth.*, **30** (1) (1978) : 57-67.

During survey of nematode parasites of vertebrates, several examples were collected which represented five species from avian hosts from Lucknow.
187. Gupta, S. P. and Kazim, M. 1979. Spirurid nematodes. —*Indian J. Helminth.*, **30** (1) (1975) : 68-89.

During survey of nematode parasites of vertebrates, several examples were collected from avian hosts from Lucknow. These represented six species, of which five are new to science.
188. Gupta, S. P. and Kazim, M. 1980. Nematodes of mammals. —*Indian J. Helminth.*, **30** (2) (1978) : 129-136.

During survey of nematode parasites of vertebrates numerous nematode parasites were collected from mammals from Lucknow. These represented three species and are redescribed.
189. Gupta, S. P. and Kumar, P. 1979. Filariid nematodes of birds. —*Indian J. Helminth.*, **29** (1-2) (1977) : 113-119.

Three species were collected from birds' abdominal cavity from Lucknow, of which two are described as new to science.
190. Gupta, S. P. and Kumar, P. 1979. On some species of the genus *Acuaria* Bremser, 1811 from avian hosts from Uttar Pradesh. —*Indian J. Helminth.*, **29** (1-2) (1977) : 120-136.

Several specimens were collected from tunic of gizzard from a variety of avian hosts from Lucknow as well as Gonda districts of U. P. and represented five species of the genus *Acuaria* Bremser. There were new to science.
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245. Reddy, P. P., Singh, D. B. and Rajendran, R. 1980. Reaction of some species and varieties of *Amaranthus* to *Meloidogyne incognita*. —*Indian J. Nematol.*, **10** (1) : 100-102.
246. Reddy, P. P., Srinivasan, K. and Singh, D. B. 1980. Differential staining of phytophagous endoparasitic nematodes. —*Curr. Sci.*, **49** (2) : 71.

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249. Sharma, S. K., Singh, I. and Sakhuja, P. K. 1980. Influence of different cropping sequences on the population of root-knot nematode, *Meloidogyne incognita* and its performance of the subsequent mungbean crop. —*Indian J. Nematol.*, **10** (1) : 53-58.
250. Siddiqi, M. R. 1980. Six new species of *Costlenchus* Siddiqi, 1978 (Nematoda : Tylenchidae). —*Nematologica*, **26** (4) : 432-447.
251. Singh, I., Sakhuja, P. K. Sharma, S. K. 1980. Preliminary studies on the losses caused by cereal cyst nematode, *Heterodera avenae*, in Punjab. —*J. Res. Punjab agric. Univ.*, **17** (4) : 369-370.
252. Singh, I., Sharma, S. K. and Sakhuja, P.K. 1980. Effect of oil cakes extract on the hatching of root-knot nematode, *Meloidogyne incognita*. —*Indian J. Mycol. & Pl. Path.*, **9** (1) (1979) : 115-116.
253. Singh, S. P., Ahmed, M., Khan, A. M. and Saxena, S. K. 1980. Phenolic changes in tomato var. marglobe as a result of growing plants inoculated with different oilcakes. —*J. scient. Res.*, **2** (2) : 85-87.
254. Singh, S. P., Khan, A. M. and Saxena, S. K. 1980. Effect of nematicides and oilcakes separately and in mixtures on plant parasitic nematodes. —*Geobios*, **7** (3) : 111-113.
255. Singh, S. P., Khan, A. M. and Saxena, S. K. 1980. Effect of watering and mode of application of oilcakes and nematicides in controlling plant nematodes. —*Geobios*, **7** (4) : 145-148.

An attempt has been made to determine how best the efficacy of oilcakes and certain nematodes on tomato could be obtained by modifying the watering of the treated soil.
256. Sivapalan, P., Gnanapragasam, N. C. and Jebamalai, A. S. 1980. Chemical control of the root-lesion nematode, *Pratylenchus loosi*, in new tea plantings. *Tea Q.*, **49** (2) : 30-36.

The systematic nematicides have served as effective chemical for good establishment of young tea plants in soil infested with the root-lesion nematode, *P. loosi*.
257. Soni, G. R. and Nama, H. S. 1980. On *in vitro* hatching of pinworm eggs. —*Geobios*, **7** (2) : 61-62.
258. Soni, G. R. and Nama, H. S. 1980. *Eudorylaimus indicus* sp. n. (Nematoda : Dorylaimidae) associated with *Capsicum annum*. —*Geobios*, **7** (4) : 185-187.
259. Sood, M. L. 1980. Redescription of *Paracamallanus singhi* (Ali, 1956) (Camallanidae : Nematoda). —*J. Res. Punjab agric. Univ.*, **17** (1) : 81-84.
260. Sood, M. L. and Kapur, J. 1980. Inorganic elements in the adults of *Haemonchus contortus* (Nematoda : Trichostrongylidae). —*J. Helminth.*, **54** (4) : 253-254.

261. Soota, T. D. 1980. Collection and preservation of nematode parasites of animals. —*Proc. Workshop Tech. Parasitol. Zool. Surv. India* : 39-40.

Nematodes parasitic in invertebrates show a wide range of adaptability, which play a significant role in the economy of man.
262. Soota, T. D. and Dey Sarkar, S. R. 1980. On three species of the nematode genus *Cucullanus* Mueller 1777, and a note on *Lappetascaris lutjani*, Rasheed, 1965, from Indian Marine Fishes. —*Rec. zool. Surv. India*, 76 (1-4) : 1-6.

The paper deals with three species of the nematode genus *Cucullanus* of which one is new and two already known. These latter show interesting variations and also form new host and locality records. *Lappetascaris lutjani* Rasheed, 1965, is also recorded here from a new host and from a new locality.
263. Sosamma, V. K., Koshy, P. K. and Rao, E. V. V. B. 1980. Susceptibility of coconut cultivars and hybrids to *Radopholus similis* in field. —*Indian J. Nematol.*, 10 (2) : 250-252.
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265. Swarup, G. 1980. Research in nematology makes strides. —*Indian Fmg.*, 30 (7) : 45-49.
266. Tandon, R. S. and Singh, S. P. 1980. Parasites of brinjal, *Solanum melongena* Linn. belonging to two different families of nematodes. —*Indian J. Ent.*, 42 (1) : 90-98.
267. Thombre, B. P., Joshi, S. A. and Farooqui, M. N. 1980. On a new species of the genus *Indodorylaimus* Ali and Prabha, 1973 from *Solanum melongena* L. (Nematoda : Dorylaimidea). —*Curr. Sci.*, 49 (14) : 566-567.

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Fresh faecal samples of goats containing heavy concentrations of eggs of *Haemonchus* spp., *Oesophagostomum* spp. and *Strongyloides papillosus* were exposed to different temperatures ranging from 0 to 40 C in the laboratory.
269. Tripathi, J. C. 1980. Detection and recovery of eggs and infective larvae of gastro-intestinal nematodes from faecal sample of sheep and goats. —*Proc. Workshop Tech. Parasitol. Zool. Surv. India* : 33-37.

The faecal samples are by far the most important because eggs and larvae of all gastro-intestinal nematodes leave the body through this medium. The author has studied the method of detection and recovery of eggs from faecal samples.
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271. Varaprasad, K. S., Khan, E. and Lal, M. 1980. *Paurodontus solani* sp. n. and *P. citri* sp. n. (Nematoda : Neotylenchoidea) with a key to the species of *Paurodontus* Thorne, 1941. —*Indian J. Nematol.*, **10** (2) : 182-188.
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 275. Venkitesan, T. S. and Seshadri, A. R. 1980. Methods of application of DBCP (1, 2-Dibromo-3-Chloropropane) for the control of plant parasitic nematodes. —*Agric. Res. J. Kerala*, **18** (1) : 72-78.
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 277. Yadav, B. S., Nandwana, R. P. and Pathak, A. K. 1980. Estimation of losses caused by the root-knot nematode, *Meloidogyne incognita* (Kofoid and White, 1919) Chitwood, 1949 on sunflower var. *Sunrise*. —*Rajasthan J. Pesticides*, **7** (2) : 65-69.
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- ### 7. ACANTHOCEPHALA
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 - 279a. Gupta, S. P. and Naqvi, M. 1980. Acanthocephalan parasites of fishes. 1. On two new Acanthocephalan parasites of the genus *Mehrorhynchus* Datta, 1940 from marine fishes of Karachi, Pakistan. —*Indian J. Helminth.*, **32** (1) : 80-88.
 - 279b. Gupta, V. and Fatma, S. 1980. On three new species of Acanthocephalan parasites of marine fishes of Mandapam, Tamil Nadu. —*Indian J. Helminth.*, **31** (1) (1979) : 45-53.
Three new acanthocephalan parasites were collected from the intestine of marine fishes viz., *Psethodes erumeri* (Bl. Schn.), *Arius arius* (Blecker) and *Elops saurus* (Linn.) from Mandapam, Tamil Nadu.
 280. Rengaraju, V. and Das, E. N. 1980. A new species of the genus *Centrorhynchus* Luhe, 1911 (Acanthocephala) from India. —*Rec. zool. Surv. India*, **76** (1-4) : 83-85.
A new acanthocephalan species *C. bramae*, is described and compared with its close allies. Its host is a raptorial bird, *Athene brama*, collected from Sholapur.
 281. Sen, J. K. 1980. Collection and preservation of Acanthocephala. —*Proc. Workshop. Tech. Parasitol. Zool. Surv. India* : 41-44.

The life-history of these worms involves at least one intermediate host, or sometimes even two intermediate hosts, of which the second host is referred to as a transport or carrier host.

8. ANNELIDA

282. **Achari, G. P. K.** 1980. Studies on new or little known Polychaetes from the Indian Seas. 4. On a new record of *Sigambra tentaculata* (Treadwell) (Polarigiidae), from the southwest coast of India along with observations on its early larval stages.—*J. mar. biol. Ass. India*, 17 (2) (1975) : 239-241.
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Copepoda formed the predominant group except in the southern region where a swarm of pelagic tunicates reduced their contribution to only 19% of the total zooplankton count.
284. **Ali, S., Haque, S. A. and Majid, A.** 1980. The effect of sewage effluent on benthic macro-invertebrates in the river Buriganga, Dacca, Bangladesh.—*Envir. Options for developing countries, Diam, Jubilee Symp.*, : 3. (Abstr.)
285. **Chandra, M. and Mukherjee, R.** 1980. On the distribution of leeches in Himachal Pradesh, India.—*J. zool. Soc. India*, 29 (1-2) (1977) : 88.
286. **Handa, S. M.** 1980. Cytotaxonomy of the Indian earthworm : Chromosomes and their behaviour in two species of the genus *Megascolex* (Oligochaeta : Megascolecidae).—*Res. Bull. Punjab Univ.*, 28 (3-4) (1977) : 171-174.

The chromosomes and their behaviour in two species of the genus *Megascolex* have been studied.

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288. **Julka, J. M. and Chandra, M.** 1980. On a small collection of leeches collected during the Daphabum and Subansiri expeditions, Arunachal Pradesh.—*J. Bombay nat. Hist. Soc.*, 77 (1) : 160-161.
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290. **Pai, C. G. A. and Prabhoo, N. R.** 1980. Erpobdellid leech as a potential predator of larval *Culex* in Kerala.—*Entomon*, 5 (3) : 203-205.

The leech occurring in paddy fields in Kerala, feeds on *Culex* larvae in nature.

291. **Parulekar, A. H., Dhargalkar, V. K. and Singhal, S. Y. S.** 1980. Benthic studies in Goa estuaries : Part III.—Annual cycle of macrofaunal distribution, production & trophic relations.—*Indian J. mar. Sci.*, 9 (3) : 189-200.

The present communication covers the annual cycle of environmental and biotic factors in relation to distribution, production, trophic relations and other relevant aspects of benthic macrofauna in the Mandovi, Cumbarjua canal and Zuari estuarine system.

292. Rao, D. S. and Sarma, D. V. R. 1980. Ecology of *Nephtys oligobranchia* Southern from the Vasishta Godavari Estuary. —*Indian J. mar. Sci.*, 9 (3) : 218-221.
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294. Ray, R. 1980. Parental care of a glossiphoniid leech, *Helobdella nociva* Harding. —*Bull. zool. Surv. India*, 3 (1 & 2) : 121.
295. Ray, R. 1980. Collection, preservation, rearing and maintenance of vector leeches and their use in laboratory experiments. —*Proc. Workshop Tech. Parasitol. Zool. Surv. India* : 129-133.
- Leeches are well known for their role as intermediate or carrier hosts of some haemo-protozoans and some metazoan parasites.
296. Reddy, M. V. 1980. Mass migration and mortality of *Amyntas* (= *Pheretima*) *alexandri* (Beddard) (Megascolecidae : Oligochaeta). —*Curr. Sci.*, 49 (15) : 606.
- Mass migration is an occasional phenomenon seen in earthworms. This had been recorded from Burma in *Perionyx* sp.
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- Seven chemicals were tested for their relative as well as residual repellency against the land leech and the water leech respectively.
298. Soota, T. D. and Halder, K. R. 1980. On some earthworms from Western Himalayas. —*Rec. zool. Surv. India*, 76 (1-4) : 195-205.
- This paper deals largely with the earthworms collected from Western Himalayas. 19 species belonging to 10 genera and 3 families have been discussed.
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- The paper deals with ten species of earthworms from the Andaman and Nicobar Islands. Six of the records are new for the area. Interesting morphological variations in three species have been included.
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302. Srinivasan, M. 1980. Life cycle and seasonal fluctuation of chaetogantha in Ennore estuary, Madras. —*Bull. zool. Surv. India*, 3 (1 & 2) : 55-61.
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305. Subba Rao, B.V.S.S.R. and Rao, T. V. 1980. Aquatic oligochaetes as indicators of organic pollution in Visakhapatnam harbour. —*Indian J. mar. Sci.*, 9 (3) : 222.
306. Subba Rao, B.V.S.S.R., Rao, T. V., Reddy, A. C. S. and Venkataratnam, D. 1980. Salinity tolerance and preference of enchytraeid oligochaete *Enchytraeus barkudensis*. —*Indian J. mar. Sci.*, 10 (4) : 290-292.
307. Vasisht, H. S. 1980. A method for the freshwater oligochaetes for histological studies. —*Res. Bull. Panjab Univ.*, 28 (3-4) (1977) : 195-196.

9. ECHIURIDA

308. Singhal, R. N. and Datta Gupta, A. K. 1980. Ecological notes on a few echiuran animals. —*Indian J. mar. Sci.*, 9 (2) : 139-140.

10. MOLLUSCA

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310. Agrawal, H. P. 1980. Some observation on the seasonal variation in the gonads of *Indonata caerulea* (Lea) (Mollusca : Unionidae). —*Bull. zool. Surv. India*, 3 (1 & 2) : 87-92.
311. Alagarwami, K. 1980. Review on productions of mussel seed. —*Bull. cent. mar. Fish. Res. Inst.*, No. 29 : 22-26.
312. Appukuttan, K. K. 1980. Predation on mussels in culture by silver bream, *Rhabdosargus sarba*. —*Bull. cent. mar. Fish. Res. Inst.*, No. 29 : 44-45, pl. 1.
313. Appukuttan, K. K. et al. 1980. Culture of brown mussel at Vizhinjam. —*Bull. cent. mar. Fish. Res. Inst.*, No. 29 : 30-32, pl. 1.
314. Appukuttan, K. K. and Nair, T. P. 1980. Fishery and biology of the brown mussel, *Perna indica* Kuriakose & Nair. —*Bull. cent. mar. Fish. Res. Inst.*, No. 29 : 5-9, pl. 1.
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The effects of salinity variation on the survival of *M. striata* (Linn.) in Cochin Harbour are discussed here.
317. Daniel, A. 1980. Environment and marine life. —*Zoologiana*, 3 (1979) : 15-21, pl. 1.
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Eight species of molluscan wood-borers under eight genera belonging to two families collected from South Andamans, India are dealt with. Out of these, seven species are new records from Andaman and Nicobar Islands.

319. Desai, K., Dave, H. and Patel, B. 1980. Effects of heavy metal : Hg., Ag., Pb. on the fertilization and embryonic development in *O. cucullata*, *O. gryphoides* and *O. rivularis* of the Gulf of Kutch. —*Envir. Options for developing countries*, Daim. Jubilee Symp., : 15 (Abstr.)
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321. Easterson, D.C.V. and Mahadevan, S. 1980. Review of open sea environmental conditions along Indian coast. —*Bull. cent. mar. Fish. Res. Inst.*, No. 29 : 17-21.
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The present investigations deal with the cytophysiological aspect of the non-germinal gonadal elements of the gastropod ovotestis.
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Descriptions of two species of *Perna* viz. *P. viridis* and *P. indica* found along Indian coast are given.
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This programme carried out at Calicut during 1975-1980 demonstrated that mussels can be grown to marketable size in a short period of 5 months by adopting rope culture technique.
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337. **Rajan, S. J.** 1980. Experiments on submerged raft for open sea mussel culture. —*Bull. cent. mar. Fish. Res. Inst.*, No. 29 : 46-47, Pl. 1.
338. **Ramakrishna, G. V. and Simha, S. S.** 1980. Effects of parasitism on the neurosecretory cells of the host, *Lymnaea luteola*. —*Curr. Sci.*, 49 (4) : 160-162.
- The studies conducted on different aspects of host parasite relationship of the two freshwater snails, have revealed that the larval trematodes cause structural changes and bring about physiological aberrations in these molluscan hosts.
339. **Rangarajan, K. and Narasimham, K. A.** 1980. Mussel farming on the east coast of India. —*Bull. cent. mar. Fish. Res. Inst.*, No. 29 : 39-41, pl. 1.
340. **Rao, M. V. R. and Ramamurthi, R.** 1980. Effect of sub-lethal concentration of semithion on some biochemical constituents of the freshwater snail *Pila globosa* (Swainson). —*Geobios*, 7 (6) : 247-250.
341. **Raut, S. K.** 1980. Preliminary observations on the breeding pond snail, *Viviparus bengalensis* (Lamarck) (Gastropoda : Viviparidae) in West Bengal. —*Bull. zool. Surv. India*, 3 (1 & 2) : 47-50.
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- In the paper, the constraints for expansion of massel culture into the level of a small industry have been identified.
344. **Singh, M.** 1980. Giant land snail (*Achatina fulica* Ferussae) —a pest. —*Geobios*, 7 (1) : 34-35.

345. Subba Rao, N. V. 1980. On two rare species of Neritidae (Mollusca : Gastropoda) from India. — *Bull. zool. Surv. India*, 2 (2 & 3) : 159-162.
346. Subba Rao, N. V. 1980. On the Conidae of Andaman and Nicobar Islands. — *Rec. zool. Surv. India*, 77 (1-4) (1979) : 39-50.
- A complete list of species of cones occurring on these islands with notes on the habitats of some common species is presented here.
347. Subba Rao, N. V. 1980. New record of *Nerita* (*Theliostyla*) *patula* Recluz 1841 (Mollusca : Gastropoda) from Andaman and Nicobar Islands with a note on the species. — *Rec. zool. Surv. India*, 77 (1979) : 71-74.
- Nerita* (*Theliostyla*) *patula* Recluz is recorded for the first time from Indian Ocean. A detailed description and synonymy are given.
348. Subba Rao, N. V. 1980. Collection and preservation of vector molluscs. — *Proc. Workshop Tech. Parasitol. zool. Surv. India* : 123-128.
- Molluscs act as the main or one of the intermediate hosts of the digenetic trematodes, cestodes and nematodes.
349. Subba Rao, N. V., Das, A. K. and Mitra, S. C. 1980. On freshwater molluscs of Andaman and Nicobar Islands. — *Rec. zool. Surv. India*, 77 (1-4) (1979) : 215-245.
- A comprehensive account of the freshwater molluscs of the Andaman and Nicobar Islands is given in the paper. Fifty one species of gastropods and bivalves are reported from the islands, and ten of them are recorded for the first time. Keys to the identification of families, genera and species are given.
350. Subba Rao, N. V. and Surya Rao, K. V. 1980. On a rare nudibranch, *Thoridisa crosslandi* Eliot (Mollusca : Dorididae) from the West coast of India. — *Bull. zool. Surv. India*, 2 (2 & 3) : 219.
351. Suryanarayanan, H. and Alexander, K. M. 1980. Biochemical studies on the molluscan muscle. II. Studies on the muscles of some Bivalves and Cephalopods. — *J. Anim. Morph. Physiol.*, 27 (1 & 2) : 180-189.
352. Tiwari, K. K., Das, A. K., Dev Roy, M. K. and Khan, T. N. 1980. On the wood borers of mangroves of Andaman and Nicobar Islands, India, with note on the gallery pattern of some insect borers. — *Rec. zool. Surv. India*, 77 (1-4) (1979) : 357-362.
- In the present paper, both the marine and terrestrial borers of the mangrove community of Andaman and Nicobar Islands have been dealt with. The marine borers consist of ten species of teredinid and pholadid bivalves (Mollusca) and one species of isopod (Crustacea) while the terrestrial borers include two species of cerambycid beetles. Gallery pattern of both the species of cerambycid borers is also described.
353. Varma, P. R. G. and Joseph, J. 1980. Canning of squid. — *Fishery Technol.*, 17 (2) : 93-94.
354. Vasanthakumar, G., Chandrakasan, G. and Krishnan, G. 1980. A comparative study of the composition of the collagens of the foot of two lamellibranch molluscs occurring in different habitats. — *J. Biosci.*, 2 (4) : 299-304.
- A comparative study of the collagen of *Lamellidens* sp. has been made.

355. Yadav, U.K.R., Karki, S. B. and Misra, P. N. 1980. Population studies of freshwater snails of a lake and three ponds of Kathmandu Valley, Nepal. —*J. nat. Hist. Mus.*, 4 (1-4) : 33-39.

11. ARTHROPODA

(a) Arachnida

356. Banerjee, B. 1980. Intratree variation in the distribution of the tea red-spider mite *Oligonychus coffeae* (Nietner). —*Acarologia*, 21 (2) (1979) : 216-220.

The red spider mite *O. coffeae*, is a serious pest of tea in north-east India. Intratree variation in the distribution of the pest has been studied.

357. Bhattacharyya, S. K. 1980. Collection and preservation of acarina of medical and veterinary importance. —*Proc. Workshop Tech. Parasitol. zool. Surv. India* : 97-104.

Several parasitic acarina are pathogenic and little is known of others. Some ticks and mites are transmitters of dangerous disease causing protozoa, bacteria and viruses.

358. Bhattacharya, T. and Banerjee, R. 1980. Some cryptostigmatid mites (Acari : Oribatei) from Birbhum district, West Bengal, India. —*Indian J. Acar.*, 4 (1) (1979) : 19-24.

A new subspecies *Epilohmannia pallida indica* and a new species *Pilobatella berlesi*, are described from Birbhum district, West Bengal. *Zygoribatula heteroporosa* Wallwork is considered here as a synonym of *Z. longiporosa* Hammer. This species is reported here for the first time from India

359. Bijwal, D. L. and Dhawedkar, P. G. 1980. Observations on the life cycle of fowl tick (*Argas persicus*) in the laboratory. —*J. N. K. V. V. Res. J.*, 11 (1 & 2) (1977) : 72-74.

360. Bisht, R. S. 1980. New records of Eriophyes galls from Kumaon. —*Geobios*, 7 (1) : 24.

361. Chakkaravarthy, G. and Balasubramanian, M. 1980. Control of cotton mite, *Tetranychus telarius* (Linn.). —*Pesticides*, 14 (12) : 20-22.

362. Chakrabarti, S., Mondal, S. and Roy, A. 1980. A new genus and two species of eriophyid mites (Acarina : Eriophyoidea) from West Bengal. —*Indian J. Acar.*, 4 (1) (1979) : 55-60.

The two new species *Indotegolophus darjeelingensis* infesting *Symplocos* sp. and *Paratetra himalayana* infesting *Potentilla* sp. are described from Darjeeling district, West Bengal. Relationship of the new genus and new species with other known ones are discussed and the species are illustrated.

363. Chari, M. S. and Patel, S. N. 1980. A new record of Phytophagous mite, *Schizotetranychus* sp. (Acarina : Tetranychidae) on *Crotalaria spectabilis* Roth. —*Indian J. Ent.*, 42 (4) : 785-786.

364. Das, L. K. 1980. *Physalis minima* (Solanaceae) —a new host plant of spider mite, *Oligonychus coffeae* Nietner. —*Sci. Cult.*, 46 (6) : 232.

365. Dhooria, M. S. and Bindra, O. S. 1980. Evaluation of different pesticides for the control of *Tetranychus cinnabarinus* (Boisd.) infesting Brinjal in Panjab. —*Indian J. Ent.*, 42 (2) : 271-273.

366. **Dhooria, M. S. and Mann, G. S.** 1980. Chemical control trials using ultra low volume and high volume sprays against spider mite *Tetranychus neocaledonicus* Ander infesting brinjal and longmelon crops in Panjab. —*Indian J. Ent.*, **42** (2) : 269-271.
367. **Gera, R.** 1980. A note on acaricidal action of various insecticidal treatments, tested against red spider mite, *Tetranychus telarius* on egg-plant. —*Indian J. Ent.*, **42** (3) : 516-518.
368. **Gupta, S. K.** 1980. Some observations on litchi leaf curl disease in West Bengal. —*Sci. Cult.*, **46** : 266.
369. **Gupta, S. K.** 1980. New species and records of *Phytoseius* mites (Acarina : Mesostigmata) from South India. —*Bull. zool. Surv. India*, **3** (1 & 2) : 51-54.
370. **Gupta, S. K.** 1980. New species and records of *Paraamblyseius* Muma (Acarina : Phytoseiidae) from India. —*Entomologist's mon. Mag.*, **116** : 33-36.
371. **Gupta, S. K.** 1980. The new Phytoseiidae (Acarina) from North-eastern India. —*Entomologist's mon. Mag.*, **115** : 209-212.
372. **Gupta, S. K.** 1980. New species of *Iphiseius* Berlese and *Paraamblyseius* Muma from India (Acarina : Phytoseiidae). —*Entomologist's mon. Mag.*, **115** : 213-218.
373. **Gupta, S. K. and Ghosh, S. K.** 1980. Some prostigmatid mites (Acarina) from Andaman and Nicobar Islands. —*Rec. zool. Surv. India*, **77** (1-4) (1979) : 189-213.
- A taxonomic account of 30 species of prostigmatid mites belonging to 8 families and 20 genera from Andaman and Nicobar Islands collected during December, 1972—January, 1973 is presented in this paper. This includes 2 new genera, one each of Cunaxidae and Stigmaeidae, and 7 new species, 6 of Cunaxidae and 1 of Stigmaeidae. In addition, 9 species and 7 genera are represented here for the first time from India. All but 2 species are new reports from these islands. A key to the families, genera and species of prostigmatid mites treated in this paper is given.
374. **Gupta, Y. N.** 1980. Some spider mites (Acarina : Tetranychidae) from Andaman and Nicobar Islands with description of three new species. —*Rec. zool. Surv. India*, **77** (1-4) (1979) : 111-117.

A total of 7 species under 5 genera have been identified in a collection from Andaman and Nicobar Islands. Three species, viz., *Aponychus sarjui* sp. n., *Schizotetranychus mansonii* sp. n., *Oligonychus manishi* sp. n., are being described as new to science and *Eotetranychus fremonti* Tuttle and Baker, is first record from India. Besides 3 more species, though recorded for the first time from Andaman and Nicobar Islands, are known from other parts of the world including India.
375. **Haq, M. A.** 1980. A new species of *Xiphobelba* (Acari : Basilobelbidae) from Kerala. —*Indian J. Acar.*, **4** (1) (1979) : 14-18.

This paper includes the description of a new species of Oribatid mite, *X. ismalia* sp. nov. collected from soils in Kerala. This genus is reported for the first time from South India.

376. Khan, M. H. 1980. Ticks and mites affecting animals in Andamans.—*Indian Fmg.*, **29** (11) : 30-31.
377. Kulkarni, D., Raghavan, R. S., Sangvika, V. A., Suryanarayana, C. and Jatkar, V. D. 1980. A preliminary report on the efficacy of scabiezma lotion in the treatment of mange in buffalo calves and dogs. —*Indian vet. J.*, **57** (7) : 591-592.
378. Kumar, R. 1980. Effect of administration of synthethic ecdysone on the moulting of *Palmnaeus bengalensis*.—*Curr. Sci.*, **49** (14) : 563-565.
The effect of administration of a synthetic analogue of ecdysone on the moulting of *P. bengalensis* to initiate moulting has been described.
379. Kumari, K. V., Reddy, G. R. and Babu, K. S. 1980. Effect of a scorpion venom (*Heterometrus fulvipes*) on Mg^{2+} adenosine triphosphatase activity in the cockroach. —*Toxicon*, **18** (3) : 392-394.
380. Lal, L. and Mukharji, S. P. 1980. Seasonal history of three phytophagous mites at Varanasi (U. P.). —*Indian J. Acar.*, **4** (2) (1979) : 61-67.
Chemical factors viz. temperature rainfall and humidity were found to exert a great influence on the population build up of phytophagous mites.
381. Lal, S. S. 1980. Studies on the effect of different levels of concentration on the compatibility of insecticides with fungicides on spider mites infesting cassava (*Manihot esculenta* Crantz).—*Rajasthan J. Pesticides*, **7** (1) : 15-25.
Studies to determine the effect of three levels of concentration on the compatibility of two insecticides with two fungicides against spider mites on cassava were studied.
382. Lal, S. S. and Pillai, K. S. 1980. The effect of tetranychid spider mites infestations on tuber yield of cassava. —*Indian J. Pl. Prot.*, **8** (2) : 128-132.
383. Lal, S. S. and Pillai, K. S. 1980. Field evaluation of pesticides against the mite *Eutetranychus orientalis* (Acari : Tetranychidae) infesting cassava in Kerala. —*Indian J. Acar.*, **4** (2) (1979) : 68-77.
Five field trials were carried out at the Central Tuber Crops Research Institute, Trivandrum, Kerala to evaluate the effectiveness of 27 pesticides against a spider mite *E. orientalis*.
384. Maninder, G. and Ghai, S. 1980. A new species and two new records of the genus *Aegyptobia* Sayed from India (Acarina : Tenuipalpidae). —*Indian J. Ent.*, **42** (2) : 311-314.
385. Mauriya, K. R. and Jamil, Z. 1980. Factors affecting the distribution of house-dust mites under domestic conditions in Lucknow. —*Indian J. med. Res.*, **72** (8) : 284-292.
The present study was undertaken to determine the differences in distribution of mites in various types of floors, mattresses and houses.
386. Mishra, S., Bhaduri, A. K. and Raychaudhuri, D. N. 1980. New records of soil oribatid mites (Acari, Oribatei) from Orissa, India.—*Sci. Cult.*, **46** (6) : 225-227.
A list of 42 species (some identified upto genera) distributed over 40 genera under 26 families are given. All these are new records for Orissa and some of them are also new records for India.

387. Mohanasundaram, M. 1980. Indian eriophyid mites—I. —*Indian J. Acar.*, 4 (1) (1979) : 1-9.

During the course of studies on the eriophyid fauna of South India, the author collected several new species of eriophyid mites.

388. Mohanasundaram, M. 1980. Four new species of *Eriophyids* from South India. —*Oriental Ins.*, 14 (3) : 371-378.

389. Mohanasundaram, M. 1980. Indian eriophyids studies. II. —*Mysore J. agric. Sci.*, 14 (4) : 515-528.

390. Murthy, R. L. N. and Rao, G. N. 1980. *Acaphyllisa parindiae*, a new eriophyid mite pest of tea. —*Curr. Sci.*, 49 (16) : 639-640.

Studies on the biology of the new eriophyid pale mite of tea, *Acaphyllisa parindiae* has been made here.

391. Phanuel, G. J. 1980. Social spider and its host plant relationship. —*Bull. Ent.*; 19 (1-2) (1978) : 208-210.

392. Pramanik, M. M. and Raychaudhuri, D. N. 1980. Description of a new species of *Triplogynium* (Mesostigmata : Triplogyniidae) from India. —*Indian J. Acar.*, 4 (1) (1979) : 10-13.

This paper embodies the description and diagrams of a new species.

393. Puttaswamy and Channabasavanna, G.P. 1980. Effect of temperature and relative humidity on the development and oviposition of *Tetranychus ludeni* (Acari : Tetranychidae). —*Indian J. Acar.*, 4 (1) (1979) : 31-40.

Effect of temperature and humidity on the development and oviposition of the spidermite *Tetranychus ludeni* Zacher, was studied under conditions of 5 constant temperatures between 20 ± 1 and $35 \pm 1^\circ\text{C}$ and 5 relative humidities ranging from 55 ± 3 to 95 ± 3 percent.

394. Puttaswamy and Channabasavanna, G.P. 1980. Life history of *Tetranychus ludeni* (Acari : Tetranychidae) under field conditions. —*Indian J. Acar.*, 4 (1) (1979) : 41-48.

Life history of *T. ludeni* Zacher was studied on potted French bean plants in the field (19.3°C to 28.4°C , 53 to 88% RH). Besides this, the present paper gives an account of the host plants, mode of spread and natural enemies of *T. ludeni*.

395. Puttaswamy and Channabasavanna, G.P. 1980. Competition between *Tetranychus neocaledonicus* and *Tetranychus ludeni* (acari : Tetranychidae). —*Indian J. Acar.*, 4 (2) (1979) : 49-54.

As no information is available on the competition between *T. neocaledonicus* and *T. ludeni*, a study was undertaken using okra, *Abelmoschus esculentus*, as the host plant.

396. Rahman, S.J., Wattal, B.L. and Kumar, K. 1980. A note on water mites (*Arrenurus* sp.) parasitizing *Anopheles annularis* Wulp. *J. Com. Dis.*, 11 (2) (1979) : 89-90.

397. Rahmani, A.R. 1980. A beautiful Indian spider. —*Hornbil*, 2 : 21-22.

398. Rahmani, A. R. 1980. Argiope : a lovely spider. —*News. Nat. Cl. India*, 6 (1) : 14.

399. Ram, S. M. T., Dutt, S. C., Behl, S. M. and Malhotra, D. V. 1980. Comparative efficacy of some acaricides in the control of sarcoptic mange in camels. —*Haryana agric. Univ. J. Res.* : 10 (2) : 298-302.
- The significance of the findings of controlled acaricidal trials on camels has been discussed.
400. Ruprah, N. S., Varma, R. K. and Chhabra, M. B. 1980. Evaluation of some acaricides against psoroptic mange in buffaloes. —*Haryana agric. Univ. J. Res.*, 10 (2) : 309-313.
- Comparative evaluation of three acaricidal agents psoroptic mange in buffaloes was studied in a controlled experiment.
401. Sadana, G. L. and Chhabra, S. C. 1980. Two new species of *Tenuipalpus* Donnadieu (Tenuipalpidae : Acarina) and distributional records of other mites from India. —*Entomon*, 5 (2) : 151-155.
- Two new species of the genus *Tenuipalpus* Donnadieu namely *T. aboharensis* sp. nov. and *T. ludhianaensis* sp. nov. are described. Distributional records of other four species of *Tenuipalpus* are also given.
402. Sadana, G. L. and Kaur, K. V. (Miss) 1980. Feeding intensity and food preference of the salticid spider, *Marpissa tigrina* Tikader. —*Sci. Cult.*, 46 (3) : 114-115.
403. Sandhu, G. S. 1980. New records of mites and beetles associated with maize seeds in Punjab. —*Indian J. Ent.*, 43 (3) : 532-533.
404. Sandhu, P. S. and Kapoor, V. C. 1980. Acarine ectoparasites of rats and mice of Ludhiana (Punjab). —*J. Res. Punjab agric. Univ.*, 15 (4) (1978) : 489-496.
405. Sarma, P. V. and Channabasavanna, G. P. 1980. Population of predatory spiders on grass and rice during kharif 1977. —*Bull. Ent.*, 19 (1-2) (1978) : 204-207.
406. Sheikh, N. A. 1980. Method of obtaining saliva secretion of *Rhipocephalus appendiculatus* (Modified from Tatchell —1967). —*Pakist. J. Sci.*, 32 (3-4) : 173-174.
407. Sivaraman, S. 1980. Pseudoscorpions from South India : A new genus and some new species of the superfamily Garypoidea Chamberlin (Pseudoscorpionida : Diplosphyronida). —*Oriental Ins.*, 14 (3) : 325-343.
408. Sivaraman, S. 1980. Pseudoscorpions from South India : Some new species of the family Atemnidae Chamberlin (Pseudoscorpionida : Monosphyronida) —*Oriental Ins.*, 14 (3) : 345-362.
- The genus *Tamenus* Beier is reported from India for the first time. The *Tullgrenius orientalis* sp. nov. is described and discussed with related species from India and a key is provided.
409. Sivaraman, S. 1980. Two species of Pseudoscorpions from South India (Pseudoscorpionida : Heterosphyronida). —*Entomon*, 5 (3) : 237-241.
- Two new species are described, both from Madras. The relationships with closely allied species are described.
410. Srivastava, S., Bhullar, J. S., Bhalla, O. P. and Dogra, G. S. 1980. Incidence and chemical control of mites on mandarin in Himachal Pradesh. —*Curr. Sci.*, 49 (5) : 200-201.

411. Subburam, V. and Reddy, T. G. 1980. Changes in the oxygen consumption of the maternal animal and maternal and embryonic tissues during the gestation period of the viviparous scorpion, *Heterometrus fulvipes*. —*Curr. Sci.*, **49** (4) : 138-140.
The respiratory metabolism of the maternal animal, and maternal and embryonic tissues of *Heterometrus fulvipes* is studied at different stages of development.
 412. Tandon, N. Hati, A. K. and Thammayya, A. 1980. *Demodex folliculorum* in man. —*Rec. zool. Surv. India*, **76** (1-4) : 139-142.
D. folliculorum was isolated from the face in 2 cases, during the years 1975 and 1976. The mites were isolated and studied.
 413. Tikader, B. K. 1980. Description of a new species of spider of the genus *Neoscona* (Family : Araneidae) from India and some observations on intraspecific colour variation. —*Proc. Indian Acad. Sci.*, **89** (3) : 247-252.
 414. Tikader, B. K. 1980. *Fauna of India—Spider, Family Thomisidae (Crab-spider)* Vol. I. part-1 : 1-311.
 415. Tikader, B. K. and Bal, A. 1980. Studies on spiders of the genus *Zygeilla* Cambridge from India (Araneae : Araneidae). —*Proc. Indian Acad. Sci.*, **89** (3) : 243-246.
 416. Tikader, B. K. and Malhotra, M. S. 1980. *Fauna of India—Spider Family Lycosidae (Wolf-spiders)*. Vol. 1 part 2 : 1-353.
 417. Vijayambika, V. and John, P. A. 1980. Histochemistry of the adult *Lardoglyphus konoi*, a tyroglyphid pest on dried stored fish. —*Bull. Ent.*, **14** (1-2) (1973) : 78-81.
 418. Vijayambika, V., Cicilykutty, A. K. and Balasubramanian, N. K. 1980. Geographic variation in the intensity of infestation of the fish-mite *Lardoglyphus konoi* in Kerala. —*Indian J. Acar.*, **4** (1) (1979) : 25-30.
Counts of *Lardoglyphus konoi* (Sasa and Asanuma) on samples of dried fish collected from warehouses along the southwest coast of Kerala (India) throughout the year 1975, revealed a striking disparity in the intensity of infestation among the different localities of collection.
 419. Vyas, A. B. and Laliwala, S. M. 1980. Certain noteworthy features of respiratory organs of spider *Oecobius putus*. —*J. Anim. Morph. Physiol.*, **27** (1 & 2) : 141-146.
 420. Weilgama, D. J. 1980. Susceptibility of *Boophilus annulatus* (Sensu lato) in Sri Lanka to acaricides. —*Ceylon vet. J.*, **28** (1-4) : 36-42.
- (b) Pycnogonida
421. Daniel, A. and Sen, J. K. 1980. Studies on the Pycnogonids from the collections of the Zoological Survey of India, Calcutta, together with notes on their distribution in the Indian Ocean. —*J. mar. biol. Ass. India*, **17** (2) (1975) : 160-167.
- (c) Crustacea
422. Ahmad, N., Tirmazi, S. S., Akhtar, S. and Younus, M. 1980. On plants and animals found in hyacinth infested waters. —*Pakist. J. Sci.*, **32** (3-4) : 156-162.
 423. Annapurna, C. 1980. On the biotic zonation of benthic ostracodes in the Bimili, Balacheruvu backwaters and Vasishta Godavari estuary. —*Curr. Sci.*, **49** (2) : 80-81.

424. **Biswas, S.** 1980. Cladocerans (Crustacea : Branchiopoda) from Assam and adjacent hill States in North East India. —*Rec. zool. Surv. India*, **76** (1-4) : 93-113.
- The paper deals with Cladocera collections from 3 different ecological niches i. e., a small lake in higher altitude like Ward lake, nursery tanks in Gauhati where fish fries are cultured and natural water logged areas of North Assam.
425. **Desai, K. M., Bhan, S. and Santhakumar, M. J.** 1980. A pilot study of the impact of dye factory effluent. 1. Metabolites of prawns of the Gulf of Kutch, *Metapenaeus kutchensis* and *Penaeus indicus*. —*Envir. Options for developing countries, Diam. Jubilee Symp.*, 16-17 (Abstr.).
426. **Desai, K. M., and Mathai, T. A.** 1980. Studies on effects of fluoride containing media on metabolites and minerals of edible prawn, *Macrobrachium rosenbergii* (de Man) of Narmada river. —*Envir. Options for developing countries, Diam. Jubilee Symp.*, : 17-18 (Abstr.).
427. **Desai, K. M. Santhakumar, M. J. and Bhan, S.** 1980. A pilot study of the impact of dye factory effluent II. On mineral composition of prawns of the Gulf of Kutch. —*Metapenaeus kutchensis* and *Penaeus indicus*. —*Envir. Options for developing countries, Diam. Jubilee Symp.*, : 16 (Abstr.).
428. **Devi, K. S. and Rao, T. S. S.** 1980. Genus *Haloptilus* (Copepoda : Calanoida) from the equatorial region of the Indian Ocean. —*Mahasagar — Bull. natn. Inst. Oceanogr.*, **13** (1) : 67-70.
- The genus *Haloptilus* from the equatorial zone, was represented by 8 species.
429. **George, J. and Nair, V. R.** 1980. Planktonic ostracods of the northern Indian Ocean. —*Mahasagar — Bull. natn. Inst. Oceanogr.*, **13** (1) : 29-44.
- 32 species of ostracods were identified from 712 samples collected from northern Indian Ocean. Two of them belong to Cypridinidae and the rest to Halocyrididae.
430. **Ghauri, A. A. and Mahoon, M. S.** 1980. *Streptocephalus lahorensis*, sp. nov. —*Biologia*, **26** (1-2) : 269-271.
- The present species differs from all the listed species of *Streptocephalus* in the structure of male second antenna.
431. **Ghosh, T. K. and Konar, S. K.** 1980. Toxicity of chemical, wastewaters of paper mills to worms, planktons, molluscs. —*Indian J. envir. Hlth.*, **22** (4) : 278-285.
- This investigation was undertaken to determine the toxicity of these chemicals (individually and in mixutre) to the worms, plankton and mollusc.
432. **Gopalan, U. K., Meenakshikunjamma, P. P. and Purushan, K. S.** 1980. Fungal infection in the tiger prawn (*Penaeus monodon*) and in other crustaceans from the Cochin backwaters. —*Mahasagar — Bull. natn. Inst. Oceanogr.*, **13** (4) : 359-365.
- Infection of the two species of fungi (Phycomycetes) in the tiger prawn and three species in amphipods (*Gammarus* sp.) and tanaeidaceans was observed. The significance of the co-existence between the shrimps and the two species fungi which naturally occur in different environments has been discussed.

433. **Hebbar, K. S. and Hiremath, G. G.** 1980. Effect of freshness on the drip loss and other quality parameters of frozen prawns (*Metapenaeus dobsoni*).—*Mysore J. agric. Sci.*, **14** (4) : 584-588.
434. **Kagwade, P. V.** 1980. Maturity size of the female population of certain commercial prawns from Bombay. —*Indian J. mar. Sci.*, **9** (4) : 294-295.
435. **Kannupandi, T.** 1980. Protein patterns during ontogeny of the xanthid crab, *Rithropanopeus harrisi* (Gould). —*Indian J. mar. Sci.*, **9** (2) : 127-131.
- The patterns of protein, glyco and lipoproteins and 3 isozymes, viz. alkaline phosphatase (AP), lactate dehydrogenase (LDH) and esterase (ES) and their changes during ontogeny in *Rithropanopeus harrisi* (Gould) are reported.
436. **Kannupandi, T. et. al.** 1980. Larvae of the land crab *Cardisoma carnifex* (Herbst.) (Brachyura : Gecarcinidae) reared in the laboratory. —*Indian J. mar. Sci.*, **9** (4) : 271-277.
- Five zoeal stages in addition to a megalopa are observed in the laboratory. The time taken for development from hatching to megalopa is given and the larval stages are illustrated and compared with those of the other known species of this genus.
437. **Kensley, B.** 1980. Anthuridean isopod crustaceans from the International Indian Ocean Expedition, 1960-1965, in the Smithsonian collections. —*Smithson. Contr. Zool.*, No. **304** : 1-37.
- In the family Paranthuridea, four species are recorded, with *Colanthura pigmentata* described as new. In the family Anthuridae, 11 genera are recorded, of which four are described as new : *Alloanthura*, *Diaphoranthura*, *Exallanthura* and *Heteranthura*. Fifteen species are recorded, of which the following 11 are described as new : *Alloanthura sculpta*, *Apanthura microps*, *Cyathura rudloei*, *Diaphoranthura craeensis*, *D. hapla*, *Exallanthura sexipes*, *Haliophasma poorei*, *Heteranthura anomala*, *Malacanthura mombasa*, *Mesanthura protei*, and *Panathura macronesia*.
438. **Khan, M. A.** 1980. Euphausiids of "Zulun" Cruise. —*Biologia*, **26** (1-2) : 1-3.
- Seven Euphausiid species were recognised from the 'ZULUN' cruise samples. Their occurrence and recorded distribution are given.
439. **Khan, S. A. Thomas, M. and Nataraajan, R.** 1980. Principal component analysis in shell selection behaviour of the land hermit crab *Coenobita caripes* Stimpson. —*Indian J. mar. Sci.*, **9** (4) : 293-294.
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The present study has been undertaken to evaluate the effects of persistent pollutants.
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Preying efficiency in the substrata of different concentrations of mud, sand, silt and clay and also in mud from natural habitat was examined with respect to *Penaeus indicus* and *Metapenaeus dobsoni* in order to understand the factors in their natural substrata which affect the preying efficiency and the differences in the degree of adaptation of the two species.
445. Madhupratap, M. 1980. Ecology of the coexisting Copepod species in Cochin backwaters. —*Mahasagar — Bull. natn. Inst. Oceanogr.*, 13 (1) : 45-52.
446. Mathur, N. S. 1980. Ostracoda from the Subathu Formation (Upper Palaeocene to Middle Eocene), Simla Hills. —*Res. Bull. Punjab Univ.*, 28 (3-4) (1977) : 113-130.
Twenty six Ostracoda taxa from the Subathu Formation of the Simla Hills are described.
447. Mulbagal, A. N., Mahajan, S. N. and Ranade, A. M. 1980. Preparation of edible powder from jawla (*Acetes* sp.) prawns. —*Fishery Technol.*, 17 (2) : 127-128.
448. Murugan, T., Divakaran, O., Nair, N.B. and Padmanabhan, K.G. 1980. Distribution and seasonal variation of benthic fauna of the Veli lake, south west coast of India. —*Indian J. mar. Sci.*, 9 (3) : 184-188.
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450. Nagabhushanam, R. and Keshavan, R. 1980. The effect of temperature changes on the yellow chromatophores in the prawn *Macrobrachium kistensis*. —*Bio-research*, 4 (1) : 5-10.
The present study was undertaken to determine (1) the normal behaviour of yellow chromatophores in the genus in relation to temperature and (2) the response of the chromatophores to different concentrations of eyestalk hormones at various temperatures.
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453. Nambiar, V. N. 1980. Bacteriology of spoilage of canned prawns. —*Fishery Technol.*, 17 (1) : 35-39.

454. **Oommen, V. P.** 1980. New records of decapod cephalopods from the Arabian Sea. —*J. mar. Biol. Ass. India*, **17** (2) (1975) : 186-190.
455. **Pillai, N. N.** 1980. Larval development of *Caridina pseudogracilirastris* reared in the laboratory. —*J. mar. biol. Ass. India*, **17** (2) (1975) : 1-17.
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456. **Pillai, P. P.** 1980. On the species of *Pontella* Dana and *Pontellopsis* Brady of the International Indian Ocean Expedition Collections (1960-1965). —*J. mar. biol. Ass. India*, **17** (2) (1975) : 129-146.
The collections were made from 87 stations scattered over Arabian Sea, Bay of Bengal, C., S.E., & S. W. parts of Indian Ocean.
457. **Prasad, R. R., Tampi, P. R. S. and George, M. J.** 1980. Phyllosoma larvae from the Indian Ocean collected by the *Dana* expedition 1928-1930. —*J. mar. biol. Ass. India*, **17** (2) (1975) : 56-107.
1983 larvae were collected of Palinuridae and Scyllaridae distributed over 22 species & 9 genera.
458. **Premkumar, V. K. and Daniel, A.** 1980. Distribution pattern of the economically important spiny lobsters of the genus *Panulirus* White, in the Indian Ocean. —*J. mar. biol. Ass. India*, **17** (2) (1975) : 36-40.
459. **Radhakrishnan, C. K. and Samuel, C.T.** 1980. Prospects of fishery, utilisation and culture of crabs in India. —*Fishery Technol.*, **17** (2) : 67-69.
Investigations on the fishery, utilization and development of the crabs in Indian waters have been reviewed.
460. **Rajaram, L. K. and Krishnaswamy, S.** 1980. A note on the similarity in the distribution of *Sapphirina* (Copepoda : Crustacea) and *Salpa* (Thaliacea : Tunicata) in the North-Western Indian Ocean. —*Mahasagar—Bull. natn. Inst. Oceanogr.*, **13** (1) : 71-72.
461. **Ram, L.** 1980. Occurrence of *Ilyocypris spinifer* Herrick 1884 (Crustacea : Cladocera : Macrothricidae) in Bihar. —*Bull. zool. Surv. India*, **2** (2 & 3) : 225.
462. **Ramakrishna, G.** 1980. Systematic studies of the genus *Burmoniscus* Collinge with remarks on Cavernicolous isopods of India. —*J. zool. Soc. India*, **29** (1-2) (1977) : 86-87.
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The Crustacea, embrace forms, play a dominant role in the economy of man. The author has discussed the techniques of collection and preservation of crustaceans.
464. **Rane, P. D. and Harshey, D. K.** 1980. New record of *Latonopsis fasica* Daday (Cladocera : Crustacea) from India. —*Sci. Cult.*, **45** (11) : +56.
465. **Ravindranath, K.** 1980. On the eulittoral palaemonid shrimp (Crustacea, Decapoda) of Visakhapatnam Coast. —*J. Bombay nat. Hist. Soc.*, **76** (1) (1979) : 189.
466. **Reddy, Y. R.** 1980. Report of *Leptocaris brevicornis* (Van Douwe, 1904) (Copepoda, Harpacticoida) from India. —*Curr. Sci.*, **49** (4) : 165.
This is the first report of species from Indian subcontinent.

467. Rege, M. S., Joshi, S. S. and Karande, A.A. 1980. Breeding in *Balanus amphitrite amphitrite* Darwin inhabiting polluted waters off Bombay coast. —*Indian J. mar. Sci.*, 9 (1) : 15-18.
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- The area south of Ganapathipule was relatively rich in zooplankton and the highest biomass recorded off Ratnagiri was 55.6 ml/100m³. Copepoda, Mollusca, Decapoda, Chaetognatha, Tunicata and fish eggs and larvae were the major groups in the zooplankton population. Abundance of bivalve and decapod larvae in the coastal waters indicate the potential fishery resources of these groups in the central west coast of India.
474. Sudarsan, D. and Joseph, P. J. 1980. On the location of a potential prawn fishing ground off the West Bengal Coast. —*J. mar. biol. Ass. India*, 17 (2) : 247-250.
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- Three zoeal stages and a megalopa have been observed during development in the laboratory (sal. 30±1%, temp. 29°±1°C). Characteristic of the zoeal stages and the megalopa are described and compared with other known species of this genus.
476. Vijayaraghavan, S. and Ramadhas, V. 1980. Conversion efficiency in the shrimp, *Metapenaeus monoceros* (Fabricius), fed on decomposed mangrove leaves. —*Indian J. mar. Sci.*, 9 (2) : 123-125.
- (d) Myriapoda
477. Ahmed, S. 1980. On a collection of centipedes (Scolopendromorpha : Scolopendridae and Cryptopidae) from Andaman and Nicobar Islands. —*Rec. zool. Surv. India*, 77 (1-4) (1979) : 25-30.
- This paper gives a systematic account of Scolopendridae and Cryptopidae from Andaman and Nicobar Islands, India and deals with 17 species under 7 genera. Out of these, 8 species are

recorded for the first time from Andaman and Nicobar Islands. Distributional records of all the species are included.

478. Jeekel, C. A. W. 1980. A revision of the Burmese Paradoxosomatidae (Diplopoda, Polydesmida) in the Museo Civico di Storia Naturale at Genova (Part III). —*Tijd. Ent.*, **123** (3) : 71-88.

The genus *Antheromorpha* Jeekel, 1968, is diagnosed and its relationship with other genera in the tribe Orthomorphiini is discussed. Redescriptions of a number of its species from Burma originally described by Pocock, 1895, under the names of *Orthomorpha miranda*, *O. melanopleuris*, *O. bistriata*, *O. bivittata*, *O. comotti* and *O. pardatis* are given and their relationship is discussed. The distributional pattern of the species of the group of genera to which *Antheromorpha* belongs, and the relative abundance of them in Burma, Borneo and Java, seems to indicate a dispersal route which bypassed the Malay Peninsula and Sumatra.

479. Kothari, M., Athalye, R. and Joshi, P. V. 1980. Histochemical studies on the salivary glands of *Phyllogonostreptus nigrolabiatus* (Newport) (Diplopoda : Myriapoda). II : Activity of alkaline phosphatase and nonspecific esterase. —*Bioviyanam*, **6** (1) : 93-96.
480. Deleted.
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(e) Insecta

A. General Insects

482. Das, L. K. and Bhattacharya, S. P. 1980. Protect jute from pests. —*Indian Fmg.*, **29** (11) : 15-17.
483. Gahukar, R. T. and Jotwani, M. G. 1980. Present status of field pests of sorghum and millets in India. —*Trop. Pest Mgmt.*, **26** : 138-151.

The incidence, economic importance, ecology, biology and control of common pests of sorghum and millets in India are described.

484. Garg, A. K. and Sethi, G. R. 1980. Succession of insect pests in kharif paddy. —*Indian J. Ent.*, **42** (3) : 482-487.
485. Jacob, S. A. 1980. Pests of ginger and turmeric and their control. —*Pesticides*, **14** (11) : 36-39.
486. Lal, M. N. and Verma, S. K. 1980. Save your paddy crop from insect pest. —*Indian Fmr's Dig.*, **13** (5 & 6) : 29-32.
487. Mehrotra, K. N. 1980. Entomological research : retrospect and prospects. —*Indian Fmg.*, **30** (7) : 65-69.
488. Mehrotra, K. N. 1980. Physiological ecology and insect population —*Bull. Ent.*, **19** (1-2) (1978) : 1-7.
489. Nagalingam, B. and Punnaiah, K. C. 1980. Some new insect pests of mustard (*Brassica campestris* L.). —*Curr. Res. mon. Newsl.*, **9** (1) : 15.
490. Nandakumar, N. V., Bhaskar, S. U., Rao, M. G., Hariharan, N. V. and Majumder, S. K. 1980. Cholinesterase antagonistic properties of *Parthenium hysterophorus* extracts, and its possible role as pest controlling agent. —*Physiol. Ecol.*, **5** (1) : 46-48.

491. **Prakash, A., Pasalu, I. C. and Mathur, K. C.** 1980. Save stored paddy from insects.—*Indian Fmg.*, **30** (6) : 21 & 32.
492. **Rohilla, H. R., Singh, H. V., Gupta, D. S. and Singh, K.** 1980. Pest complex other than diseases of sunflower *Helianthus annuus* in Haryana. —*Indian J. Pl. Prot.*, **8** (2) : 177-182.
493. **Sidhu, A. S. and Dhawan, A. K.** 1980. Seasonal abundance of different insects pests on desi cotton (*Gossypium arboreum* L.). —*J. Res. Panjab Univ.*, **17** (3) : 275-281.
494. **Singh, S. P., Verma, A. N. and Bhanot, J. P.** 1980. Insect and mite pests of guar and their control. —*Guar Newsl.*, **2** : 47-51.
495. **Sinha, K. K., Ghosh, G. C., Chakraborti, D. P. and Dhua, S. P.** 1980. Field evaluation of some fertilizer-pesticide mixtures as foliar application in rice (var. jaya). —*Pesticides*, **14** (1) : 5-8.
Combined application of urea and insecticides may go a long way to minimize the cost of the rice crop. The paper deals with the evaluation of the mixture as foliar application in rice in 1975 and 1976 kharif season.
496. **Sithanantham, S.** 1980. Effects of insecticide application on selected arthropod populations in sugarcane crop. —*Indian J. Pl. Prot.*, **8** (1) : 85-88.
497. **Tandon, P. L. and Srivastava, R. P.** 1980. New records of parasites and predators of important insect pests of mango. —*Entomon*, **5** (3) : 243-244.
498. **Verma, K. K.** 1980. A double embedding method for microtomy of entire insects. —*Bull. Ent.*, **17** (1-2) (1976) : 102-104.
499. **Verma, S.** 1980. Evaluation of insecticides against pests and predator of the mustard crop. —*Indian J. Ent.*, **42** (4) : 582-591.
500. **Yadav, T. D.** 1980. Toxicity of DDT and lindane against thirteen species of stored product insects. —*Indian J. Ent.*, **42** (4) : 671-674.

B. Insect Orders

(i) Thysanura

501. **Hazra, A. K.** 1980. On a new species of *Stylifera* (Lepismatidae : Thysanura : Insecta) from India. —*Bull. zool. Surv. India*, **2** (2 & 3) : 187-191.

(ii) Collembola

502. **Mitra, S. K.** 1980. Environment and soil life. —*Zoologiana*, **3** (1979) : 27-28, 1 pl.
503. **Mitra, S. K. and Dallai, R.** 1980. Studies on the genus *Campylothorax* Schott, 1893 (Collembola ; Entomobryidae : Paronellinae). —*Monitore zool. ital. (Ital. J. Zool.)*, No. 9 (Suppl. XIII) : 273-321.
504. **Prabhoo, N. R. and Muraleedharan, V.** 1980. A new species of *Tomocerus* (S. Str.) (Tomoceridae : Collembola) from India. —*Entomon*, **5** (3) : 207-210.
A new species of Collembola, *Tomocerus* (S. Str.) *mitrai* has been described from the North West Himalayas in India.
505. **Singh, J., Mahajan, S. V. and Singh, R. K.** 1980. Sampling, extraction and precision regarding some statistical studies for population ecology of soil mesofauna.—*Bull. Ent.*, **19** (1-2) (1978) : 130-145.

(iii) Ephemeroptera

506. Lamba, B. S. and Bhatnagar, R. K. 1980. Fauna of Corbett National Park. —*Cheetal*, **21** (2-3) (1979) : 43-47.

(iv) Odonata

507. Datta, K. 1980. Ecological niche of dragonfly nymph in temporary tropical pond. —*J. Anim. Morph. Physiol.*, **27** (1 & 2) : 234-243.

Nymphs of *Brachythemis contaminata* were studied and found to be in the cosmopolitan food niche of the complex food web of a pond situated in Banaras Hindu University, Varanasi where water existed for 10 months of the year followed by complete drought condition in summer months.

508. Kumar, A. 1980. Studies on the life history of Indian dragonflies, *Ceragrion coromandelianum* (Fabricius) (Coenagrionidae : Odonata). —*Rec. zool. Surv. India*, **76** (1-4) : 249-258.

Life history of *C. coromandelianum* has been studied in the field and laboratory. Specimens were reared from egg to adult.

509. Kumar, A. 1980. Biology of Indian dragonflies with special reference to seasonal regulation and larval developments. —*Bull. Ent.*, **17** (1-2) (1976) : 37-47.

510. Mitra, T. R. and Lahiri, A. R. 1980. Note on the medioanal link in *Agriocnemis debreui* Fraser (Insecta : Odonata : Coenagrionidae) of Calcutta. —*J. zool. Soc. India*, **30** (1-2) : 79-80.

511. Prasad, M. 1980. The Odonata of Garhwal Hills. —*Bull. Ent.*, **15** (1-2) (1974) : 41-55.

512. Shukla, G. S. and Mishra, P. K. 1980. Bioassay studies on effects of carbamate insecticides on dragonfly nymphs. —*Indian J. envir. Hlth.*, **22** (4) : 328-334.

(v) Plecoptera

513. Zwick, P. 1980. The genus *Neoperla* (Plecoptera : Perlidae) from Sri Lanka. —*Oriental Ins.*, **14** (2) : 263-269.

514. Zwick, P. and Sivec, I. 1980. Beitrage zur Kenntnis der Plecoptera des Himalaya. —*Ent. Basiliensia*, **5** : 59-138.

New descriptive and/or faunistic data are presented for stoneflies (Plecoptera) from Himalayas, from Pakistan to Assam. Of 75 species, 63 have been identified and several have been redescribed from types and/or fresh material.

(vi) Orthoptera

515. Ahmed, F. and Ahmed, M. K. 1980. Desert locust invasion in Pakistan. —*Metaleptea*, **2** : 73-76.

The life cycle of *Schistocerca gregaria* in Pakistan is briefly described, including breeding seasons and areas, and oviposition and development.

516. Ali, S. 1980. Record of damage to certain vegetable and medicinal plants by Bombay locust, *Patanga succincta*. —*J. scient. Res.*, **2** (3) : 227-229.

517. Bhide, M. 1980. Cytological observations in the corpus luteum and resorptive bodies of *Poecilocerus pictus* Fabr. —*J. scient. Res.*, **2** (3) : 191-195.

The cytological changes in resorptive bodies of *P. pictus* have been observed.

518. Garg, A. K. and Sethi, G. R. 1980. Efficacy of granular systemic insecticides against paddy pests. —*Rajasthan J. Pesticides*, **7** (2) : 51-64.

519. **Mahto, Y. and Bhanotar, R. K.** 1980. Bio-ecological studies of acridids of Delhi region. I. Bionomics of *Eyprepocnemis alacris impicta* Uvarov under variable temperature and humidity conditions. —*Bull. Ent.*, **18** (1-2) (1977) : 1-24.
520. **Mahto, Y. and Bhanotar, R. K.** 1980. Bio-ecological studies on acridids of Delhi region. II. Geographic distribution of genera and species.—*Bull. Ent.*, **18** (1-2) (1977) : 25-45.
521. **Majeed, Q. and Aziz, S. A.** 1980. Preference of sand moisture for oviposition and development of eggs of *Gastrimargus transversus* Thunb. under different conditions of temperature and relative humidities. —*J. ent. Res.*, **4** (1) : 51-56.
522. **Mittal, O. P. and Soni, R. M.** 1980. Chromosomes in the male germ-cells of two species of grasshoppers. —*Res. Bull. Panjab Univ.*, **28** (3-4) (1977) : 205-206.
523. **Mohamed, U. V. K. and Murad, H.** 1980. Histomorphology of the malpighian tubules of *Spathosternum praticiniferum* Wlk. (Orthoptera : Tettigoniidae).—*J. Anim. Morph. Physiol.*, **27** (1 & 2) : 160-164.
524. **Muralirangan, M. C.** 1980. On the food preference and the morphological adaptations of the gut of some species of Orthoptera. —*Curr. Sci.*, **49** (6) : 240-241.
Food preference among orthopterans can be correlated with certain morphological features of the digestive system.
525. **Narayanan, C. R., Singh, R. P. and Sawaikar, D. D.** 1980. Phagodeterency of various fractions of neem oil against *Schistocerca gregaria* Forsk. —*Indian J. Ent.*, **42** (3) : 469-472.
526. **Narula, J. S.** 1980. Periodicity of crickets on light in Delhi. —*Bull. Ent.*, **17** (1-2) (1976) : 101-102.
527. **Pawar, A. D., Divakar, B. J. and Sain, M.** 1980. A note on *Oxya nitidula* feeding on water hyacinth. —*Indian J. Pl. Prot.*, **7** (2) (1979) : 213.
528. **Qureshi, Q. G., Dabi, R. K. and Sharma, S. K.** 1980. Note on triphenyl tin acetate as a feeding deterrent to *Chrotogonus trachypterus* Blanch. —*Indian J. agric. Sci.*, **50** (10) : 799-800.
529. **Roonwal, M. L.** 1980. Eye-stripes and pigmentation in grasshoppers (Orthoptera : Acridoidea) : types, biological significance and applied importance. —*Rec. zool. Surv. India*, **76** (1-4) : 147-188.
The present account is a comparative study of the distribution and characteristics of eye-stripes and other types of pigmentation in a considerable number of Acridoidea.
530. **Sachan, J. N., Gangwar, S. K. and Katiyar, J. N.** 1980. Field crickets damaging crops in North Eastern Hill Region. —*Indian J. Ent.*, **42** (3) : 526-527.
531. **Saxena, V. S.** 1980. Carene ethyl ether and fractions of anethi oil as antifeedant. —*Indian J. Ent.*, **42** (4) : 780-782.
532. **Singh, J. and Singh, C.** 1980. Concentrated breeding of the tree locust, *Anacridium rubrispinum* Bei Bienko, in Kutch district of Gujarat. —*Bull. Ent.*, **18** (1-2) (1977) : 100.
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534. Singh, R. P. and Pant, N. C. 1980. *Hymenocallis littoralis* Salisb. as anti-feedant to desert locust, *Schistocerca gregaria* Forsk.—*Indian J. Ent.*, **42** (3) : 460-465.
535. Singh, R. P. and Pant, N. C. 1980. Investigation on the antifeedant property of subfamily Amaryllioideae against desert locust, *Schistocerca gregaria* Forsk. —*Indian J. Ent.*, **42** (3) : 465-468.
536. Sinha, K. M. and Agarwal, S. M. 1980. Diagnosis of a cave-gryllid, *Kempiella shankari* n. sp. (Orthoptera : Phalangopsidae). —*Bull. Ent.*, **14** (1-2) (1973) : 97-100.
537. Usmani, M. K. and Shafee, S. A. 1980. Female genitalia in some Indian species of Pyrgomorphinae (Orthoptera : Acrididae). —*J. ent. Res.*, **4** (1) : 41-44.
538. Deleted.
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540. Vasanth, M. 1980. Two new species of crickets of the genus *Turanogryllus* Tarbinskii (Orthoptera : Gryllidae) from Maharashtra.—*Biovigyanam*, **6**(2) : 115-119.
541. Venkatesh, M. V., Chandra, S. and Singh, D. P. 1980. Selective breeding and occurrence of non-swarming desert locust population during recession in Rajasthan desert. —*Bull. Ent.*, **17** (1-2) (1976) : 48-52.
- An attempt has been made to examine the exhaustive breeding and population data of 12 years' recession (1963-74) of Western Rajasthan and to see and estimate the relative susceptibilities of its various geographic regions.
542. Verma, M.B. and Kushwaha, K.S. 1980. Biology and external morphology of forage pests. VII. Grasshoppers, *Chloebora crassa* Walker and *C. marshalli* Henry. —*Bull. Ent.*, **13** (2) (1972) : 69-94.
543. Zutshi, M. and Saxena, Y. 1980. Effect of different insecticides on egg laying, egg hatching and incubation period of *Gryllodes sigillatus* Walker and *Acheta domesticus* L. —*J. envir. Biol.*, **1** (1) : 35-40.

(vii) Dermaptera

544. Ali, S. 1980. Earwig as a predator on the eggs of the Bombay locust, *Patanga succincta* Linn. —*J. scient. Res.*, **2** (3) : 153-154.
545. Ghaisas, P. S. and Ranade, D. R. 1980. Some observations on copulation, parental care and growth in Earwig *Anisolabis annulipes* Lucas (Dermaptera : Labiduridae) from Poona. —*J. Anim. Morph. Physiol.*, **27** (1 & 2) : 14-17.
- Anisolabis annulipes* (Lucas) was reared in laboratory. Observations were made on courtship, copulation, parental care and post-embryonic development.
546. Mishra, A. and Dash, M. C. 1980. Population dynamics of *Nala lividipes* (Dermaptera : Labiduridae). —*Oriental Ins.*, **14** (1) : 63-71.
- Nala lividipes* (Dufour) is reported for the first time from Orissa. Population study shows two annual peaks in September and May.
547. Srivastava, G. K. 1980. A new species of *Oranopygia* (Dermaptera : Pygidicranidae) from India. —*Entomologists' mon. Mag.*, **115** : 73-77.

(viii) Dictyoptera

548. **Bhatia, S. S.** 1980. Some features of the respiratory mechanism in *Periplaneta americana* (Linn.). —*Indian J. Ent.*, **42** (2) : 173-179.
549. **Khan, A. M.** 1980. Bacteria associated with four species of insects. —*Bull. Ent.*, **15** (1-2) (1974) : 38-40.
550. **Pandey, A. and Habibulla, M.** 1980. Serotonin in the central nervous system of the cockroach, *Periplaneta americana*. —*J. Insect Physiol.*, **26** (1-6) :
The purpose of the present work is to study serotonin in cockroach, *P. americana* nervous system, because of its putative neurotransmitter nature, and also its behavioural effects. Estimations of serotonin in the brain of the cockroach were performed, and the effects of PCPA and reserpine on the function and metabolism of serotonin were investigated.
551. **Sandhu, G. S. and Varma, G. C.** 1980. Control of an infestation by the German cockroach, *Blattella germanica* (L.) in a parasite rearing laboratory. —*Int. Pest Control.*, **22** (3) : 58, 60, 65.
552. **Saxena, Y. and Raizaday, D.** 1980. Effects of insecticidal application on the egg laying and egg hatching of *Periplaneta americana* (L.). —*Rajasthan J. Pesticides*, **7** (1) : 34-38.
553. **Sidhu, R. K. and Misra, S. D.** 1980. Growth of mantis, *Humbertiella similis* G. Tos. fed on *Drosophila* flies. —*Indian J. Ent.*, **42** (1) : 106-109.
554. **Sidhu, R. K. and Misra, S. D.** 1980. Consumption and utilization of *Drosophila* flies by *Humbertiella similis* G. Tos. (Dictyoptera : Mantidae). —*Entomon*, **5** (3) : 215-217.

Consumption index, growth rate etc. of *H. similis* feeding on *Drosophila* are presented.

555. **Thakare, V. K., Patil, H. N. and Raina, S. K.** 1980. *In vivo* studies of glucose conversion/utilization rate in the haemolymph of *Periplaneta americana* and *Mylabris pustulata*. —*J. Anim. Morph. Physiol.*, **27** (1 & 2) : 190-193.
The glucose level in the haemolymph of *M. pustulata* and *P. americana* was studied qualitatively. The conversion/utilization rate was faster in cockroaches than the beetles.
556. **Upadhyay, K. D., Katiyar, R. R., Misra, B. P. and Mathur, Y. K.** 1980. Bionomics of *Creoboter urbana* Fabr. feeding on *Oraspedia remotata* Guenee. —*Bull. Ent.*, **17** (1-2) (1976) : 69-72.

(ix) Isoptera

557. **Agarwal, V. B.** 1980. The effects of various temperatures and relative humidities on the survival of workers and soldiers in *Odontotermes microdentatus* Roonwal & Sensarma (Isoptera : Termitidae). —*Rec. zool. Surv. India*, **76** (1-4) : 71-77.
Temperature and humidity behaviour of any species of the fungus-growing termite is not known at all. This work was taken-up with a view to fill the existing gap.
558. **Bose, G.** 1980. A further contribution to the study of termite fauna of Andaman and Nicobar Islands. —*Rec. zool. Surv. India*, **77** (1-4) : 93-109.
16 species are recorded, 14 of which are same as reported earlier and two are new records including a species, *Nasutitermes triloki*, which is new to the science. As such 19 species are

now known from these islands. The soldier of *Neotermes andamanensis* Snyder has been described here for the first time and so also the imago of *Odontotermes latigula* Snyder. *Odontotermes paralatigula* which was not known from the Andamans is newly reported from these islands.

559. Chhotani, O. B. 1980. Termite pests of agriculture in the Indian region and their control. —*Zool. Surv. India, Tech. Monogr.*, No. 4 : 1-99.

The author has discussed the identity, distribution and pest status of termites of agriculture and termite damage to agriculture and their control.

560. Farhat, A. and Iqbal, Q.J. 1980. Extraction and biological evaluation of the trail pheromone of the termite, *Odontotermes obesus* (Rambur). —*Biologia*, 26 (1-2) : 183-185.

The trail pheromone of the termite, *O. obesus* was extracted and biologically assayed. Behavioural tests showed positive response towards the extract.

561. Labiri, A. R. and Ghosh, A. K. 1980. Termites of Manipur, India, with new records (Insecta : Isoptera). —*Rec. zool. Surv. India*, 76 (1-4) : 65-70.

Microcerotermes crassus Snyder has been recorded for the first time from India. Eight other species are first records from Manipur. Keys for identification of the genera and species are given.

562. Rajgopal, S. and Verma, A. K. 1980. Auxin (IAA) production by associative fungi of termite gut, *Odontotermes obesus* *in vitro*. —*Jurr. Sci.*, 49 (16) : 632-634.

563. Roonwal, M. L. 1980. The mound of *Odontotermes gurdaspurensis*, with field observations on other termites (*O. obesus* and *O. horai*) from Haryana, India. —*Indian J. Ent.*, 42 (4) : 541-550.

564. Roonwal, M. L., Verma, S. C. and Rathore, N. S. 1980. Evolution and systemic significance of wing microsculpturing in termites (Isoptera) VII. Subfamily Macrotermitinae of family Termitidae. —*Proc. Indian natn. Sci. Acad.*, (B) 46 (2) : 149-163.

565. Roonwal, M. L., and Rathore, N. S. 1980. Evolution and systemic significance of wing microsculpturing in termites (Isoptera) VII Subfamily Macrotermitinae of family Termitidae. —*Proc. Indian natn. Sci. Acad.*, (B), 46 (4) : 455-469.

566. Sen-Sarma, P. K. and Thakur, M. L. 1980. Population ecology of Indian termites. —*Bull. Ent.*, 19 (1-2) (1978) : 89-99.

567. Sen-Sarma, P. K. and Thakur, M. L. 1980. On a collection of termites of Kumaon Hills, Uttar Pradesh, India (Insecta : Isoptera). —*Indian For. Res. (N. S.) (Ent.)*, 14 (1) : 1-30.

The present contribution gives the systematic account of termites of Kumaon Hills (U. P.) and is based on a collection of 166 vials made in the year 1971.

568. Thakur, M. L. 1980. Hitherto unknown imago caste of *Speculitermes rongrensis* Roonwal and Chhotani (Isoptera : Termitidae : Amitermitinae). —*Bull. Ent.*, 14 (1-2) (1973) : 82-84.

569. **Thakur, M. L.** 1980. Bioecology and zoogeography of termite genus *Cryptotermes* (Isoptera : Kalotermitidae) in the Indian region. —*J. Bombay nat. Hist. Soc.*, **76** (1) (1979) : 106-114.
570. **Thakur, M. L. and Sen-Sarma, P. K.** 1980. A flourishing colony of *Coptotermes heimi* (Wasm.) (Insecta : Isoptera) in a naval boat. —*J. Bombay nat. Hist. Soc.*, **76** (1) (1979) : 188-189.
571. **Thakur, M. L. and Sen-Sarma, P. K.** 1980. A new species of termite genus *Doonitermes* Chatterjee and Thakur (Isoptera : Termitidae : Amitermitinae) from West Bengal, India. —*Bull. Ent.*, **14** (1-2) (1973) : 85-90.
572. **Verma, A. N.** 1980. Effect of number of irrigations on termite damage in wheat crop. —*Haryana agric. Univ. J. Res.*, **10** (4) : 564-565.
573. **Verma, A. N., Bhanot, J. P. and Khurana, A. D.** 1980. Influence of different dates of sowing of aldrin-treated and untreated wheat seed on germination, termite damage and yield of wheat crop. —*Haryana agric. Univ. J. Res.*, **10** (1) : 41-44.
- The present study aimed at determining the losses caused by termites when wheat crop was sown on different dates and also at finding out how losses can be checked.
574. **Verma, S. C.** 1980. Fauna of Corbett National Park : Isoptera. —*Oheetal*, **21** (2 & 3) : 45-46.
- (x) **Phthiraptera**
(Mallophaga)
575. **Agarwal, G. P. and Saxena, A. K.** 1980. Feeding behaviour of *Lipeurus lawrensis tropicalis* Peters (Phthiraptera : Ischnocera) infesting poultry birds. —*Z. angew. Ent.*, **89** (5) : 425-427.
576. **Lakshminarayana, K. V.** 1980. The collection and preservation of Phthiraptera (Insecta). —*Proc. Workshop Tech. Parasitol. zool. Surv. India* (1978) : 45-53.
- The Order Phthiraptera includes small, flattened ectoparasitic insects, popularly referred to as the biting, or chewing lice and the true or sucking-lice.
577. **Lakshminarayana, K. V. and Price, R. D.** 1980. Designation of neotype for *Colpocephalum thoracicum* Kellogg and Paine, 1914 (Phthiraptera : Insecta) with some remarks on distribution. —*Oriental Ins.*, **14** (3) : 383-386.
578. **Lakshminarayana, K. V., Vijayalakshmi, S. (Miss.) and Talukdar, B.** 1980. The chewing lice (Phthiraptera : Insecta) from Andaman and Nicobar Islands with remarks on some host relationships. —*Rec. zool. Surv. India*, **77** (1-4) (1979) : 31-37.
- The paper deals with a small interesting collection of chewing lice from Andaman & Nicobar group of Islands. One of the species is now being reported for the first time from India on a new host which throws considerable light on the host relationship, the other two species are valuable new additions to the National Zoological Collections of the Zoological Survey of India.
579. **Mishra, A. C.** 1980. On some aspects of processing of haematophagous arthropods for virological studies. —*Proc. Workshop Tech. Parasitol. zool. Surv. India* (1978) : 115-117.
580. **Rai, R. K. and Lakshminarayan, K. V.** 1980. A note on the *in vitro* studies of the chewing-lice (Phthiraptera). —*Proc. Workshop Tech. Parasitol. zool. Surv. India* (1978) : 55-59.

The authors have made the *in vitro* studies on culture of the chewing-lice.

581. Reddy, K. R., Janakiram and Rao, K. 1980. Field trial of 'Zolone' as an insecticide on poultry lice and bed bugs. —*Pesticides*, **14** (10) : 36-37.

(ix) Hemiptera

Sub-order : (a) Homoptera

582. Agnihotri, N. P., Jain, H. K., Rai, S. and Gajbhiye, V. T. 1980. Relative toxicity and residues of synthetic pyrethroids on cabbage and cauliflower. —*Indian J. Ent.*, **42** (4) : 712-722.

583. Ananthasubramanian, K.S. 1980. Taxonomic studies on Indian Membracidae (Insecta : Homoptera). —*Entomon*, **5** (2) : 113-128.

One new genus *Paranotus* and 15 new species of Membracidae collected from South India are described. The genus *Lanceonotus* Capener (1968), originally described from South Africa, is recorded for the first time from India.

584. Ananthasubramanian, K. S. 1980. Description of a new genus and some new species of Membracidae (Homoptera) in the collections of the Zoological Survey of India. —*Rec. zool. Surv. India Occ. Pap.*, No. **16** : 1-36.

Thirtytwo new species and a new genus, *Gargarina* are described in the present paper, and keys for the new species are given.

585. Bakhetia, D. R. C. and Sohi, A. S. 1980. Taxonomic status of the mustard aphid, *Lipaphis erysimi* (Kaltenbach) (Homoptera : Aphididae). —*J. ent. Res.*, **4** (1) : 105-106.

586. Basavangoud, K., Kulkarni, K. A. and Thontadarya, T. S. 1980. Safflower varietal reaction to the aphid, *Dactynotus compositae* Theobald and the differences in biochemical constituents in resistant and susceptible varieties. —*Mysore J. agric. Sci.*, **14** (4) : 512-515.

587. Basu, R. C. 1980. Review on Aphidological works done in India during 1979. —*Aphidological Newsl.*, **1** : 2-6.

588. Basu, R. C. and Raychaudhuri, D. N. 1980. A study on the sexuals of aphids (Homoptera : Aphididae) in India. —*Rec. zool. Surv. India, Occ. Pap.*, No. **19** : 1-58.

Sexuals of 80 species distributed over 53 genera under 6 subfamilies of Aphididae are reported from India.

589. Basu, R. C., Raychaudhuri, D. N. and Ghosh, M. R. 1980. *Taxonomy of the Aphids of North-East India and Bhutan* : 37-38 ; 47-278. (Ed. D. N. Raychaudhuri).

590. Bataul, M. S. and Kishore, R. 1980. Development of *Myzus persicae* (Sulzer) on winter hosts at Simla. —*Indian J. Ent.*, **42** (3) : 535-536.

591. Bhardwaj, S. C. and Yadav, S. R. 1980. Record of *Pruthina sexotata* (Izzard) (Cicadellidae : Homoptera) a hopper pest of sugarcane from Haryana. —*Indian J. Ent.*, **42** (2) : 317.

592. Borle, M. N., Rama Rao, B. and Deshmukh, S.D. 1980. Residual toxicity of some granular systemic insecticides as soil application in the control of cotton aphid, *Aphis gossypii* Grover. —*Indian J. Ent.*, **42** (1) : 142-147.

593. **Borle, M. N., Upalanchiwar, A. R. and Deshmukh, S. D.** 1980. Efficacy of insecticidal mixtures in dust formulations for the control of cotton jassid in dryland cultivation.—*Indian J. Ent.*, **42** (1) : 130-132.
594. **Brar, J. S and Singh, B.** 1980. Studies on bionomics of maize jassid *Zyginida manaliensis* (Singh). —*J. Res. Panjab agric. Univ.*, **15** (4) (1978) : 463-467.
595. **Butani, D. K.** 1980. Insect pests of vegetables and their control—Cluster beans. —*Pesticides*, **14** (10) : 33-35.
596. **Chandramohan, N., Venugopal, M. S., Habeebullah, B. and Balasubramanian, M.** 1980. Evaluation of certain synthetic chemicals against betelvine scale, *Lepidosaphes cornutus* (Ramakrishna). —*Entomon*, **5** (3) : 163-165.
Field experiment was conducted on the control of betelvine scale insect *L. cornutus* with 8 foliar insecticides.
597. **Chaudhary, J. P., Yadav, L. S., Poonia, R. S. and Rastogi, K. B.** 1980. Some observations on field populations of *Empoasca kerri* Pruthi, a jassid pest on mung bean crop in Haryana.—*Haryana agric. Univ. J. Res.*, **10** (2) : 250-252.
598. **Dhamdhare, S. V., Deole, J. Y. and Odak, S. C.** 1980. Insecticidal control of *Amrasca biguttula biguttula* on okra. —*Indian J. Pl. Prot.*, **8** (2) : 147-150.
599. **Dinobandhoo, C. L. and Bhalla, O. P.** 1980. Bionomics of the San Jose scale, *Quadraspidiotus perniciosus* Comstock (Hemiptera : Diaspididae) infesting temperate fruits. —*J. ent. Res.*, **4** (1) : 63-67.
600. **Dutta, B.** 1980. On Oriental and Nearctic Cicadelloidea (Homoptera).—*Eos tomo.*, **54** : 95-106.
601. **Dworakowska, I.** 1980. On some Typhlocybae from India (Homoptera, Auchenorrhyncha, Cicadellidae).—*Ent. Abh. Mus. Tierk. Dresden*, **43** (1979) : 151-201, 425 figs.
This paper is based on the collections of the University of Agric. Sciences, Bangalore, Punjab Agric. University and Polish Academy of Sciences. 46 new species and five taxa of generic rank, are described.
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603. **Gandhi, J. R.** 1980. Some factors governing utilisation of food in Homopteran *Oxyrhachis tarandus* Fabr. I. Hydrogen-ion concentration, digestive enzymes and rate of conduction of food in the gut. —*Indian J. Ent.*, **42** (2) : 186-191.
604. **Gandhi, J. R.** 1980. Duration of feeding by *Amrasca devastans* Distant and *A. kerri* Motti on different plant leaves. —*Indian J. Ent.*, **42** (2) : 296-298.
605. **Gandhi, J. R.** 1980. Responses of *Oxyrhachis tarandus* Fabr. to different concentration of sugars and egg albumin. —*Entomon*, **5** (3) : 177-179.
Sugars and proteins stimulate feeding in aphids and leaf-hoppers.
606. **Ghorpade, K. D.** 1980. New distributional records of some aphids (Homoptera : Aphididae) from India. —*Geobios*, **7** (4) : 168-169.
607. **Ghosh, A. K.** 1980. *Aphids of North-East India and Bhutan* (ed. D. N. Raychaudhuri) : 39-47, 278-314, 358-394, 395-408 and 409-425.

608. Ghosh, A. K. 1980. Weed hosts of major aphid pests of Indian region. — *Indian Agric.*, **24** (2) : 101-107.
609. Ghosh, A. K. 1980. *Fauna of India : Homoptera : Aphidoidea : Part—I. General Introduction and Subfamily Chaitophorinae*, 1-124.
610. Ghosh, A. K. 1980. Floral assemblage and faunal diversity in Aphidoidea (Homoptera : Insecta) in eastern India. — *Bull. zool. Surv. India*, **2** (2 & 3) : 171-176.
611. Ghosh, L. K., Raychaudhuri, D., Raychaudhuri, D. N. and Raha, S. K. 1980. An account of the genus *Brevicoryne* var der Goot (Homoptera : Aphidae) in India with description of a sexual morph of *Brevicoryne barbarea* Nevsky. — *Bull. zool. Surv. India*, **3** (1 & 2) : 63-68.
612. Ghosh, M. R. 1980. Spread of infestation of *Lipaphis erysimi* (Kalt.) and its population composition at different growth phases of Indian mustard plant. — *Indian J. agric. Sci.*, **50** (11) : 869-872.

The present report deals with the nature and spread of infestation of this aphid on Indian mustard [*Brassica juncea* (Linn.) Czern & Coss. subsp. *juncea* Linn.] and composition of the morphs at different parts of the plant growth and at different parts of the plant as observed at Kalyani, West Bengal, during the crop season 1976-77.

613. Ghosh, M. R. and Raychaudhuri, D. N. 1980. Some aspects of population ecology of aphids (Homoptera : Aphididae) in India. — *Bull. Ent.*, **19** (1-2) (1978) : 25-44.

The paper discusses the abundance of aphids on collective aspects i. e. the preponderance of species at different altitudes and seasons as obtained in the Darjeeling district, West Bengal and Sikkim and on individual aspect embodying the biological traits of some species and population characteristics of *Lipaphis erysimi* (Kalt.) reared on *Brassica campestris* (mustard).

614. Gokulpure, R. S., Mehra, B. P., Sen, P. and Lal, J. 1980. On some insects associated with lac in India. — *J. Bombay nat. Hist. Soc.*, **76** (1) (1979) : 185-188.
615. Gupta, M. and Ahmad, I. 1980. Effect of different solvents on the susceptibility of BHC on *Pyrilla perpusilla* Walker. — *Rajasthan J. Pesticides*, **7** (2) : 111-114.
616. Haque, M. S. 1980. Lac insect infestation in Lucknow region. — *Indian J. Ent.*, **42** (2) : 331-332.
617. Jabbar, A., Ahmed, M. and Samad, K. 1980. Population studies of *Zyginida quyumi* (Ahmed) (Typhlocybinae : Cicadellidae) in the maize field at Abbottabad. — *Pakist. J. Sci.*, **32** (1-2) : 117-120.

The present investigation includes the population studies of *Z. quyumi* on maize at Abbottabad by the age of crop and temperature.

618. Jose, P. C. 1980. Field evaluation of different insecticides for control of the banana aphid (*Pentalonia nigronervosa* Coq.). — *Agric. Res. J. Kerala*, **18** (1) : 109-110.
619. Joshi, R. K. and Sharma, S. K. 1980. Assessment of biological efficacy of some insecticides for the control of *Pyrilla perpusilla* Wlk. on sugarcane by aerial spraying. — *Pesticides*, **14** (11) : 8-9.

620. **Kandoria, J. L. and Singh, H.** 1980. Effect of spray heights in ULV spraying on efficacy and resistance of malathion against *Amrasca biguttula biguttula* Ishida on cotton. —*J. Res. Punjab agric. Univ.*, **17** (4) : 371-379.
621. **Kandoria, J. L. and Singh, H.** 1980. Influence of ultra-low volume sprayers on the insecticidal control of *Amrasca biguttula biguttula* (Ishida) on cotton. —*Indian J. agric. Sci.*, **50** (12) : 961-964. Three ultra-low-volume sprayers were tested for their comparative efficacy in controlling *A. biguttula biguttula* (Ishida) by applying malathion 96% low-volume concentrate @ 875 ml/ha on *Gossypium hirsutum* Linn.
622. **Katiyar, O. P.** 1980. Brown plant hopper, a serious enemy of paddy. —*Indian Fmr's Dig.*, **13** (5 & 6) : 35-36.
623. **Khurana, H. S. and Sandhu, R. S.** 1980. Observations on the occurrence and drug sensitivity of *Cryptococcus neoformans*. —*J. Com. Dis.*, **11** (3) (1979) : 120-126. *Cryptococcus neoformans* was observed to occur in 120 old pigeons.
624. **Kooner, B. S., Sidhu, H. S. and Bindra, O. S.** 1980. Rate of development of *Orosius albicinctus* Distant at different constant temperature. —*Indian J. Ent.*, **42** (2) : 294-296.
625. **Koshiya, D. J., Bhattacharya, A. K. and Verma, S. K.** 1980. Residual toxicity of some selected insecticides in paddy based on bioassay of brown plant hopper *Nilaparvata lugens* (Stal.). —*Indian J. Ent.*, **42** (2) : 318-320.
626. **Koshiya, D. J. Bhattacharya, A. K. and Verma, S. K.** 1980. Toxicity of some granular insecticide residues to rice brown plant hopper, *Nilaparvata lugens* (Stal.). —*Pesticides*, **14** (7) : 41.
627. **Kulkarni, P. P.** 1980. Two new species of aphids (Homoptera : Aphididae) from Maharashtra, India. —*Bull. zool. Surv. India*, **2** (2 & 3) : 177-181.
628. **Kulkarni, P. P. and Kacker, R. K.** 1980. Chromosomes of five species of aphids (Homoptera : Aphidae). —*Bull. zool. Surv. India*, **3** (1 & 2) : 104-105.
629. **Kuruvilla, S. and Jacob, A.** 1980. Studies on *Fusarium oxysporum* Schlecht infecting rice brown plant hopper *Nilaparvata lugens* Stal. —*Agric. Res. J. Kerala*, **18** (1) : 51-54.
630. **Lahiri, A. R. and Biswas, S.** 1980. Observation on the relative intensity of infection on three species of cultivated citrus plants by *Psylla murrayi* Mathur (Homoptera : Psyllidae) at Shillong, Meghalaya. —*Bull. zool. Surv. India*, **2** (2 & 3) : 123-127.
631. **Lakra, R. K., Kharub, W. S. and Singh, Z.** 1980. Pest management systems for the mango mealy bug, *Drosicha mangiferae* Green—a polyphagous pest of fruit trees in Haryana. —*Indian J. Ent.*, **42** (2) : 153-165.
632. **Lakra, R. K., Singh, Z. and Kharub, W. S.** 1980. Efficacy of some insecticides as trunk and foliar spray against mango mealy bug, *Drosicha mangiferae* Green (Margarodidae : Homoptera) in Haryana. —*Haryana agric. Univ. J. Res.*, **10** (1) : 50-56. The present study deals with economic and effective control of *D. mangiferae*, a serious pest of mango.
633. **Mann, G. S.** 1980. Evaluation of granular insecticides against *Machaerota spanbergii* a new pest of jujube. —*Indian J. Pl. Prot.*, **8** (1) : 78-80.

634. Mathur, Y. K. and Upadhyay, K. D. 1980. Evaluation and economics of some modern insecticides against mustard aphid, *Lipaphis erysimi* Kalt. — *Pesticides*, **14** (1) : 14-15.
635. Misra, S. S., Nagia, D. K., Ram, G., Bist, B. S. and Lal, L. 1980. Evaluation of systemic insecticides against green peach aphid, *Myzus persicae* Sulzer on potato crop. — *Entomon*, **5** (2) : 91-97.
The present investigations compare the relative efficacy of some newer systemic granules with those promising granular insecticides reported earlier.
636. Mohammad, S., Husain, M. and Chandrasagar, G. 1980. Preferential infestation of the leaf-hopper of sunflower in relation to nitrogen nutrition and plant density. — *Indian J. agric. Sci.*, **50** (12) : 955-957.
The present investigation reports the relationship of crop growth as influenced by N nutrition and plant spacing on the intensity of the population of leaf hoppers in Andhra Pradesh.
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Suborder

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(xii) Thysanoptera

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(xiii) Neuroptera

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Seven neuropteran species have been given along with their illustrations, from the Andaman and Nicobar Islands. The genus *Sencera* Navas is a new record from India, of which the species under study could not be identified but described and the affinities with its nearest species have been shown. Four species, *Spilosmylus tuberculatus* (Walker), *Chrysopa lacciperda* Kimmins, *Chrysopa (Glenochrysa) marmorata* (Needham) and *Ankylopteryx tessellatus* Needham, are also reported for the first time from the area concerned. Besides, *Chrysopa (Glenochrysa) marmorata* (Needham) has been redescribed.

741. Patnaik, N. C. and Bhagat, K. C. 1980. Biology of the brownlace wing, *Microgaster timidus* Hager (Neuroptera : Hemerobiidae) and its predation on aphids. —*Bull. Ent.*, 18 (1-2) (1977) : 94-99.

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743. Ahmad, J. and Khan, A. M. 1980. Studies on *Eberthella insecticola* and *Klebsiella* species associated with *Bruchus chinensis* and *Haematopinus* species. —*Sci. Cult.*, 46 (5) : 191-192.

The microorganisms associated with *B. chinensis* and *Haematopinus* species have been isolated and the carbohydrate, protein, amino acid and phenol contents, effect of different sugars and antibiotics on the micro-organisms *in vitro* have been studied.

744. Ali, S. 1980. Some studies on the heterogonic development of abdomen in relation to body length of common beetle, *Mylabris pustulata* Thumb. (Coleoptera : Mylabridae). —*J. scient. Res.*, 2 (2) : 69-70.
745. Anand, M. and Pant, N. C. 1980. Transmission of symbiotes of *Rhizopertha dominica* (Fabricius). —*Indian J. Ent.*, 42 (1) : 98-101.
746. Anand, M. and Pant, N. C. 1980. Effect of various antibiotics and sulfa drugs on the symbiotes of *Rhizopertha dominica* (Fabricius). —*Indian J. Ent.*, 42 (4) : 737-745.
747. Anand, R. K. 1980. Male genital apparatus of Meloinae (Coleoptera : Meloidae) and their taxonomic significance. —*J. ent. Res.*, 4 (1) : 15-24.
748. Anand, R. K. 1980. Distributional pattern of Meloidae (Coleoptera). —*Oriental Ins.*, 14 (1) : 11-15.
749. Anand, R.K. and Ghai, S. 1980. A note on the zoogeography of Indian Meloidae (Coleoptera). —*J. Bombay nat. Hist. Soc.*, 76 (1) [1979] : 184-185.
750. Baskaran, P. and Kumar, A. 1980. Further studies on dipel-insecticide combinations against the insect pests of brinjal. —*Pesticides*, 14 (1) : 9-11.
751. Basu, C. R. and Sengupta, T. 1980. On a new genus and new species of Alticinae (Coleoptera : Chrysomelidae) from Arunachal Pradesh. —*Rec. zool. Surv. India*, 76 (1-4) : 143-146.

A new genus *Maulika* is established and defined and a new species *M. decemmaculata* is described from Arunachal Pradesh.

752. **Bhat, P. P. and Gill, K. S.** 1980. Growth and maturation of ovary in *Tribolium castaneum*. —*Indian J. Anim. Sci.*, **50** (3) : 270-273.
- Growth and maturation of ovary in *T. castaneum* were studied.
753. **Bhatia, P. and Sethi, G. R.** 1980. Combined effects of gamma radiations and insecticidal treatment (Direct Spray) on the adults of susceptible strains of *Tribolium castaneum* (Herbst.). —*Indian J. Ent.*, **42** (1) : 82-89.
754. **Bhatnagar, S. P.** 1980. The distribution, abundance and status of chillies white grub, *Holotrichia insularis* Brenske in Rajasthan State. —*Rajasthan J. Pesticides*, **7** (2) : 100-110.
755. **Bhatnagar, S. P. and Saxena, N. N.** 1980. Field evaluation of various insecticides to adults of grape flea beetles, *Scelodonta dillwyni* Stephens. —*Rajasthan J. Pesticides*, **7** (1) : 39-45.
756. **Bhatnagar, S. P. and Saxena, N. N.** 1980. Studies on the biology and effectiveness of various insecticides for control of grape flea beetle, (*Scelodonta dillwyni*, Stephens) (Coleoptera : Chrysomelidae). —*Rajasthan J. Pesticides*, **7** (1) : 50.
757. **Bhatnagar, S. P. and Saxena, N. N.** 1980. Laboratory screening of granular insecticides against first, second and third instar grubs of grape flea beetles, *Scelodonta dillwyni* Stephens. —*Rajasthan J. Pesticides*, **7** (2) : 90-99.
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759. **Biswas, D. N. and Sengupta, T.** 1980. Taxonomic studies on *Dibelonetes* (Coleoptera : Staphylinidae : Paederinae with descriptions of three new species from India. —*Oriental Ins.*, **14** (2) : 253-262.
- The genus *Dibelonetes* Sahlberg is redefined with several additional characters. Three new species are described and illustrated and key to Indian species of the genus is given.
760. **Biswas, D. N. and Sengupta, T.** 1980. Indian species of *Oxytelopsis* (Coleoptera : Staphylinidae : Oxytelinae). —*Oriental Ins.*, **14** (3) : 391-395.
761. **Borah, B. and Chahal, B. S.** 1980. Separation and collection of eggs of *Trogoderma granarium* Everts. —*J. Res. Punjab agric. Univ.*, **17** (1) : 104.
762. **Bradoo, B. L.** 1980. Description of a new genus *Telekuma* (Tenebrionidae : Coleoptera) from Kashmir. —*Bull. Ent.*, **14** (1-2) (1973) : 56-61.
- A new heteromorous beetle *T. nikalalensis* gen. et sp. nov. is described from Srinagar.
763. **Brancucci, M.** 1980. Beitrag zur Kenntnis einiger orientalischer Bidesini (Col., Dytiscidae). —*Entomologica Basiliensia*, **5** : 166-169.
- Material from Pakistan, Nepal, Bhutan, India and Sri Lanka are listed. Of these, 2 species are first record from Nepal and one from Sri Lanka.
764. **Brancucci, M.** 1980. Espece et sous-espece nouvelles du genera *Hydronebrius* Jakovlev 1897 del'Himalaya (Insecta : Coleoptera : Dytiscidae). —*Senckenberg. biol.*, **60** (3/4) (1979) : 171-174.

- A new species with a new subspecies of *Hydronebrius* Jacovlev is described from the Himalayas of Nepal and Pakistan; a comparison with the previously known species is provided.
765. **Brar, K. S. and Sandhu, G. S.** 1980. Biology of *Holotrichia consanguinea* Blanchard infesting groundnut in the Punjab. —*Indian J. Ent.*, **42** (3) : 426-433.
766. **Brar, K. S. and Sandhu, G. S.** 1980. Note on the chemical control of adults of *Holotrichia consanguinea* Blanchard. —*Indian J. Ent.*, **42** (3) : 528-529.
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772. **Das, B. B.** 1980. A note on the hispa epidemic in rice field of Tripura. —*Indian J. Ent.*, **42** (3) : 530-531.
773. **Deol, G. S. and Gill, K. S.** 1980. Development of *Rhizopertha dominica* Fab. on the Karnal bunt diseased wheat grain. —*Indian J. Ecol.*, **7** (2) : 298-301.
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- A collection of 334 rice cultivars was assessed in the field of Punjab, India, in the kharif season of 1978 for varietal differences in tolerance to attack by *Dicladispa armigera* (Oliv.) and *Cnaphalocrocis medinalis* (Gm.).
775. **Dhaliwal, G. S., Chawla, R. P. and Kalra, R. L.** 1980. Toxicity of commercial formulations of insecticides to the adults of rice hispa. —*Int. Rice Commn. Newsl.*, **26** (1) (1977) : 31-32.
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- The total number of Indian Coleoptera known chromosomally stands at approximately 289 species of 146 genera under 19 families.
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The genus *Bolbohamatum* nov. is proposed to accommodate four species hitherto combined with, *Bolbocerus* Kirby, and nine new species. The genus, characterized by a spine-bearing lobe separating the middle coxae, is endemic in the Oriental Region. 13 species are keyed, illustrated, and their distribution is recorded.
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The paper deals with orientational responses of the third instar larvae of *H. sparsa* to 15 solanaceous and 12 cucurbitaceous plants available around the University campus.
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794. Pajni, H. R. and Bhateja, B. R. 1980. Structure of male genitalia in the families Curculionidae and Brentidae. —*Bull. Ent.*, 14 (1-2) (1973) : 41-55.

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The Cerambycid tribe Callichromini from Palaearctic and Oriental regions has been studied. Based on materials from Brit. Mus. (Nat. Hist.), London, a survey (monographic descriptions, including keys) is given on the species of the genera *Anubis* and *Polyzonus*.
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The effective combinations of indigenous materials like plant seed or clove namely neem and garlic with plant-flower extract, have been studied here.
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The comparative incidence of the pest during the rainy season of extremely wet and dry years with the possible associated factors are discussed.
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11 species are described from Nepal, of which 3 are new species Key to identification of *Dianous* species has been given.
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 815. **Sengupta, T. and Pal, T. K.** 1980. Ergebnisse der Bhutan—Expedition 1972 des Naturhistorischen Museums in Basel. Coleoptera : Fam. Cryptophagidae, Genus *Himascelis*. — *Entomologica Basiliensia*, **5** : 42-44.
- The authors propose new synonymy in *Himascelis*, particularly in *H. brunneus* Sengupta where *H. nigratus* Sengupta has been synonymised. The species is distributed in W. B., H. P. and Kashmir in India and in Nepal and Bhutan. A new species is described from Kashmir.
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- Laboratory tests were conducted to study the influence of soil type on the toxicity of insecticides against final instar larvae of whitegrub *L. (H.) consanguinea* Blanch.
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- 31 genera and 43 species of chrysomelid beetles have been studied and described from Nepal, with free hand sketches. Out of these 14 species are new to Nepal. 13 species have been already reported. Other 16 species are not known yet.
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Some information regarding the concentration of FAA pool during larval growth and metamorphosis of *Z. subfasciatus* have been furnished.
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The study discusses the efficacy of 15 commercially formulated insecticides against the pupae and adults of *D. armigera* (Oliv.).
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(xv) Siphonaptera

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The fleas causing injury to the host by biting, are also known to transmit *Pasteurella pestis* which causes bubonic plague etc.

(xvi) Diptera

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Before undertaking safety tests and field trials for control of mosquito larvae, the amenability for economical mass culturing of these bacterial and fungal agents and their shelf life were studied.
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The present study was undertaken as a part of ecological studies of larval mosquitoes in relation to their tolerance to effluents from industries.
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The rice gall midge *Orseolia oryzae* (Wood-Mason) is endemic at Pandua, West Bengal, India. A study was carried out to investigate the effect of various split-transplant treatments on the incidence of the pest in wetland rice.

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The binding of nonhistone chromosomal proteins to the polytenic X chromosome and autosome of *Drosophila hydei* has been studied cytochemically.

881. **Chaudhary, J. P., Yadav, S. R. and Singh, S. P.** 1980. Some observation on the biology and host preference of *Sturmiopsis inferens* Townsend (Tachinidae : Diptera). — *Indian J. agric. Res.*, **14** (3) : 147-154.

As *S. inferens* is a larval parasite of the sugarcane borers, the biology of this parasite was studied under laboratory conditions.

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Habitat and habits, copulation, oviposition, egg, incubation period, egg viability, hatching, duration of larval stadia, larval instars, pupa, pupation, emergence etc. of *O. fusidentata* are described.

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With over 2500 species belonging to 33 genera, mosquitoes are predominant in the tropics though there is no land mass where they do not make their presence felt.

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The susceptibility status of adult *Culex fatigans*, *C. tritaeniorhynchus*, *C. whitmorei*, *C. sitiens*, *Anopheles stephensi*, *A. subpictus*, *Aedes aegypti* to DDT, Dieldrin, malathion, fenthion, fenitrothion and propoxur was determined.

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1164. **Bhat, S.** 1980. A new genus of Alysiini (Hymenoptera : Braconidae : Alysini). —*Entomon*, **5** (2) : 157-159.
- Descriptions and illustrations of the new Alysiini genus *Eurymeros* and its type species *Eurymeros tumespiraculum*, sp. nov. from India are given.
1165. **Bisht, D. S., Naim, M. and Sinha, R. B. P.** 1980. A simple and hygienic method of honey extraction from rock bee, *Apis dorsata* Fabr. colony. —*Indian J. Ent.*, **42** (2) : 292-294.
1166. **Chaturvedi, H. K. and Pathak, J. P. N.** 1980. Metamorphic changes in the structure of midgut in *Ropalidia marginata* L. (Hymenoptera : Vespidae). —*Entomon*, **5** (3) : 233-236.
1167. **Chaudhuri, R. K.** 1980. Floral fidelity in the Indian honey bee (*Apis cerana indica* F.). —*Indian Bee J.*, **40** (2) : 33-35.
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1168. **Chaudhary, J. P. and Jain, K. L.** 1980. Biology of *Megachilo fanata* Lepel (Megachilidae : Hymenoptera), a solitary mason bee. —*Bull. Ent.*, **18** (1-2) (1977) : 83-88.
1169. **Das, K. K., Das, R. K., Das, M. M., Haque, M. A., Mane, P. M., Mathiazagam, T. and Tyagi, M. S.** 1980. Measurement of potentiality of communication media for popularizing bee keeping in India. —*Indian Bee J.*, **42** (1) : 1-8.
1170. **Dhaliwal, J. S. and Atwal, A. S.** 1980. Flight range, transportation of nests and the number of trips made by *Pithitis smaragdula* Fab. (Anthrophoridae : Hymenoptera) in relation to lucerne pollination at Ludhiana. —*Indian J. Ent.*, **42** (3) : 434-437.
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1173. **Garg, A. K. and Sethi, G. R.** 1980. Some observations on wasps attacking sunflower crop. —*Indian J. Ent.*, **42** (2) : 267-269.
1174. **Goyal, N. P.** 1980. Performance of *Apis mellifera* and *A. cerana indica* as observed in the Punjab plains. —*Indian Bee J.*, **40** (1) (1978) : 3-5.
- Observation on the performance of these two species in the agro-climatic conditions of this track during 1974-75 at Agricultural University Ludhiana, is reported here.
1175. **Goyal, N. P.** 1980. Can man learn socialization from honey bees? —*Indian Bee J.*, **42** (1) : 15-17.

1176. Gupta, V. K. 1980. A revision of the tribe Poemeniini in the Oriental Region (Hymenoptera : Ichneumonidae). —*Oriental Ins.*, 14 (1) : 73-130.
The genera *Deuteroxorides*, *Podoschistus* and *Poemenia* are reported here for the first time from hills of India and Burma by 2 species each.
Altogether 32 species are treated, of which 10 from Indian region are new to science. Key to genera, species and subspecies are provided and distribution pattern of various taxa is discussed.
1177. Handa, S. K., Dikshit, A. K., Awasthi, M. D., Singh, R. N., Singh, N. P. and Singh, K. M. 1980. Residues following application of carbofuran and endosulfan to mustard crop in relation to irrigation. —*Indian J. Ent.*, 42 (4) : 766-769.
1178. Hayat, M. Verma, M. 1980. The Aphelinid subfamily Eriaporinae (Hym. Chalcidoidea). —*Oriental Ins.*, 14 (1) : 29-40.
1179. Heinrich, G. H. 1980. Burmesiche Ichneumoninae XI. —*Annls zool. Warsz.*, 35 (11) : 117-192.
1180. Hussain, S. A. and Ali, S. 1980. Beehive predation by wasp (genus *Ve-pa*) and its possible benefit to honey guides (Indicatoridae) in Bhutan. —*J. Bombay nat. Hist. Soc.*, 76 (1) (1979) : 157-159.
1181. Jonathan, J. K. 1980. The Isotima-Complex (Hymenoptera : Ichneumonidae). —*Rec. zool. Surv. India Occ. Pap.*, No. 17 : 1-146.
It is a revision of World genera and species of Isotima-Complex. The Isotima-Complex and its related genera have now been studied in detail and the identity and synonymy of the various genera have been established. This has resulted in the recognition of four generic groups falling within the old definition of Isotima-Complex. *Gambroides* Betrem (= *Vadonia* Seyrig), *Formostenus* Uchida and *Fotsiforia* Seyrig which were considered as synonyms of *Isotima*, have been revalidated. Altogether 53 species under 4 genera are treated in this revision from the World. Of these, 39 species are new to science. The total number of species reported from India are 26, of which 21 are new.
1182. Joy, P. J., Narendran, T. C. and Joseph, K. J. 1980. Mating behaviour of *Brachymeria nephantidis* Gahan and *B. lasus* (Walker) (Hymenoptera : Chalcididae). —*Bull. Ent.*, 17 (1-2) (1976) : 82-84.
1183. Khan, M. Y. and Shafee, S. A. 1980. Species of the genus *Eretmocerus* Haldeman (Aphelinidae : Eretmocerinae) from India. —*Oriental Ins.*, 14 (3) : 363-369.
E. paulistis Hempel is reported from India for the first time. Besides, *E. mashhoodi* Hayat and *E. paulistis* Hempel are described and illustrated and additional characters given for *mashhoodi*.
1184. Khan, M. Y. and Shafee, S. A. 1980. Historical review and classification of the family Aphelinidae (Hymenoptera : Chalcidoidea). —*Sci. Env.*, 2 : 59-65.
1185. Kshirsagar, K. K. 1980. Boosting beekeeping in India. —*Indian Fmg.*, 30 (6) : 30-32.

1186. Makar, P. V. and Jadav, L. D. 1980. Relative toxicity of some insecticides to an egg—larval parasite, *Copidosoma koehleri* Blanchard of potato tuber-worm, *Phthorimaea operculella* (Zell.). —*Indian J. Ent.*, **42** (3) : 537-539.
1187. Mani, M. S. and Sharma, S. K. 1980. A new species of *Fusicornia* Risbec (Hymenoptera : Proctotrupoidae) from India. —*Oriental Ins.*, **14** (1) : 47-50.
Fusicornia Risbec is a first record from India, with only one species, *F. indica* sp. nov., from Vindhya survey, Khajuraho, Habra.
1188. Monohar, S. and Balasubramanian, M. 1980. A note on the hymenopterous parasite of agromyzid stemfly *Ophiomyia phaseoli* Tryon (Diptera : Agromyzidae) on black gram. —*Madras agric. J.*, **67** (5) : 350.
1189. Mathew, K. P., Abraham, C. C., Visalakshi, A. and Nair, M. R. G. K. 1980. On the improvement of female production in *Bracon brevicornis* Wesmael. —*Entomon*, **5** (30) : 173-174.
Bracon species, an external parasite of the coconut caterpillar, is used for its biological control.
1190. Mehta, D., Mehta, J., Daftari, M., Kamat, N. and Sen, S. 1980. Fig wasps. —*Hornbill*, **3** : 19-20.
1191. Mishra, R. C., Dogra, G. S. and Gupta, P. R. 1980. Some observations on iridovirus of bees. —*Indian Bee J.*, **42** (1) : 9-10.
1192. Mohana Rao, G., Suryanarayana, M. C. and Thakar, C. V. 1980. Bees can boost oilseed production. —*Indian Fmg.*, **29** (11) : 25-26.
1193. Nandarajan, L. and Channabasavanna, G. P. 1980. Effect of temperature and humidity on the biology and development of the parasites *Perisierola nephantidis* Muesebeck and *Tetrastichus israeli* Mani and Kurian. —*Bull. Ent.*, **19** (1-2) (1978) : 188-196.
1194. Nandarajan, L. and Jayaraj, S. 1980. Host preferences of the eulophid parasite, *Tetrastichus israeli* Mani & Kurian. —*Bull. Ent.*, **19** (1-2) (1978) : 226-228.
1195. Nikam, P. K. 1980. Studies on Indian species of *Enisospilus* Stephens (Hymenoptera : Ichneumonidae). *Oriental Ins.*, **14** (2) : 131-219.
1196. Padmanabhan, V. 1980. The sting in the honey and the nector in the pollen. —*Indian Bee J.*, **42** (1) : 11-14.
1197. Rao, P. S. 1980. A new record of predatory wasp, *Polistes hebraeus* Fabricius, associated with the pest complex of greengram, *Vigna radiata* Wilczek. —*Indian J. Ent.*, **42** (2) : 278-279.
1198. Remadevi, O. K., Mohamed, U. V. K., Abdurahimar, U. C. and Beena, C. G. 1980. Biological observations of *Bracon brevicornis* (Hymenoptera : Braconidae), the biological control agent of *Nephantis serinopa* (Lepidoptera : Xylorictidae). —*J. scient. Res.*, **2** (3) : 197-200.
Brevicornis plays an important role as a natural enemy of *N. serinopa*, hence the biology of *B. brevicornis* is studied.
1199. Saini, M. S. and Dhillon, S. S. 1980. Changing course of the mesopleural suture in the order Hymenoptera. —*J. Anim. Morph. Physiol.*, **27** (1 & 2) : 1-9.

The mesopleural suture is well represented in the members of all the symphytan families following a fairly conservative course. Observations help to establish a systematic changing pattern to which can be attached some evolutionary significance within the order Hymenoptera.

1200. Saini, M. S. and Dhillon, S. S. 1980. Transmutations of the mentum and submentum in Hymenoptera. —*J. Anim. Morph. Physiol.*, 27 (1 & 2) : 18-28.

1201. Sakagami, Sh. F., Matsumura, T. and Ito, K. 1980. *Apis laboriosa* in Himalaya, the little known world largest honeybee (Hymenoptera : Apidae). —*Insecta matsum.*, 19 : 47-77.

The little known giant honeybee *Apis laboriosa* is morphologically compared with *A. dorsata* in worker characters and is considered the distinct world's largest honeybee species. Its distribution range covers the mountainous areas of Nepal, Northern India and Yunnan, upward reaching 4,000 m. This species is regarded as specialized to the high altitude habitat without losing preparation of aerial single-combed nests.

1202. Shah, F. A. 1980. Storing and mailing queen bees in single cage. —*Indian Bee J.*, 42 (1) : 18-19.

1203. Shah, F. A. and Shah, T. A. 1980. Control of acarine in the Kashmir valley. —*Indian Bee J.*, 40 (2) (1978) : 36-38.

Based on the present investigation, it is suggested that infested colonies in the valley can be effectively cured by Folbex fumigation during early spring and late summer seasons.

1204. Sharma, S. K. 1980. On some new species of Belytinae and Diapriinae (Hymenoptera : Proctotrupoidae) from India. —*Oriental Ins.*, 14 (1) : 51-61.

Four new species of Belytinae viz. *Aclista ahlaca*, *Cinetus indicus*, *Pantoclis kodaiensis*, *P. sulcatus* and two new species of Diapriinae ; viz., *Spilomicrus kumaonensis* and *Trichopria atturensis*, are described.

The genus *Cinetus* Jurine is the first record from India.

1205. Sharma, S. K. 1980. On two species of *Macroteleia* Westwood (Hymenoptera : Proctotrupoidea : Scelionidae) from India. —*Oriental Ins.*, 14 (3) : 297-302.

1206. Sharma, S. K. 1980. On two species of *Anteromorpha* Dodd (Hymenoptera : Proctotrupoidea) from India. —*Oriental Ins.*, 14 (3) : 387-390.

A new species *Anteromorpha tuberculata* from Khajuraho, India is described. Besides, additional notes with descriptions of the female of *A. deccanensis* Sharma are given.

1207. Sharma, V. 1980. An oriental species of *Dicranoneura* Kriechbrumer (Hymenoptera : Braconidae : Macrocentrinae). —*Bull. Ent.*, 14 (1-2) (1973) : 21-23.

1208. Siddiqui, J. I. 1980. *Meteorus* sp. as parasite of *Diacrisia obliqua* (Wlk.). —*Geobios*, 7 (5) : 227-228.

1209. Sinha, T. B. and Singh, R. 1980. Bionomics of *Elasmus zehntneri* Ferriere (Elasmidae : Hymenoptera), an ectolarval parasite of *Tryporyza nivella* Fabricius, a pest of sugarcane. I. Description of developmental stages. —*Bull. Ent.*, 18 (1-2) (1976) : 46-52.

1210. Som Choudhury, A. K. and Dutt, N. 1980. Field bioecology of *Trichogramma perkinsi* Girault and *Trichogramma australicum* Girault (Hymenoptera Trichogrammatidae) and their time of release for the control of *Chilo partellus* (Swinhoe) and *Heliothis armigera* Hubn. —*J. ent. Res.*, 4 (1) : 73-82.
1211. Subba Rao, B. R. 1980. *Botryoideclava bharatiya* Gen. et. sp. nov. and a new species of *Eriaphytis* Hayat from India (Hymenoptera : Aphelinidae). —*Oriental Ins.*, 14 (1) : 41-45.
- A new aphelinid genus *Botryoideclava* reared from *Aclerda takahashii* on sugarcane with *B. bharatiya* sp. nov. as type species and *Eriaphytis chackoi* sp. nov. reared from *Vinsonia stellifera* are described.
1212. Subba Rao, B. R., Sharma, A. K., Anand, R. K., Sharma, V. K. and Rai, S. 1980. Hymenopterous and dipterous parasites of *Achoea janata* Linnaeus. —*Bull. Ent.*, 14 (1-2) (1973) : 1-20.
1213. Thomas, M. J., Pillai, K. B. and Nair, N. R. 1980. Occurrence of *Solenopsis geminata* Fabr. (Formicidae : Hymenoptera) as a predator of the brown plant hopper. —*Agric. Res. J. Kerala*, 18 (1) : 145.
1214. Tuhin, N. C. and Bindra, O. S. 1980. Life cycle and laboratory host of *Apanteles chilonis* (Munakata). —*Bull. Ent.*, 15 (1-2) (1974) : 10-13.
1215. Varma, G. C., Maninder and Singh, B. 1980. Studies on the growth of the population and distribution of *Trichogrammatoidea* sp. near *guamensis* Nagaraja. —*J. Res. Punjab agric. Univ.*, 17 (1) : 38-40.
1216. Varma, G. C., Singh, B. and Maninder 1980. Laboratory studies on superparasitism in *Trichogrammatoidea* sp. near *guamensis* Nagaraja (Trichogrammatidae, Hymenoptera). —*Sci. Cult.*, 46 (5) : 203-204.
1217. Yamane, S., Wagner, R.E. and Yamane, S. 1980. A tentative revision of the subgenus *Paravespula* of eastern Asia (Hymenoptera : Vespidae). —*Insecta matsum (Ent.) N. S.* 19 : 1-46.
- The subgenus *Paravespula* of the genus *Vespula* from eastern Asia is revised. Eleven forms belonging to seven species are recognized and described. The results include some new synonyms, new combinations and changes in rank.
- A subdivision of the genus *Vespula* is proposed based upon morphological and behavioral characters, some of which are newly found and may be of a phylogenetic importance. Seven groups are recognized within the genus. World distributional pattern of the *Vespula* species are briefly discussed, with special emphasis on a close faunal relation between Eurasia and North America.
- As an appendix a new species *Vespula shidai* Ishikawa, Sk. Yamane et Wagner, is described from Japan, the Kuriles and Ussuri.

12. ECHINODERMATA

1218. Mary Bai, M. 1980. Monograph on *Holoturina* (*Metriatya*) *scabra* Jaeger. —*Mem. zool. Surv. India*, 16 (2) : 1-75.

The need for a comprehensive anatomical-histological publication on a holothurian, commonly occurring in the east coast of India was felt. The second part of this publication therefore deals with the external characters, the digestive, haemal, respiratory, water vascular, nervous, reproductive systems, coelom, oviscretion and regeneration of *H. (M.) scabra* Jaeger.

13. PROTOCHORDATA

1219. **Azariah, J.** 1980. Studies on the cephalochordates of Madras Coast : VIII. Nature and chemical composition of the gill bar skeleton and the notochord in the larval and adult phases of *Amphioxus Branchiostoma lanceolatum*. —*J. mar. biol. Ass. India*, **17** (2) (1979) : 27-35.
1220. **Madhupratap, M. et. al.** 1980. Swarming of pelagic tunicates associated with phytoplankton bloom in the Bay of Bengal. —*Indian J. mar. Sci.*, **9** (1) : 69-70.

14. CHORDATA

(a) Pisces

1221. **Ahmad, I.** 1980. Changes in the free amino acid contents in the ovary and muscles of *Channa punctatus* Bloch. during maturation. —*J. scient. Res.*, **2** (3) : 165-166.
1222. **Ahmad, N.** 1980. Our freshwater fisheries problems. —*Pakist. J. Sci.*, **32** (1-2) : 82-86.
1223. **Ali, S. M. and Ilyas, R.** 1980. Isobutyl alcohol and tricaine methane sulphate (MS 222) as anaesthetics for *Nemacheli denisonii*. —*Geobios*, **7** (Suppl.) : 318-320.

Isobutyl alcohol and tricaine methane sulphate (MS 222) were found to be effective and non-toxic anaesthetics at low concentration at 27°C, on mature fresh water fish, *N. denisonii*.

1224. **Babu Rao, M. and Yazdani, G. M.** 1980. Specific identity of *Lepidocephalus guntea* (Hamilton) (Cypriniformes : Cobitidae) with considerations of *L. thermalis* (Val.) as its synonym. —*J. zool. Soc. India*, **30** : 13-20.
1225. **Badonia, R. and Devadasan, K.** 1980. Frozen storage characteristics of ribbon fish. —*Fishery Technol.*, **17** (2) : 125-126.
1226. **Baloni, S. P.** 1980. Ecological observations on *Glyptothorax garhwali* Tilak. —*Geobios*, **7** (1) : 26-28.
1227. **Baragi, V. M. and James, P. S. B. R.** 1980. Reproductive biology of sciaenid fish, *Johnnieops osseus* (Day), from the south Kanara coast. —*Indian J. mar. Sci.*, **9** (1) : 19-24.
1228. **Baragi, V. M. and James, P. S. B. R.** 1980. Length-weight relationship and condition factor of the sciaenid fish, *Johnnieops osseus* (Day). —*Indian J. mar. Sci.*, **9** (1) : 67-68.
1229. **Basavaraju, Y. and Varghese, T. J.** 1980. The taxonomic characters of rohu-mrigal and mrigal-rohu hybrids. —*Mysore J. agric. Sci.*, **14** (4) : 567-573.
1230. **Bhatt, S. D.** 1980. Effect of glucose loading on the glycogen content in some tissues of *Clarias batrachus* (L.). —*J. Anim. Morph. Physiol.*, **27** (1 & 2) : 267-272.

1231. **Bhinge, A. R. and Banerjee, S. A.** 1980. Organochlorine pesticide residues in fish (Pomfret) and lactogen. —*Envir. Options for developing countries, Diam. Jubilee Symp.*, : 5-6. (Abstr.)
1232. **Bhowmick, R. M.** 1980. Techniques of induced breeding of Indian and exotic carps. —*Indian Fmr's Dig.*, **13** (11) : 30-35.
1233. **Bose, K. C., Alim, A. and Ahmad, M. F.** 1980. On the cytoarchitectural variation of the corpuscles of stannius of a teleost, *Oxygaster bacaila* (Ham.). —*Matsya*, **6** : 82-84.
1234. **Chakrawarti, J. B. and Chaurasia, R. C.** 1980. Variations in the blood cells of phosphamidon intoxicated fishes *Clarias batrachus* and *Heteropneustes fossilis* Linn. —*J. scient. Res.*, **2** (2) : 125-127.
1235. **Chandrasekaran, G. E. and Subba Rao, B.** 1980. On the growth and survival of rainbow trout reared in stagnant pond at higher water temperature and low dissolved oxygen. —*Matsya*, **5** (1979) : 35-37.
1236. **Chandrasekaran, G. E.** 1980. Forked barbel and absence of pelvic fin in marine catfishes of the family Ariidae. —*Matsya*, **5** (1979) : 78-79.
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The paper deals with the preparation FPC from shark, its nutritive value and storage characteristics.
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The present paper provides a brief history of work on mammal fauna of Andaman and Nicobar Islands. The doubtful records of several mammals have also been discussed. Forty six species of mammals are recognised as representing the mammal fauna and these are dealt group wise. The fauna composition, zoogeography and affinity of fauna with those of adjacent countries is also discussed.
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II. LIST OF NEW TAXA

Note : All new taxonomic categories, except new species, have been indicated by suffixing appropriate terms such as gen. n., subgen. n., subsp. n. etc.

The numbers in bracket appearing on the right side refer to the serial number of the main title.

I. PHYLUM : PROTOZOA

- I. Class : Mastigophora
Order : Kinetoplastida
Family : Trypanosomatidae

1. *Trypanosoma lanii* Choudhury & Misra (39)
2. *Trypanosoma tandoni* Mandal (49)

- II. Class : Sporozoa
(1) Order : Coccidia
Family : Eimeriidae

3. *Isopora parvae* Chatterjee & Chowdhury (37)

- (2) Order : Galliformes
Family : Megapodiidae

4. *Haemoproteus megapodicus* Nandi & Mandal (54)

- (3) Order : Gregarinida
Family : Actinocephalidae

5. *Quadruspinospora acridii* Haldar & Chakraborty (42)

6. *Quadruspinospora indoaiolopi* Haldar & Chakraborty (42)

7. *Quadruspinospora megaspinosa* Haldar & Chakraborty (42)

- (4) Order : Myxosporidia
Family : Myxobolidae

8. *Myxobolus carnaticus* Senappa & Manohar (61)

9. *Myxobolus curmuciae* Senappa & Manohar (61)

- III. Class : ?
Order : ?
Family : ?

10. *Pirhemocytion ranarum* Ray & Mandal (original citation) (60)

II. PHYLUM : COELENTERATA (CNIDARIA)

- Class : Hydrozoa
Order : Actinulida
Family : Halammohydridae

11. *Halammohydra sagarensis* Rao & Misra (69)

III. PHYLUM : PLATYHELMINTHES

- I. Class : Trematoda
(a) Sub-class : Monogenea
(i) Family : Dactylogyridae

12. *Ancyrocephaloides mizellei* Gupta & Sharma (88)

13. *Ancyrocephaloides yamagutii* Gupta & Sharma (88)

14. *Bifurcohaptor vishwanathi* Agarwal & Rakesh Kumar (70)

15. *Lobotrema sciaeneae* Kumar & Agrawal (107)

- (ii) Family : Diplozoidae

16. *Diplozoon thapari* Gupta & Krishna (84)

(iii) Family : Gastrocotylidae

17. *Pricea fotedari* Gupta & Sharma (87)
 18. *Pricea thapari* Gupta & Sharma (87)

(iv) Family : Heteraxinidae

19. *Bicotyle dorabi* Gupta & Krishna (85)
 20. *Heteromicrocotyla yamagutii* Gupta & Krishna (85)
 21. *Megamicrocotyle johnstoni* Gupta & Krishna (85)
 22. *Megamicrocotyle stunkardi* Gupta & Krishna (85)

(v) Family : Mazocraeidae

23. *Kuhnia guttatumai* Gupta & Krishna (83)
 24. *Kuhnia microlepidotusi* Gupta & Krishna (83)
 25. *Kuhnia pricei* Gupta & Krishna (83)

(vi) Family : Polystomatidae

26. *Polystomoides chauhani* Pandey & Agarwal (113)

(b) Sub-class : Digenea

(i) Family : Acanthocolpidae

27. *Acanthocolpis inglisi* Gupta & Gupta (82)
 28. *Stephanostomoides sharmai* Gupta & Gupta (82)
 29. *Stephanostomum srivastavai* Gupta & Gupta (82)

(ii) Family : Allocreadiidae

30. *Allocreadium calbasii* Gupta & Puri (98)
 31. *Allocreadium indicum* Kalyankar & Deshmukh (105)
 32. *Allocreadium manteri* Gupta & Puri (98)

(iii) Family : Aspidogastriidae

33. *Lobatostoma hanumanthai* Narasimhulu & Madhavi (112)

(iv) Family : Azygiidae

34. *Azygia papillata* Ubgade & Agarwal (118a)

(v) Family : Bucephalidae

35. *Bucephalus indica* Agarwal & Agarwal (73)

(vi) Family : Cryptogonimidae

36. *Paracryptogonimus sootai* Hafeezullah (101)
 37. *Polyorchitrema inglisi* Gupta & Puri (98)

(vii) Family : Echinostomatidae

38. *Echinochasmus papillosai* Gupta & Jahan (93)
 39. *Echinoparyphium magniovum* Gupta & Jahan (93)
 40. *Hypoderaeum indica* Gupta & Jahan (93)
 41. *Stephanoprora elongata* Gupta & Jahan (93)

(viii) Family : Enenteridae

42. *Enenterum mannareense* Hafeezullah (99)
 43. *Jeancadenatia doffusi* Hafeezullah (99)

(ix) Family : Heterophyidae

44. *Haplorchoides vinodei* Gupta & Gupta (78)

(x) Family : Lecithodendriidae

45. *Postorchigenes rishikeshii* Lal & Prasad (108)

(xi) Family : Opisthorchiidae

46. *Opisthorchis gwaliorensis* Bhadauria & Dandotia (75)
 47. *Opisthorchis thapari* Agarwal & Singh (72)

(xii) Family : Plagiorchiidae

48. *Astiotrema kachugai* Gupta & Jahan (96)
 49. *Astiotrema varanusi* Gupta & Jahan (96)
 50. *Plagiorchis funambulusi* Gupta & Jahan (97)

(xiii) Family : Pleorchiidae

- 51.
- Pleorchis indicum*
- Gupta & Puri (98)

(xiv) Family : Psilostomidae

- 52.
- Psilotrema creccai*
- Gupta & Jahan (92)

(xv) Family : Stomylotrematidae

- 53.
- Stomylotrema ultivitellaria*
- Singh & Prasad (116)

(xvi) Family : Strigeidae

- 54.
- Tetracotyle gyanpurensis*
- Agrawal & Singh (74)

II. Class : Cestoda

(i) Family : Caryophyllidae

- 55.
- Capingentoides heteropneusti*
- Gupta & Sinha (125)

(ii) Family : Dilepididae

- 56.
- Dilepis fotedari*
- Chishti (122)

(iii) Family : Diphyllbothriidae

- 57.
- Duthiersia gomatii*
- Gupta & Sinha (126)

(iv) Family : Hymenolepididae

- 58.
- Vampirolepis somariensis*
- Malhotra & Capoor (127)

(v) Family : Lecanicephalidae

- 59.
- Hexacanalisis sasoonensis*
- Srivastava & Capoor (133)

(vi) Family : Ophiotaeniidae

- 60.
- Ophiotaenia chattoraji*
- Srivastava & Pande (134)

(vii) Family : Phyllobothriidae

- 61.
- Marasupiobothrium rhinobati*
- Shinde & Deshmukh (138)

- 62.
- Marsupiobothrium rhynchobati*
- Shinde & Deshmukh (138)

IV. PHYLUM : ASCHELMINTHES

I. Class : Gastrotricha

Family : Lepidodasyidae

- 63.
- Paradasys lineatus*
- Chandrasekhara (141)

II. Class : Nematoda

(i) Family : Acuariidae

- 64.
- Acuaria excubitori*
- Gupta & Kumar (190)

- 65.
- Acuaria muelleri*
- Gupta & Kumar (190)

- 66.
- Acuaria srivastavai*
- Gupta & Kumar (190)
-
- Pseudoaviculariella*
- Gupta & Kazim
-
- (gen. n.) (187)

- 67.
- Pseudoaviculariella srivastavai*
- Gupta & Kazim (187)

- 68.
- Streptocara indica*
- Fotedar & Chishti (178)

- 69.
- Synhimantus nigeri*
- Gupta & Kazim (187)

(ii) Family : Anisakidae

- 70.
- Goezia aspinulosa*
- Arya (150)

(iii) Family : Aphelenchidae

- 71.
- Aphelenchus zuckermanae*
- Tandon & Singh (266)

(iv) Family : Ascarididae

- 72.
- Amplicaecum singhi*
- Gupta & Gupta (185)

- 73.
- Amplicaecum tetradonti*
- Gupta & Gupta (185)

- 74.
- Ophidascaris cameroni*
- Gupta & Gupta (185)

(v) Family : Camallanidae

- 75.
- Camallanus kumaonus*
- Arya (151)

- 76.
- Neocamallanus bareilliensis*
- Sharma & Sharma (248)

- 77.
- Neocamallanus thapari*
- Agarwal & Misra (142)

- 78.
- Procamallanus guptae*
- Arya (151)

- 79.
- Spirocamallanus nainitalensis*
- Arya (151)

- 80.
- Zeylanema jullundurens*
- Gupta & Duggal (184)

(vi) Family : Cephalobidae

- 81.
- Cephalobium*
- ? Rao (238)

- (vii) Family : Criconematidae
82. *Discocriconemella barberi* Chawla & Samathanam (164)
83. *Macroposthonia medani* Phukan & Sanwal (229)
84. *Macroposthonia onostriis* Phukan & Sanwal (229)
85. *Madinema theobronii* Chawla & Samathanam (164)
- (viii) Family : Cucullanidae
86. *Cucullanus rivulatus* Soota & Deysarkar (262)
87. *Cucullanus* ? Gupta & Kazim (187)
88. *Indocucullanus sciaenai* Gupta & Gupta (185)
- (ix) Family : Dipetalonematidae
89. *Aproctoides singhi* Gupta & Kumar (189)
90. *Carinema thapari* Gupta & Kumar (189)
- (x) Family : Dorylaimidae
91. *Calolaimus parapapillatus* Dhanchand & Jairajpuri (175)
92. *Chitwoodius seshadrii* Baqri (158)
93. *Enchodelium asaccatum* Dhanchand & Jairajpuri (175)
94. *Eudorylaimus indicus* Soni & Nama (258)
95. *Indodorylaimus kanhobia* Thombre, Joshi & Farooqui (267)
96. *Oriverutus arcuatus* Baqri (158)
- (xi) Family : Filariidae
97. *Eufilaria turnicis* Devamma (174)
- (xii) Family : Gnathostomatidae
98. *Echinocephalus oligocanthus* Arya (147)
- (xiii) Family : Hemicycliophoridae
99. *Caloosia indica* Chawla & Samathanam (164)
100. *Caloosia triannulata* Ray & Das (242)
101. *Hemicycliophora micheli* Fotedar & Mahajan (179)
102. *Hemicycliophora utkali* Ray & Das (242)
- (xiv) Family : Heterakidae
103. *Spinicauda hardwickii* Deshmukh & Choudhari (170)
- (xv) Family : Hoplolaimoidae
104. *Rotylenchoides impar* Khan, Saha & Chawla (206)
105. *Scutellonema brabanum* Khan, Saha & Chawla (206)
- (xvi) Family : Longidoridae
106. *Longidoroides longiurus* Chawla & Samathanam (165)
107. *Siddigia dasturi* Ganguly, Patil & Khan (181)
108. *Siddigia inagreina* Chawla & Samathanam (165)
109. *Siddigia mediensis* Ganguly, Patil & Khan (181)
110. *Siddigia seclipsi* Khan, Singh & Singh (208)
- (xvii) Family : Mesidionematidae
111. *Mesidionema nordiensis* Vijayalakshmi & Khan (276)
- (xviii) Family : Neotylenchidae
112. *Paurodontus citri* Varaprasad, Khan & Lal (271)
113. *Paurodontus solani* Varaprasad, Khan & Lal (271)
- (xix) Family : Nordiidae
114. *Enchodelus* (*Enchodelus*) *distinctus* Ahmad & Jairajpuri (145)
- Nepalus* Ahmad & Jairajpuri (subgen. n.) (145)
- Paraenchodelus* Ahmad & Jairajpuri (subgen. n.) (145)
- Rotundus* Ahmad & Jairajpuri (subgen. n.) (145)

(xx) Family : Physalopteridae

Paraphysaloptera Gupta & Kazim (gen. n.) (187)

115. *Paraphysaloptera alii* Gupta & Kazim (187)
 116. *Physaloptera calotisi* Arya (149)
 117. *Physaloptera guptae* Arya (149)
 118. *Physaloptera indica* Arya (149)
 119. *Physaloptera johnsoni* Arya (149)
 120. *Physaloptera thaparus* Arya (149)

(xxi) Family : Protostrongylidae

121. *Pulmostrongylus thapari* Gupta & Trivedi (192)

(xxii) Family : Quimperidae

122. *Metaquimperia vagrae* Arya (153)

(xxiii) Family : Rhabdochoniidae

123. *Comephoronema johnsoni* Arya (148)
 124. *Rhabdochona (Rhabdochona) unispinata* Arya (152)

(xxiv) Family : Spiruridae

125. *Habronema (Aviabronema) cameroni* Gupta & Kazim (187)
 126. *Hadjeela hypoleucosi* Gupta & Kumar (191)

(xxv) Family : Swangeriidae

127. *Lindseyus indicus* Dhanachand & Jairajpuri (175)

(xxvi) Family : Tetrameridae

128. *Microtetrameres (Gubernacules) mucronatus* Devamma (172)
 129. *Microtetrameres (Microtetrameres) brevis* Devamma (172)
 130. *Microtetrameres (Microtetrameres) proxima* Devamma (172)

(xxvii) Family : Thelaziidae

131. *Oxyspirura (Cramispirura) brevibucca* Devamma (171)

132. *Oxyspirura (Cramispirura) mucronata* Devamma (171)

133. *Oxyspirura (Oxyspirura) bosei* Devamma (171)

134. *Oxyspirura (Oxyspirura) hexapapillata* Devamma (171)

135. *Oxyspirura (Oxyspirura) skrjabini* Devamma (171)

136. *Oxyspirura parmari* Gupta & Kazim (187)

137. *Spinitectus muelleri* Gupta & Verma (193)

(xxviii) Family : Tylenchidae

138. *Aglenchus assamensis* Phukan & Sanwal (228)

139. *Aglenchus muktii* Phukan & Sanwal (228)

140. *Basiroides binarius* Sultana (264)

141. *Basiroides brevius* Sultana (264)

142. *Basiroides macrostriatus* Sultana (264)

143. *Basiroides siddiquii* Sultana (264)

144. *Cephalenchus lobus* Dhanachand & Jairajpuri (176)

- Imphalenchus* Dhanachand & Jairajpuri (gen. n.) (176)

145. *Rotylenchus spinicaudatus* Tandon & Singh (266)

(xxix) Family : Tylencholaimidae

146. *Discomyctus elongatus* Dhanachand & Jairajpuri (175)

V. PHYLUM : ACANTHOCEPHALA

(i) Family : Arythmacanthidae

147. *Arythmacanthus thapari* Gupta & Fatma (279b)

(ii) Family : Centrorhynchidae

148. *Centrorhynchus bramae* Rengaraju & Das (280)

(iii) Family : Diplosentidae

149. *Diplosentis manteri* Gupta & Das (279b)

(iv) Family : Gorgorhynchidae

150. *Serrasentis fotedari* Gupta & Fatma (279b)

(v) Family : Rhadinorhynchidae

151. *Mehrarhynchus fotedari* Gupta & Naqvi (297a)
 152. *Mehrarhynchus thapari* Gupta & Naqvi (297a)

VI. PHYLUM : ARTHROPODA

I. Class : Archnida

(1) Order : Araneae

(i) Family : Araneidae

153. *Neoscona mukerjei* Tikader (413)

(ii) Family : Atemnidae

154. *Qratemnus loyolai* Sivaraman (408)
 155. *Paratemnus indicus* Sivaraman (408)
 156. *Paratemnus robustus* Sivaraman (408)
 157. *Stenatemnus asiaticus* Sivaraman (408)
 158. *Stenatemnus orientalis* Sivaraman (408)
 159. *Tamerus indicus* Sivaraman (408)
 160. *Tullgrenius orientalis* Sivaraman (408)

(iii) Family : Chthoniidae

161. *Lechytia madrasica* Sivaraman (409)

(iv) Family : Olpiidae

162. *Calocheiridius amrithiensis* Sivaraman (407)
 163. *Calocheiridius granulatus* Sivaraman (407)
 164. *Calocheiridius intermedius* Sivaraman (407)
 165. *Calocheiridius murthii* Sivaraman (407)
 166. *Geogarypus (Indogarypus) globulus* Sivaraman (407)
Heterolpium Sivaraman (gen. n.) (407)
 167. *Heterolpium indicum* Sivaraman (407)
 168. *Olpium tibium* Sivaraman (407)

(v) Family : ?

169. *Comsaditha camponota* Sivaraman (409)

(2) Order : Acarina

(i) Family : Basilobelbidae

170. *Xiphobelba ismalia* Haq (375)

(ii) Family : Cunaxidae

171. *Cunaxa bambusae* Gupta & Ghosh (373)
 172. *Cunaxa cynodonae* Gupta & Ghosh (373)
 173. *Cunaxoides nicobarensis* Gupta & Ghosh (373)

Indocunoza Gupta & Ghosh (gen. n.) (373)

174. *Indocunaxa smileyi* Gupta & Ghosh (373)

175. *Neocunaxoides pradhani* Gupta & Ghosh (373)

(iii) Family : Epilohmanniidae

176. *Epilohmannia pallida indica* Bhattacharya & Banerjee (sub sp. n.) (358)

(iv) Family : Eriophyidae

177. *Abacarus goaensis* Mohanasundaram (389)
 178. *Aculops extensae* Mohanasundaram (388)
 179. *Aculus privae* Mohanasundaram (388)
 180. *Aculus atturensis* Mohanasundaram (388)
 181. *Aculus yelagiriensis* Mohanasundaram (387)
 182. *Calacarus polyalthiae* Mohanasundaram (389)
 183. *Colopodocus cinnamomae* Mohanasundaram (389)
 184. *Ectomerus chebulae* Mohanasundaram (387)
 185. *Epitrimerus chandramohani* Mohanasundaram (389)
 186. *Eriophyes acaciae* Mohanasundaram (388)

187. *Eriophyes commelinae* Mohanasundaram (389)
188. *Eriophyes mallotica* Mohanasundaram (387)
189. *Floracarus pollachiensis* Mohanasundaram (387)
- Indotegolophus* Chakrabarti, Mandal & Roy (gen. n.) (362)
190. *Indotegolophus darjeelingensis* Chakrabarti, Mandal & Roy (362)
191. *Metaculus londaensis* Mohanasundaram (389)
- Neocecidophyes* Mohanasundaram (gen. n.) (389)
192. *Neocecidophyes mallotivagraus* Mohanasundaram (389)
- Neocolopodacus* Mohanasundaram (gen. n.) (389)
193. *Neocolopodacus mitragynae* Mohanasundaram (389)
194. *Paratetra himalayana* Chakrabarti, Mandal & Roy (362)
195. *Phyllocopruta malligai* Mohanasundaram (389)
196. *Phyllocopruta odayarae* Mohanasundaram (388)
- (v) Family : Haplozetidae
197. *Pilobatella berlesei* Bhattacharya & Banerjee (358)
- (vi) Family : Phytoseiidae
198. *Iphiseius andamanicus* Gupta (372)
199. *Paraamblyseius fragoriae* Gupta (372)
200. *Paraamblyseius mumai* Gupta (370)
201. *Phytoseius (Dubiniella) swirskii* Gupta (371)
202. *Phytoseius (Dubininellus) bandipurensis* Gupta (369)
- (vii) Family : Stigmaeidae
- Indostigmaeus* Gupta & Ghosh (gen. n.) (373)
203. *Indostigmaeus rangatensis* Gupta & Ghosh (373)
- (viii) Family : Tenuipalpidae
204. *Aegyptobia menoni* Maninder & Ghai (384)
205. *Tenuipalpus aboharensis* Sadana & Chhabra (401)
206. *Tenuipalpus ludhianaensis* Sadana & Chhabra (401)
- (ix) Family : Tetranychidae
207. *Aponychus sarjui* Gupta (374)
208. *Oligonychus manishi* Gupta (374)
209. *Schizotetranychus mansonii* Gupta (374)
- (x) Family : Triplogyniidae
210. *Triplogynium indicum* Pramanik & Raychaudhuri (392)
- II. Class : Crustacea
- (a) Sub-class : Branchiopoda
- (i) Order : Anostraca
- Family : Streptocephalidae
211. *Streptocephalus lahorensis* Ghauri & Mahoon (430)
- (b) Sub-class : Copepoda
- Order : Cyclopoida
- Family : Lernaeidae
212. *Lernaea bhadrae* Senappa, Manohar & Shetty (469)
- (c) Sub-class : Ostracoda
- Order : Myodocopa
- Family : Cyprididae
213. *Ilyocypris kholai* Mathur (446)
214. *Neocyprideis bhatiai* Mathur (446)

- III. Class : Insecta
- (1) Order : Thysanura
Family : Lepismatidae
215. *Stylifera wygodzinskyi* Hazra (501)
- (2) Order : Collembola
Family : Tomoceridae
216. *Tomocerus* (s. str.) *mitrae* Prabhoo & Muraleedharan (504)
- (3) Order : Plecoptera
(i) Family : Chloroperlidae
217. *Xanthoperla acuta* Zwick (514)
- (ii) Family : Nemouridae
218. *Amphinemura elegans* Zwick (514)
219. *Amphinemura martensis* Zwick (514)
220. *Amphinemura stangeli* Sivec (514)
221. *Amphinemura wittmeri* Zwick (514)
222. *Indonemura langtangi* Sivec (514)
223. *Indonemura loebli* Zwick (514)
224. *Nemoura brevicauda* Zwick (514)
225. *Nemoura magnicauda* Zwick (514)
226. *Nemoura nepalensis* Zwick (514)
227. *Nemoura tamangi* Sivec (514)
228. *Nemoura triangulifera* Zwick (514)
- (iii) Family : Peltoperlidae
229. *Cryptoperla pentagonalis* Zwick & Sivec (514)
- (iv) Family : Perlidae
230. *Neoperla asperipensis* Zwick (514)
231. *Neoperla complicata* Sivec (514)
232. *Neoperla herperi* Zwick (514)
233. *Neoperla inexpectata* Zwick (513)
234. *Neoperla perspicillata* Zwick (514)
235. *Neoperla siveci* Zwick (514)
236. *Neoperla tortipensis* Zwick (514)
- (v) Family : Perlodidae
237. *Neofilchneria erberi* Zwick (514)
- (vi) Family : Taeniopterygidae
238. *Mesyatsia nigra* Zwick (514)
- (4) Order : Orthoptera
(i) Family : Gryllidae
239. *Turanogryllus aurangabadensis* Vasanth (540)
240. *Turanogryllus ghoshi* Vasanth (540)
- (ii) Family : Phalangopsidae
241. *Kempiella shankari* Sinha & Agarwal (536)
- (5) Order : Dermaptera
Family : Pygidicranidae
242. *Cranopygia bifurcata* Srivastava (547)
- (6) Order : Isoptera
Family : Termitidae
243. *Doonitermes buxensis* Thakur & Sen Sarma (571)
244. *Nasutitermes guptai* Sen-Sarma & Thakur (567)
245. *Nasutitermes triloki* Bose (558)
- (7) Order : Hemiptera
(a) Sub-Order : Homoptera
(i) Family : Aleyrodidae
246. *Dialeurodes abbotabadiensis* Qureshi (651)
247. *Dialeurodes anjumi* Qureshi (651)
- (ii) Family : Aphididae
248. *Dactynotus echinatus* Kulkarni (627)
249. *Dactynotus orientalis* Kulkarni (627)
250. *Eutrichosiphum* (*Paratrachosiphum*) *neolnicola* Raychaudhuri, Ghosh & Das (661)

251. *Metopolophium graminum* Raychaudhuri, Ghosh & Das (661)
252. *Metopolophium sonchifoliae* Raychaudhuri, Ghosh & Das (661)
- Pilorostris* Raychaudhuri, Ghosh & Das (gen. n.) (661)
253. *Pilorostris simlaensis* Raychaudhuri, Ghosh & Das (661)
- Pseudothoracaphis* Raychaudhuri, Ghosh & Das (gen. n.) (661)
254. *Pseudothoracaphis himachali* Raychaudhuri, Ghosh & Das (661)
- Senisetotarsaphis* Raychaudhuri, Ghosh & Das (gen. n.) (661)
255. *Senisetotarsaphis jakhuensis* Raychaudhuri, Ghosh & Das (661)
- (iii) Family : Cicadellidae
256. *Alebroides sinuatus* Dworakowska (601)
257. *Alnetoidia indica* Dworakowska (601)
258. *Apeticellata sinuata* Dworakowska (601)
259. *Arboridia (Arborifera) sohii* Dworakowska (601)
260. *Arboridia (s. str.) ata* Dworakowska (601)
- Borulla* Dworakowska, Sohi & Viraktamath (gen. n.) (602)
261. *Borulla gracilis* Dworakowska, Sohi & Viraktamath (602)
- Burara* Dworakowska (sub gen. n.) (601)
262. *Cassianeura aurea* Dworakowska (601)
263. *Dialecticopteryx (Akotettix) quadrata* Dworakowska (601)
264. *Empoasca (Distantasca) tna* Dworakowska (601)
265. *Empoasca (S. Str.) lillae* Dworakowska (601)
266. *Empoasca (S. Str.) rura* Dworakowska (601)
267. *Empoasca (S. Str.) stata* Dworakowska (601)
268. *Empoasca (S. Str.) tanova* Dworakowska (601)
269. *Empoasca (S. Str.) tastara* Dworakowska (601)
270. *Empoasca tuba* Dworakowska (601)
271. *Empoascanara singhi* Dworakowska (601)
272. *Eupteryx bharatiae* Dworakowska (601)
- Faiga* Dworakowska (gen. n.) (601)
273. *Faiga dropia* Dworakowska (601)
274. *Frutoidia cardiaca* Dworakowska (601)
275. *Gambialoa forcipata* Dworakowska (601)
- Gindara* Dworakowska (gen. n.) (601)
276. *Gindara temna* Dworakowska (601)
277. *Goifa rotundata* Dworakowska (601)
278. *Helionidia hirsuta* Dworakowska (601)
279. *Helionidia rubra* Dworakowska (601)
280. *Helionidia viridula* Dworakowska (601)
281. *Idioscopus capriliana* Viraktamath & Murphy (692)
282. *Idioscopus irenae* Viraktamath (691)
283. *Ifugoa media* Dworakowska (601)
- Kalkiana* Sohi, Viraktamath & Dworakowska (gen. n.) (678)
284. *Kalkiana bambusa* Sohi, Viraktamath & Dworakowska (678)
285. *Kapsa sydlata* Dworakowska (601)
286. *Lankasca menoni* Dworakowska (601)
287. *Lankasca vicaria* Dworakowska (601)
288. *Mandera blada* Dworakowska (601)
289. *Mandera cornuta* Dworakowska (601)
290. *Mandera stylata* Dworakowska (601)
291. *Michalowskiya variabilis* Dworakowska (601)
292. *Mitjaevia callosa* Dworakowska (601)

293. *Motaga fara* Dworakowska (601)
294. *Motaga gracilis* Dworakowska (601)
295. *Ratburella* (*Burara*) *maxima* Dworakowska (601)
296. *Salka tricera* Dworakowska (601)
- Shamala* Dworakowska (gen. n.) (601)
297. *Shamala mikra* Dworakowska (601)
298. *Takama media* Dworakowska (601)
299. *Takama minuta* Dworakowska (601)
300. *Tautoneura* (S. Str.) *incisa* Dworakowska (601)
301. *Tautoneura* (S. Str.) *smoeza* Dworakowska (601)
302. *Thaia* (S. Str.) *albida* Dworakowska (601)
303. *Usharia glabra* Dworakowska (601)
304. *Vebe pruthii* Dworakowska (601)
- Vermara* Dworakowska (gen. n.) (601)
305. *Vermara neglecta* Dworakowska (601)
- (iv) Family : Membracidae
306. *Gargara brevis* Ananthasubramanian (584)
307. *Gargara discoidalis* Ananthasubramanian (584)
308. *Gargara nigrolimbata* Ananthasubramanian (584)
309. *Gargara pellucida* Ananthasubramanian (583)
310. *Gargara pulniensis* Ananthasubramanian (583)
- Gargarina* Ananthasubramanian (gen.n.) (584)
311. *Gargarina carinata* Ananthasubramanian (584)
312. *Lanceonotus indicus* Ananthasubramanian (583)
313. *Leptocentrus acuticornis* Ananthasubramanian (584)
314. *Leptocentrus bleuri* Ananthasubramanian (584)
315. *Leptocentrus carinatus* Ananthasubramanian (584)
316. *Leptocentrus cinnamomi* Ananthasubramanian (583)
317. *Leptocentrus luteus* Ananthasubramanian (584)
318. *Leptocentrus majesticus* Ananthasubramanian (583)
319. *Leptocentrus rubrinigris* Ananthasubramanian (584)
320. *Lep'ocentrus rufescens* Ananthasubramanian (584)
321. *Leptocentrus splendens* Ananthasubramanian (584)
322. *Otinotus aureus* Ananthasubramanian (583)
323. *Otinotus mysorensis* Ananthasubramanian (583)
324. *Oxyrhachis apicalis* Ananthasubramanian (584)
325. *Oxyrhachis geniculata* Ananthasubramanian (584)
326. *Oxyrhachis grandis* Ananthasubramanian (584)
327. *Oxyrhachis haldari* Ananthasubramanian (584)
328. *Oxyrhachis malabricus* Ananthasubramanian (583)
329. *Oxyrhachis nigrodorsalis* Ananthasubramanian (584)
330. *Oxyrhachis punctatus* Ananthasubramanian (584)
331. *Oxyrhachis tuberculatus* Ananthasubramanian (583)
332. *Oxyrhachis unicolor* Ananthasubramanian (584)
333. *Paranotus tomentosus* Ananthasubramanian (583)

334. *Parayasa fasciata* Ananthasubramanian (583)
335. *Parayasa nigrolimbata* Ananthasubramanian (583)
336. *Parayasa pilosa* Ananthasubramanian (583)
337. *Telingana pulniensis* Ananthasubramanian (583)
338. *Tricentrus atrus* Ananthasubramanian (584)
339. *Tricentrus cinereus* Ananthasubramanian (584)
340. *Tricentrus compressus* Ananthasubramanian (584)
341. *Tricentrus cornutus* Ananthasubramanian (584)
342. *Tricentrus dubius* Ananthasubramanian (584)
343. *Tricentrus elegans* Ananthasubramanian (584)
344. *Tricentrus longiceps* Ananthasubramanian (584)
345. *Tricentrus longicornis* Ananthasubramanian (584)
346. *Tricentrus minomorii* Ananthasubramanian (584)
347. *Tricentrus minusculus* Ananthasubramanian (584)
348. *Tricentrus nobilis* Ananthasubramanian (583)
349. *Tricentrus platycornis* Ananthasubramanian (584)
350. *Tricentrus recurvicornis* Ananthasubramanian (584)
351. *Tricentrus unicolor* Ananthasubramanian (584)
352. *Tricentrus varicornis* Ananthasubramanian (584)
- (b) Sub-Order : Heteroptera
- (i) Family : Aradidae
- Aradus (Miraradus) Vasarhelyi* (subgen. n.) (727)
353. *Aradus himalayensis* Vasarhelyi (727)
354. *Aradus oervendetes* Vasarhelyi (727)
- (ii) Family : Lygaeidae
355. *Boccharis indicus* Mukhopadhyay (713)
- (iii) Family : Pentatomidae
356. *Gynenica ghauri* Mathew (712)
- (8) Order : Thysanoptera
- (i) Family : Phlaeothripidae
357. *Arrhenothrips brevis* Ananthakrishnan & Swaminathan (730)
358. *Gynaikothrips rossi* Sen (736)
- Mutothrips* Ananthakrishnan & Swaminathan (gen. n.) (730)
359. *Mutothrips validus* Ananthakrishnan & Swaminathan (730)
360. *Polyphemothrips andamanensis* Sen (736)
- (ii) Family : Thripidae
361. *Caprithrips ajanta* Bhatti (731)
- (9) Order : Coleoptera
- (i) Family : Carabidae
362. *Bothariopterus bhutanensis* Morvan (786)
363. *Brosicus costatus* Morvan (786)
364. *Carabus (Meganebrius) arunensis* Heinertz (780)
365. *Chaetobrosicus bhutanensis* Morvan (786)
366. *Lesticus wittmeri* Morvan (786)
367. *Molops elatus muingi* Morvan (786)
368. *Molops piceus kashmirensis* Morvan (786)
369. *Parathlibops wittmeri* Casale (769)
370. *Pterostichus raraensis* Morvan (786)

(ii) Family : Chrysomelidae

371. *Chlasposoma semicostatum* Shrestha (819)
 372. *Callispa nigratarsata* Shrestha (819)
 373. *Chrysomela chlorina* Shrestha (819)
 374. *Datylispa longula* Shrestha (819)
 375. *Lema malabarica* Shrestha (819)

Maulika Basu & Sengupta (gen. n.)
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376. *Maulika decemmaculata* Basu & Sengupta (751)

(iii) Family : Cryptophagidae

377. *Henoticus bhutanicus* Sengupta & Pal (814)
 378. *Himascelis kashmirensis* Sengupta & Pal (815)

(iv) Family : Dytiscidae

379. *Hydronebrius mattheyi* Brancucci (764)
 380. *Hydronebrius mattheyi nepalensis* Brancucci (sub sp. n.) (764)
 381. *Potamonectes* (S. Str.) *satie* Vazirani (848)

(v) Family : Elacatidae

382. *Elacatis bhutanensis* Sengupta (813)

(vi) Family : Geotrupidae

- Bolbohamatum* Krikker (gen. n.) (782)
 383. *Bolbohamatum phallosum* Krikker (782)
 384. *Bolbohamatum pseudogrande* Krikker (782)
 385. *Bolbohamatum pyramidifer* Krikker (782)
 386. *Bolbohamatum robustum* Krikker (782)
 387. *Bolbohamatum syncopator* Krikker (782)

(vii) Family : Helodidae

388. *Cyphon amaurus* Klausnitzer (781)
 389. *Cyphon dubius* Klausnitzer (781)

390. *Cyphon honoris* Klausnitzer (781)
 391. *Cyphon mendosus* Klausnitzer (781)
 392. *Cyphon minutulus* Klausnitzer (781)
 393. *Cyphon optatus* Klausnitzer (781)
 394. *Cyphon rotundulus* Klausnitzer (781)
 395. *Cyphon suspiciocus* Klausnitzer (781)
 396. *Cyphon titigiosus* Klausnitzer (781)
 397. *Cyphon unipunctatus* Klausnitzer (781)
 398. *Cyphon voluptificus* Klausnitzer (781)
 399. *Flavohelodes indubia* Klausnitzer (781)
 400. *Flavohelodes longiuscula* Klausnitzer (781)
 401. *Hydrocyphon celatus* Klausnitzer (781)
 402. *Hydrocyphon interrogationsis* Klausnitzer (781)
 403. *Hydrocyphon pulchellus* Klausnitzer (781)

(viii) Family : Malachiidae

404. *Tropiebaeus nepalensis* Wittmer (855)
 405. *Tropiebaeus puncticeps* Wittmer (855)

(ix) Family : Oedemeridae

406. *Chrysanthia bhutanica* Svihla (846)
 407. *Chrysanthia wittmeri* Svihla (846)
Indasclera Svihla (gen. n.) (846)
 408. *Indasclera himalaica* Svihla (846)
 409. *Indasclera obscura* Svihla (846)
 410. *Xanthochroa brachyptera* Svihla (846)

(x) Family : Staphylinidae

411. *Dianous chetri* Rougemont (806)
 412. *Dianous hammondi* Rougemont (806)
 413. *Dianous reformatore* Rougemont (806)
 414. *Dibelonotes bengalensis* Biswas & Sengupta (759)
 415. *Dibelonotes bhaumiki* Biswas & Sengupta (759)

416. *Dibelonotes sikkimensis* Biswas & Sengupta (759)
417. *Oxytelopsis bengalensis* Biswas & Sengupta (760)
418. *Stenus (Parastenus) calcariventris* Puthz (799)
419. *Stenus (Parastenus) indecoratus* Puthz (799)
420. *Stenus (S. Str.) sarnio* Puthz (799)
- (xi) Family : Tenebrionidae
- Telekuma* Bradoo (gen. n.) (762)
421. *Telekuma nikalalensis* Bradoo (762)
- (10) Order : : Diptera
- (i) Family : : Asilidae
422. *Trigonomima anamaliensis* Joseph & Parui (905)
- (ii) Family : Drosophilidae
423. *Drosophila (Drosophila) maryensis* Gupta & Dwivedi (895)
424. *Drosophila (Drosophila) novazonata* Gupta & Dwivedi (895)
425. *Drosophila (Drosophila) parazonata* Gupta & Dwivedi (895)
426. *Drosophila (Drosophila) setitarsa* Gupta & Dwivedi (895)
- (iii) Family : Pipunculidae
427. *Pipunculus (Eudorylas) kumaonensis* Kapoor, Agarwal & Grewal (911)
428. *Pipunculus (Eudorylas) ranikhetiensis* Kapoor, Agarwal & Grewal (911)
- (11) Order : Lepidoptera
- Family : Pyralidae
429. *Herculia hansii* Rose & Dhillon (1104)
- (12) Order : Hymenoptera
- (i) Family : Aphelinidae
- Botryoideclava* Subba Rao (gen. n.) (1211)
430. *Botryoideclava bharativa* Subba Rao (1211)
431. *Eretmocerus aligarhensis* Khan & Shafee (1183)
432. *Eretmocerus longipilus* Khan & Shafee
433. *Eriaphytis chackoi* Subba Rao (1211)
- (ii) Family : Braconidae
- Eurymeros* Bhat (gen. n.) (1164)
434. *Eurymeros tumespiraculum* Bhat (1164)
- (iii) Family : Ichneumonidae
435. *Osmiojoppa albidops* Heinrich (1179)
436. *Deuterozeorides brumhus* Gupta (1176)
437. *Deuterozeorides indicus* Gupta (1176)
438. *Eugalta albitarsis mysorensis* Gupta (subsp. n.) (1176)
439. *Eugalta flavorbitalis* Gupta (1176)
440. *Eugalta linearis kumaonensis* Gupta (subsp. n.) (1176)
441. *Eugalta lucida* Gupta (1176)
442. *Eupalamus malaisei* Heinrich (1179)
443. *Eupalamus tenuimanus* Heinrich (1179)
444. *Formostenus (Formostenus) aciculatus* Jonathan (1181)
445. *Formostenus (Formostenus) bidentatus* Jonathan (1181)
446. *Formostenus (Formostenus) burmensis* Jonathan (1181)
447. *Formostenus (Formostenus) cherraensis* Jonathan (1181)
448. *Formostenus (Formostenus) flavofasciatus* Jonathan (1181)
449. *Formostenus (Formostenus) flavorbitalis* Jonathan (1181)

450. *Formostenus (Formostenus) kambaitiensis* Jonathan (1181)
 451. *Formostenus (Formostenus) malaisei* Jonathan (1181)
 452. *Formostenus (Formostenus) rufiscens* Jonathan (1181)
 453. *Formostenus (Formostenus) rugipectus* Jonathan (1181)
 454. *Formostenus (Formostenus) rugosus* Jonathan (1181)
 455. *Formostenus (Formostenus) striatus* Jonathan (1181)
 456. *Formostenus (Formostenus) tanypetiolatus* Jonathan (1181)
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 457. *Formostenus (Indostenus) nigrus* Jonathan (1181)
 458. *Fotsiforia assamense* Jonathan (1181)
 459. *Fotsiforia mysorensis* Jonathan (1181)
 460. *Fotsiforia sundrica* Jonathan (1181)
 461. *Gambroides rangaparensis* Jonathan (1181)
 462. *Gareila birmanica* Heinrich (1179)
 463. *Gareila charlottae* Heinrich (1179)
 464. *Isotima annulata* Jonathan (1181)
 465. *Isotima bicarinata* Jonathan (1181)
 466. *Isotima difficilis* Jonathan (1181)
 467. *Isotima emaculata* Jonathan (1181)
 468. *Isotima kamathi* Jonathan (1181)
 469. *Isotima panhalensis* Jonathan (1181)
 470. *Isotima punctata* Jonathan (1181)
 471. *Isotima rufipleuralis* Jonathan (1181)
 472. *Isotima semirufa* Jonathan (1181)
 473. *Lareiga intermedia* Heinrich (1179)
 474. *Lareiga malaisei* Heinrich (1179)
 475. *Lareiga orichalcum* (1179)
 476. *Lareiga rufofemorata* (1179)
 477. *Lynteria domino* Heinrich (1179)
 478. *Mesophadnus chinicus* Heinrich (1179)
 479. *Mesophadnus victoria* Heinrich (1179)
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 480. *Neolareiga rufocoerulea* Heinrich (1179)
 481. *Poemenia burmanica* Gupta (1176)
 482. *Poemenia kashmirica* Gupta (1176)
 483. *Pseudeugalata dravida* Gupta (1176)
 484. *Pseudeugalata punctulata yamuna* Gupta (subsp. n.) (1176)
 485. *Pseudeupalamus flavescens* Heinrich (1179)
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 486. *Rimbusia rufescens* Heinrich (1179)
 487. *Rimbusia rufocoerulea* Heinrich (1179)
 488. *Sycaonia pictosicarius* Heinrich (1179)
 489. *Sycaonia popae* (1179)
 490. *Sycaonia rubrosicarius* Heinrich (1179)
 491. *Sycaonia rufofacies albodecorata* Heinrich (subsp. n.) (1179)
 492. *Togeella malaisei* Heinrich (1179)
 (iv) Family : Proctotrupidae
 493. *Aclista ahlaca* Sharma (1204)
 494. *Cinetus indicus* Sharma (1204)
 495. *Fusicornia* Mani & Sharma (1187)
 496. *Pantoclis kodaiensis* Sharma (1204)
 497. *Pantoclis sulcatus* Sharma (1204)
 498. *Spilomicrus kumaonensis* Sharma (1204)
 499. *Trichopria atturensis* Sharma (1204)
 (v) Family : Scelionidae
 500. *Anteromorpha tuberculata* Sharma (1206)
 501. *Macroteleia chandeli* Sharma (1205)
 502. *Macroteleia dolichopa* Sharma (1205)

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(1) Order : Cypriniformes

(i) Family : Cyprinidae

503. *Barilius corbeti* Tilak & Hussain (1357)504. *Salmostoma kardahiensis* Reddiah (1331)

(ii) Family : Psilorhynchidae

505. *Psilorhynchus scuatio nudithoracicus*
Tilak & Hussain (1356)

(iii) Family : Schilbeidae

506. *Olupisoma blastari* Datta & Karmakar
(1244)

(iv) Family : Siluridae

507. *Pinniwallago kanpurensis* Jayaram,
Gupta & Hajela (1267)

(2) Order : Perciformes

(i) Family : Gobiidae

508. *Acentrogobius ennorensis* Menon & Devi
(1301)

(ii) Family : Sciaenidae

509. *Atrobucca alcocki* Talwar (1350)

II. Class : Amphibia

Order : Anura

Family : Bufonidae

510. *Bufo camortensis* Mansukhani & Sarkar
(1370)

III. Class : Reptilia

Order : Squamata

Family : Gekkonidae

511. *Cyrtodactylus madarensis* Sharma (1405)

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1. PROTOZOA	10		Plecoptera	22
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3. PLATYHELMINTHES			Dermaptera	1
Trematoda	43		Isoptera	3
Cestoda	8		Hemiptera	111
4. ASCHELMINTHES			Thysanoptera	5
Gastrotricha	1		Coleoptera	60
Nematoda	83		Diptera	7
5. ACANTHOCEPHALA	6		Lepidoptera	1
6. ARTHROPODA			Hymenoptera	73
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Crustacea	4	Pisces		7
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Thysanura	1	Reptilia		1
Collembola	1			
			TOTAL :	<u>511</u>

III. SUBJECT INDEX

The numbers given under each section refer to the serial number of the references in the Bibliography.

Bold-faced reference numbers are dealing with new taxa.

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| 1. General Zoology | 10. Mollusca |
| 2. Protozoa | 11. Arthropoda |
| 3. Porifera | (a) Arachnida |
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| 5. Platyhelminthes | (c) Crustacea |
| (a) Turbellaria | (d) Myriapoda |
| (b) Trematoda | (e) Insecta |
| (c) Cestoda | 12. Echinodermata |
| 6. Aschelminthes | 13. Protochordata |
| (a) Rotifera | 14. Chordata |
| (b) Gastrotricha | (a) Pisces |
| (c) Nematoda | (b) Amphibia |
| 7. Acanthocephala | (c) Reptilia |
| 8. Annelida | (d) Aves |
| 9. Echiurida | (e) Mammalia |

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