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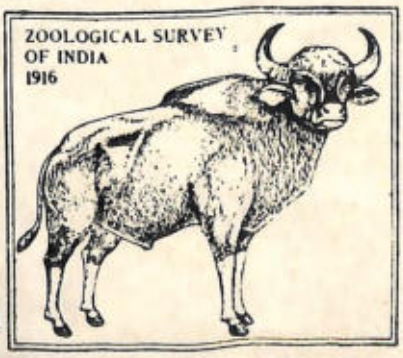

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Compiled and Prepared by the staff of

INFORMATION & DOCUMENTATION DIVISION
Z. S. I., CALCUTTA

Dr. G. S. Arora, : Scientist "SE"

Shri M. Z. Ansari, : Assistant Zoologist & Officer-in-Charge

Compilation : Shri M. Z. Ansari
Shri Raja Ram
Shri Amalendu Das
Shri Asim Chakrabarti

Manuscript Prepared by : Dr. G. S. Arora
Shri M. Z. Ansari
Shri Amalendu Das

Manuscript Typed by : Shri Sukumar Chowdhury

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 24th Volume of the **Bibliography of Indian Zoology**, dealing with zoological literature on the fauna from the Indian Region including India, Bangladesh, Burma, Bhutan, Nepal, Pakistan and Sri Lanka, refers mainly to the year 1981.

The literature has been arranged according to a generally accepted zoological classification to help researchers in consulting literature on the relevant animal groups. The contents at the beginning are given in some detail for easy reference to this volume, and all other salient features of the **Bibliography**, i.e. New Taxa List, Regional Bibliography, a detailed Subject Index and an Index to the Authors and Co-authors referring to serial numbers of the contributions, have been retained as was being given in earlier volumes.

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, Distribution & Zoogeography, Parasitology, Cytology & Cytogenetics, Palaeozoology, etc. These studies have brought to light over 345 taxa new to science, which have been listed separately. 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.

Needless to mention that a complete literature on a particular aspect is absolutely essential and to be able to provide this to research scientists through this publication 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 better service.

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

Dr. Asket Singh
Joint Director-in Charge.

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The study was conducted to monitor the red cell and plasma lipid profile at different levels of parasitaemia in rhesus monkeys infected with *P. knowlesi*.

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73. **Mukherjee, R. N.** 1981. Occurrence of *Opalina scalproformis* Ghosh (Protozoa, Opalinidae) in the toad *Bufo himalayanus* from Darjeeling. —*J. zool. Soc. India*, **30** (1-2) : 83.

74. **Mukherjee, R. N.** and **Julka, J. M.** 1981. On the occurrence of soil Protozoa in the intestine of *Aporrectodea trapezoides* Duges (Lumbricidae : Oligochaeta). —*Newsl. Soil Biol. Ecol.*, **2** (1) : 5.

75. **Prasad, A. K., Das, S. R.** and **Sagar, P.** 1981. Cholesterol induced changes in concariavalin A agglutinability of *Entamoeba histolytica*. —*Indian J. exp. Biol.*, **19** (12) : 1172-1174.

76. **Prusti, R. K.** *et. al.* 1981. Macromolecular constituents of *Spirostomum ambiguum* (Major) and their modulation by Ethidium Bromide and Caffine treatment. —*Indian J. exp. Biol.*, **19** (1) : 5-8.

77. **Puri, S. K.** and **Dutta, G. P.** 1981. Blood schizontocidal activity of antibiotics against *Plasmodium berghei* sensitive as well as resistant to chloroquine, pyrimethamine and primaquine. —*Indian J. med. Res.*, **73** (1) (Suppl.) : 29-35.

Efficacy of new antibiotics such as minocycline and doxcycline as blood schizontocides against *P. berghei* infection has been compared with those of standard antibiotics using ED 50/ED 90 as well as the extension of survival time as the criteria. In addition, the efficacy of those antibiotics against a sensitive strain of *P. berghei* and three drug resistant strains, has been compared.

78. **Puri, S. K., Ram Govind, Saxena, A. K.** and **Dutta, G. P.** 1981. Casual prophylactic activity of antibiotics against *Plasmodium gallinaceum* infection. —*Indian J. med. Res.*, **73** (1) (Suppl.) : 37-40.

The casual prophylactic activity of eight antibiotics has been assessed using *P. gallinaceum—Aedes aegypti*—chick model.

79. **Raman, G.** *et. al.* 1981. Further studies on chloroquine resistance in *P. falciparum* in Karnataka State, India. —*Indian J. Malar.*, **18** (2) : 126-128.

80. **Rao, P.R.M., Rao, K. M.** and **Shyamasundari, K.** 1981. *Helicostoma sigmoida* sp.n. from Waltair Coast. —*Geobios*, **8** (4) : 188-189.

81. **Rao, P. R. M., Rao, K. M.** and **Shyamasundari, K.** 1981. *Rhabdostyla pyriformis* (Perty, 1852) (Ciliophora : Protozoa)—A new report for Indian subcontinent. —*Geobios*, **8** (4) : 189-190.

82. **Rao, P. R. M., Rao, K. M.** and **Shyamasundari, K.** 1981. Ecology of ciliate fauna (Protozoa : Ciliophora) in fresh water stream. —*Proc. Symp. Ecol. Anim. Popul. zool. Surv. India*, (2) (1978) : 85-90.

83. **Rastogi, K. C.** *et. al.* 1981. Pyrimethamine in combination with Sulfadoxine or Sulfalene in vivex malaria in India. —*Indian J. Malar.*, **18** (2) : 63-66.

84. **Roy, R.** and **Chaudhury, A.** 1981. *Haemoproteus ovalis* sp. nov. (Protozoa : Sporozoa) from an Indian paddy field frog, *Rana limnocharis* Wiegmann.—*Bull. zool. Surv. India*, **4** (2) : 217-220.

85. **Saha, S. N., Khanna, P. N.** and **Biswas, G.** 1981. *Trypanosoma lewisi* infection in domiciliary rats and its public health significance. —*Indian J. Anim. Hlth.*, **20** (1) : 81-82.

86. **Saratchandra, B.** and **Narsimhamurti, C. C.** 1981. The life cycle of *Eimeria knowlesi* Bhatia, 1936 occurring in the intestine of *Hemidactylus prashadi* Smith. —*Proc. Indian Acad. Sci.* (*Anim. Sci.*), **90** (1) : 17-21.

Detailed life cycle of *E. knowlesi* Bhatia, 1936 occurring in the small intestine of a different host, *H. prashadi* Smith is given.

87. **Sasmal, N. K.** and **Sharma, N. N.** 1981. The effect of anticoccidials on oocyst output of *Eimeria tenella* : Post immunisation and post challenge. —*Indian J. Anim. Hlth.*, **20** (1) : 15-19.

88. **Saxena, J. K., Ghatak, S.** and **Sen, A. B.** 1981. *Plasmodium berghei* : Studies on host metabolism using *Mastomys natalensis* as experimental model. —*Indian J. Malar.*, **18** (2) : 80-86.

89. **Seenappa, D., Manohar, L.,** and **Prabhu, R. M.** 1981. *Henneguya thermalis* n. sp. parasitic in the brain tissue of the loach, *Lepidocephalichthys thermalis* (Hamilton). —*Curr. Sci.*, **50** (6) : 295-296.

The species described here is placed into the genus *Henneguya* based on the morphological characters described by Davis.

90. **Sharma, R. D.** and **Gautam, O. P.** 1981. Studies on the morphologic characteristics of *Theileria annulata*. —*Indian J. Anim. Hlth.*, **20** (1) : 31-34, pls. 2.

The paper deals with the study of the various morphological characteristics of erythrocytic forms of the parasite as observed by dehaemoglobinising the peripheral blood smears in comparison to the routine stained smears.

91. **Shastri, U. V.** and **Kurundkar, V. D.** 1981. Occurrence of *Babesia bovis* (= *Babesia argentina*) in a buffalo.—*Indian vet. J.*, **58** (1) : 61-63.

92. **Singh, B., Gautam, O. P.** and **Banerjee, D. P.** 1981. Immunization of donkeys against *Babesia equi* infection using killed vaccine. —*Vet. Parasitol.*, **8** (2) : 133-136.

93. **Singh, P. P.** and **Dutta, G. P.** 1981. Antimalarial activity of mefloquine and chloroquine against blood induced *Plasmodium knowlesi* in rhesus monkey.— *Indian J. med. Res.*, **73** (1) (Suppl.) : 23-28.

The antimalarial activities of mefloquine and chloroquine against *P. knowlesi* infection, were compared.

94. **Singh, U. S.** and **Rao, V. K. M.** 1981. Biochemical changes during the life cycle of *Acanthamoeba culbertsoni*. —*Indian J. exp. Biol.*, **19** (2) : 139-142.

95. **Sivaraman, C. A.** *et. al.* 1981. Isolation of *P. falciparum* in *in vitro* continuous culture from a patient treated with chloroquine 24 hour before. —*Indian J. Malar.*, **18** (2) : 87-90.

96. **Srinivasan, M. S.** and **Rajshekhar, C.** 1981. New benthic foraminifera from the Late Cenozoic of Ritchie's Archipelago, Andaman Sea. —*Biovigyanam*, **7** (1) : 1-8.

The six new foraminiferal taxa were encountered while carrying out a detailed study on the stratigraphic ranges of benthic foraminifera.

97. **Tiwari, D. N.** and **Ray, R.** 1981. Survey on the protozoan fauna of North Bengal. —*Bull. zool. Surv. India*, **4** (2) : 159-163.

3. PORIFERA

98. **Parulker, A. H.** and **Ansari, Z. A.** 1981. Benthic macrofauna of the Andaman Sea. —*Indian J. mar. Sci.*, **10** (3) : 280-284.

The paper deals with the distribution, abundance, faunal composition, prevalence and standing stock measurements of macrobenthos in relation to environmental and biotic conditions in the Andaman Sea.

4. COELENTERATA (CNIDARIA)

99. **Jonklaas, R.** 1981. Hikkaduwa Reef Sanctuary. —*Loris*, **15** (5) : 293-294.

100. **Misra, A.** and **Soota, T. D.** 1981. On the occurrence of the sea anemone *Phytocoeteopsis ramunii* Panikkar (Actiniaria : Halactiidae) in a tidal creek of Sagar Island, West Bengal and a note on its nematocysts. —*Bull. zool. Surv. India*, **4** (2) : 151-153.

101. **Neef, G.** 1981. A holocene coral reef in south-western Sri Lanka. —*Ceylon J. Sci. (Biol. Sci.)*, **14** (1 & 2) : 116-119.

5. PLATYHELMINTHES

(a) Trematoda

102. **Agrawal, N.** and **Pandey, K. C.** 1981. Observation on the cercaria of *Neopronocephalus triangularis* Mehra, 1932 and its development (Trematoda : Pronocephalidae). —*J. zool. Soc. India*, **32** (1-2) (1980) : 49-54.

103. **Agrawal, N.** and **Singh, H. S.** 1981. On a rare trematode, *Transversotrema chauhani* n. sp. from a freshwater fish, *Nandus nandus* (Ham.). —*Curr. Sci.*, **50** (9) : 426-427.

The genus *Transversotrema*, with *T. hassi* as the type, was erected by Witenberg for worms. The present form differs from *T. hassi* in the presence of eye spots and diagonal ovary.

104. **Agrawal, N.** and **Singh, H. S.** 1981. Observations on a new Xiphidiocercaria. —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 19-23.

Cercaria peteri n. sp. a Xiphidiocercaria is described from *Lymnaea auricularia* (L.) at Lucknow.

105. **Agrawal, N.** and **Singh, H. S.** 1981. On three new monogenetic trematodes from a freshwater fish *Clupisoma garua* (Ham.). —*J. zool. Soc. India*, **32** (1-2) (1980) : 27-34.

106. **Ahmad, J.** 1981. Studies on three new lepocreadiid trematodes (Digenea : Lepocreadiidae) from marine fishes of Arabian Sea, off the Bombay coast, India. —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 91-97.

107. **Bhatnagar, A. K., Gupta, A. N.** and **Mehta, S.** 1981. Proposed synonymy of *Zygocotyle* and *Stunkardia* (Digenetic Trematodes). —*Indian J. Helminth.*, **32** (2) (1980) : 117-123.

108. **Dubey, N. K., Pandey, P. K.** and **Dubey, U.** 1981. The influence of metacercariae of *Diplostomum* (Trematoda) on the respiration of *Heteropneustes fossilis* (Bloch.). —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 98-102.

109. **Dwivedi, M. P.** and **Dwivedi, U.** 1981. A new strigeid metacercaria *Tetracotyla chauhani* n. sp. (Trematoda : Proterodiplostomidae) from the frog *Rana cyanophlyctis* and its probable identity with *Proalarioides tropidonotis* Vidyarthi, 1937. —*Uttar Pradesh J. zool.*, **1** (1 & 2) : 57-61.

110. **Ghosh, R. K.** 1981. On the occurrence of *Anchitrema sanguineum* (Sonsino, 1894) Looss, 1899 (Trematoda : Anchitrematidae Mehra, 1935) from *Suncus murinus* (Linnaeus, 1766) (Soricidae : Mammalia). —*Bull. zool. Surv. India*, **4** (1) : 17-21.

111. **Gupta, N. K.** and **Mehrotra, V.** 1981. A detailed account of *Neoadenogaster glandularis* Mehrotra, 1973 (Trematoda : Pronocephalidae) from the intestine of *Chelone mydas* (Linn.) in India. —*Res. Bull. Panjab Univ.*, **30** (1-4) (1979) : 87-91.

112. **Gupta, P. C.** and **Gupta, S. P.** 1981. On a new trematode *Parallelotestis bubulcusi* n. sp. (Family : Echinostomatidae Poche, 1926) from the liver of a cattle egret, *Bubulcus ibis* (Linn.) from Udaipur, Rajasthan. —*Indian J. Helminth.*, **32** (2) (1980) : 102-106.

One specimen from the liver of cattle egret, *Bubulcus ibis* (Linnaeus) was collected and was described as new to science.

113. **Gupta, P. D.** 1981. Intraspecific variations in *Pleurogenoides sitapurii* (Srivastava, 1934) (Trematoda : Lecithodendriidae). —*Rec. zool. Surv. India*, **78** (1-4) : 169-171.

114. **Gupta, P. D.** 1981. On lateral testes in the genus *Ganeo* Klein, 1905 with remarks on synonymy of *G. gastricus* Srivastava, 1933 and *G. srinagarensis* Kaw, 1950 with *G. tigrinum* Mehra & Negi, 1928 (Trematoda : Lecithodendriidae). —*Rec. zool. Surv. India*, **78** (1-4) : 129-131.

115. **Gupta, S. P.** and **Gupta, R. C.** 1981. A new trematode, *Dinurus thapari* n. sp. from the stomach of a marine fish, *Engraulis malabaricus* (Cuv. & Val.) from Quilon, Kerala. —*Indian J. Helminth.*, **32** (2) (1980) : 138-142.

A key to the species of the genus *Dinurus* Looss, 1907 is presented here.

116. **Gupta, S. P.** and **Krishna** 1980. On some monogenetic trematodes from marine fishes of Puri, Orissa. —*Indian J. Helminth.*, **31** (2) (1979) : 81-110.

The trematodes recorded herein are a part of collections made by the junior author from the gill filaments of marine fishes of Puri, Orissa. In all, 18 specimens were collected.

117. **Gupta, V.** and **Puri, M.** 1981. On three new species of the genus *Acanthocolpus* Luhe, 1906 (Trematoda : Acanthocolpidae) from marine fishes of Puri, Orissa. —*Indian J. Helminth.*, **32** (2) : (1980) : 129-137.

118. **Hafeezullah, M.** 1981. Two digenetic trematodes (Family Hemiuridae) from marine fishes of India. —*Bull. zool. Surv. India*, **4** (1) : 111-115.

119. **Hafeezullah, M.** 1981. Schistorchiid trematodes of marine fishes of India, with considerations of the status of the genus *Megacreadium* Nagaty, 1956 and family Schistorchiidae Yamaguti, 1942. —*Bull. zool. Surv. India*, **3** (3) : 167-177.

120. **Hafeezullah, M.** and **Datta, I. B.** 1981. On the monotype of the genera *Anchitrema* Looss, 1899 and *Termiorchis* Mehra and Negi, 1926 with a note on Pleurogenes—Pleurogenoides—Indopleurogenes Alloindopleurogenes complex. —*Bull. zool. Surv. India*, **4** (2) : 165-172.

121. **Kanwar, U., Agrawal, M.** and **Nath, V.** 1981. Cytochemical studies on the Mehli's gland of the trematodes, *Gastrothylax crumenifer* and *Ceylonocotyle dawesi*. —*Res. Bull. Panjab Univ.*, **29** (1-4) (1978) : 1-4.

The chemical composition of the secretion of the Mehlis' gland and its possible role are discussed here.

122. **Kumar, B., Gupta, P. D.** and **Kumar, R.** 1981. Records of new host and locality for *Plagiorchis* (*Metaplagiorchis*) *himalayai* (Jordan, 1930) and new location for *Parabascus macrorchis* (Gogate, 1939) (Trematoda : Digenea). —*Bull. zool. Surv. India*, **4** (2) : 155-157.

123. **Lal, A. K.** 1981. On *Szidatitrema philomachii* n.sp. (Cyclocoelidae : Cyclocoelinae : Trematoda) from *Philomachus pugnax*. —*Indian J. Zootomy*, **22** (3) : 163-165.

124. **Lal, A. K.** 1981. *Postorchigenes srivastavai flaviviridi* var.n. from *Hemidactylus flaviviridis*. —*Indian J. Zootomy*, **22** (3) : 171-173.

125. **Lal, A. K.** and **Prasad, D.** 1981. On *Astiotrema siddiqii* n.sp. (Plagiorchiidae, Astiotrematinae, Trematoda) from *Rana cyanophlyctis*. —*Indian J. Helminth.*, **32** (2) (1980) : 93-95.

Two specimens of trematode parasites were collected from the intestine of frog *Rana cyanophlyctis*, at Patna, Bihar.

125a. **Mehrotra, V.** and **Gupta, N. K.** 1981. On a reptilian amphistome, *Stunkardia dilymphosa* Bhalerao, 1941, with a discussion on the synonymy of an allied genus and some species. —*Res. Bull. Panjab Univ.*, **30** (1-4) (1979) : 13-20.

Following Nasmark's method, the description of *S. dilymphosa*, an amphistomid fluke of freshwater chelonians, is enlarged and histological detalis are presented.

126. **Mehta, S., Bhatnagar, A. K.** and **Gupta, A. N.** 1981. A rare avian trematode from Indian duck. —*Indian J. Helminth.*, **32** (2) (1980) : 96-101.

Four specimens were obtained from the caecum of local duck, *Podiceps ruficollis capensis*, Salvadori, 1884.

127. **Nandi, N. C.** and **Ray, R.** 1981. Predation of *Diplodiscus mehrai* Pande, 1937 (Trematoda) on ciliates. —*Indian J. Parasit.*, **5** (1) : 67.

128. **Pande, V.** 1981. *Asymphylodora* metacercariae infesting local fishes and snails and developing and adult flukes from two species of fishes with comments on their taxonomic position and significance. —*Indian J. Anim. Sci.*, **51** (1) : 90-101.

The present communication deals with the description of the metacercariae occurring in the fingerlings of local freshwater fishes and snails, and the developing and adult flukes obtained from older specimens of 2 species of fishes. The validity of the Indian species is discussed in the context of the concept of species and higher taxonomic units in this genus.

129. **Pandey, K. C.** and **Agrawal, N.** 1981. *Cercaria komiyai* n. sp., the probable larva of *Azygia stunkardi* Rai, 1964 and its excretory system. —*Ceylon J. Sci. (Biol. Sci.)*, **14** (1 & 2) : 39-41.

129a. **Qadir, A.N.M.A.** 1981. Anthelmintic efficiency of Acedist, a new fasciolicide against immature *Fascila gigantica* in goats. —*la Indian vet. J.*, **58** (3) : 197-188.

130. **Rama Krishna, G. V.** 1981. Phosphatase activity in the hepatopancreas and the larval digenean parasites of *Lymneae luteola*. —*Curr. Sci.*, **50** (18) : 826-828.

131. **Ray, R.** and **Nandi, N. C.** 1981. Dermal infestation by *Diplostomum* von Nordmann, 1832 (Strigeida : Trematoda) in *Rana cyanophlyctis* Schneider. —*Indian J. Parasit.*, **5** (1) : 87-89.

132. **Singh, S. P.** and **Sinha, D. P.** 1981. *Folliculovarium indicum* gen. et sp. n., a cryptogonimid trematode from an Indian fresh-water fish *Sciaena coitor*. —*Ceylon J. Sci. (Biol. Sci.)*, **14** (1 & 2) : 132-135.

133. **Srivastava, C. B.** 1981. Some observation on the population fluctuation of *Prosorhynchoides magnum* (Verma, 1936) in the fish *Silonia silonia* (Ham.).— *Proc. Symp. Ecol. Anim. Popul. zool. Surv. India*, (2) (1978) : 133-136.

(b) Cestoda

134. **Afzal, M., Shafique, M., Hussain, A.** and **Saeed, M.** 1981. A study of helminths of cattle and buffaloes in Lahore.—*Pakist. J. Sci.*, **33** (1-4) : 14-20.

A comprehensive report about the incidence of different species of helminths of cattle and buffaloes of Lahore area has been discussed.

134a. **Deka, D. K., Srivastava, G. C.** and **Chhabra, R. C.** 1981. Efficacy of three anthelmintics against experimental *Echinococcus granulosus* in dogs. — *Indian vet. J.*, **58** (4) : 277-279.

135. **Dhar, R. L.** and **Fotedar, D. N.** 1980. Some proteocephalid cestodes in freshwater fishes of Jammu & Kashmir.— *Indian J. Helminth.*, **31** (2) (1979) : 111-127.

136. **Gupta, N. K.** and **Arora, S.** 1981. On a new species of the genus *Gangesia* Woodland, 1924 (Cestoda : Proteocephaloidea) from a freshwater fish *Wallago attu*, along with a survey of its related forms. —*Res. Bull. Panjab Univ.*, **30** (1-4) (1979) : 27-36.

The survey of the genus *Gangesia* with special reference to the Indian species has been made by the authors. A new species has been described and its validity discussed.

137. **Gupta, N. K.** and **Arora, S.** 1981. On *Proteocephalus tigrinus* Woodland 1925 (Proteocephaloidea : Proteocephalidae), a cestode parasite of *Rana tigrina* at Amritsar (Punjab, India). —*Res. Bull. Punjab Univ.*, **30** (1-4) (1979) : 79-81.

P. tigrinus, a rare parasite of frogs has been reported from *R. tigrina* from Amritsar, which is a new locality record for this parasite.

138. **Gupta, N. K.** and **Singla S. L.** 1981. On intraspecific variations in *Dipylidium caninum* Linn., 1758. —*Res. Bull. Panjab Univ.*, **30** (1-4) (1979) : 71-77.

139. **Gupta, N. K.** and **Singla, S. L.** 1981. On *Hymenolepis diminuta* (Rudolphi, 1819)—A tapeworm of rat in Dhuri (Punjab). —*Res. Bull. Panjab Univ.*, **30** (1-4) (1979) : 83-85.

H. diminuta has been briefly described and the rostellum has been found to be absent.

140. **Gupta, S. P.** and **Sinha, N.** 1981. Two new species of *Senga* Dollfus 1934 (Cestoda : Ptychobothriidae) from freshwater fishes of Lucknow. —*Indian J. Helminth.*, **32** (2) (1980) : 124-128.

141. **Jadhav, B. V.** and **Shinde, G. B.** 1981. *Cotylorhipis sureshi* n.sp. (Cestoda : Dilepididae) from *Gallus domesticus* at Aurangabad. —*Bioresearch*, **5** (1) : 93-94.

141a. **Jha, A. N.** and **Sahai, B. N.** 1981. Anthelmintic efficacy of Terenol and Distodin against natural infection of *Raillietina tetragona* in poultry.—*Indian vet. J.*, **58** (6) : 444-446.

142. **Kadam, S. S., Jadhav, B. V.** and **Shinde, G. B.** 1981. *Senga paithanensis* n.sp. (Cestoda : Ptychobothriidae) *Mastacembellus armatus*. —*Bioresearch*, **5** (1) : 95-96.

143. **Kadam, S.S., Shinde, G. B.** and **Jadhav, B. V.** 1981. *Gidhaia kolhapurensis* n.sp. (Cestoda : Anoplocephalidae) from *Torgos calvus*. —*Curr. Sci.*, **50** (6) : 296.

This new species is described from 15 specimens obtained from the intestine of *Torgos calvus* at Kolhapur.

144. **Kanwar, U.** and **Agrawal, M.** 1981. Cytochemical studies on the vitelline gland and the Mehli's gland of the cestode, *Raillietina (Raillietina) spiralis*. —*Res. Bull. Punjab Univ.*, **29** (1-4) (1978) : 85-90.

The cytoarchitecture of the vitelline and Mehlis' glands and the nature of their secretion product in a cyclophyllidean cestoda, *Raillietina (R.) spiralis* by applying current cytochemical techniques are studied here.

144a. **Kolte, G. N., Vegad, J. L.** and **Awadhiya, R. P.** 1981. Note on an unusual case of Cysticercosis (*Cysticercus bovis*) in a Gir cow. —*Indian J. Anim. Sci.*, **51** (3) : 370-372.

145. **Malhotra, S. K.** 1981. Cestode infection in freshwater fishes of Garhwal Himalayas, India. —*Geobios*, **8** (2) : 90-92.

The ecology of cestode infection in freshwater fishes of this region from October 1976 to December 1979 are analysed here.

146. **Mitra, K. B.** and **Shinde, G. B.** 1981. Attachment of *Davainea* sp. to the villi of *Gallus domesticus*. —*Bioresearch*, **5** (1) : 89-90.

147. **Nair, V. K.** and **Nadakal, A. M.** 1981. Haematological changes in domestic fowl experimentally infected with the cestode *Raillietina tetragona* (Molin, 1858). —*Vet. Parasitol.*, **8** (1) : 49-58.

Haematological alterations in domestic fowl following three levels of infection with 20, 50 and 100 cysticercoides of *R. tetragona* (Eucestoda) have been studied over a period of 8 weeks. The infected birds showed significant haemoglobin depression.

148. **Pal, M. G., Chakrabarti, A., Pramanik, A. K., Pradhan, K. K.** and **Chatterjee, A.** 1981. Spirometrid tapeworm in a mongrel dog. —*Indian J. Anim. Hlth.*, **20** (1) : 71-72, pl. 1.

149. **Pathak, K. M. L.** and **Gaur, S. N. S.** 1981. Serum levels of GOT, GPT and OCT enzymes in goats infected with *Cysticercus tenuicollis*.—*Vet. Parasitol.*, **8** (1) : 95-97.

SGOT, SGPT and SOCT levels increased significantly in young goats infected with 5000 eggs of *Taenia hydatigena*.

150. **Shinde, G. B.** and **Ghare, D. N.** 1981. Tapeworm of duck at Aurangabad (M. S.), India with a new species.—*Bioresearch*, **5** (1) : 91-92.

151. **Shinde, G. B.** and **Gaikwad, P. M.** 1981. A new species of the genus *Krimi* Burt, 1944 (Cestoda : Dilepididae). —*Curr. Sci.*, **50** (20) : 467.

152. **Srivastava, A. K.** and **Capoor, V. N.** 1981. On a new cestode *Dicranotaenia alcippina* n. sp. —*J. zool. Soc. India*, **32** (1-2) (1980) : 67-70.

153. **Srivastava, V. C.** and **Pandey, G. P.** 1981. Cestode fauna of mammals in India *Vampirolepis allahabadensis* n. sp. (Cestoda : Hymenolepididae Railliet and Henry, 1909) from *Crocidura murianus* from Allahabad (India). —*Indian J. Zootomy*, **22** (3) : 167-170.

6. ASCHELMINTHES

(a) Rotifera

154. **Mahajan, C. L., Sharma, S. P., Sharma, S. D.** and **Arora, N. K.** 1981. Changes in zooplankton populations in a wetland ecosystem due to drought. —*Int. J. Ecol. envir. Sci.*, **7** : 139-143.

Changes in population densities and biomass of various groups of zooplankton during 1978-79 in the Ghana Bird Sanctuary, Bharatpur, Rajasthan are reported.

155. **Misra, S. D., Bhargava, S. C., Jakher, G. R.** and **Dey, T.** 1981. The macrobenthic fauna of Balsamand lake. —*Proc. Symp. Ecol. Anim. Popul. zool. Surv. India*, (2) (1978) : 35-46.

156. **Mukhopadhyay, S. K., Babu Rao, M., Muley, S. V.** and **Yadav, B. E.** 1981. A study on the rotiferan population from Wagholi, Poona. —*Proc. Symp. Ecol. Anim. Popul zool. Surv. India*, (2) (1978) : 47-62.

157. **Vasisht, H. S.** and **Chaudhery, I.** 1981. The digestive system of the rotifer, *Pseudoembata acutipoda* Wycliffe and Michael, 1968. —*Res. Bull. Panjab Univ.* (Sc.), **29** (1-4) (1978) : 13-22.

158. **Yousuf, A. R.** and **Qadri, M. Y.** 1981. Seasonal abundance of rotifera in a warm monomietic lake. —*J. Indian Inst. Sci.*, (*Biol. Sci.*), (C) **63** (4) : 23-34.

This communication describes the distribution of rotifera in lake Manasbal, Kashmir, in relation to some physical and chemical characteristics of water. 38 species of rotifera were recorded in the lake during the present investigations.

(b) Gastrotricha

159. **Chandrasekhara Rao, G.** 1981. Three new gastrotrichs from Orissa coast, India. —*Bull. zool. Surv. India*, **3** (3) : 137-143.

160. **Chandrasekhara Rao, G.** 1981. *Crasiellia indica* n. sp. (Gastrotricha, Macrodasyida) from Orissa Coast, India. —*Bull. zool. Surv. India*, **4** (1) : 3-6.

(c) Nematoda

161. **Alam, M. M., Khan, A. M.** and **Saxena, S. K.** 1981. Efficacy of nematicides for field control of nematodes infesting certain vegetable crops. —*Indian J. Nematol.*, **11** (1) : 5-10.

162. **Ansari, M. Z.** and **Singh, K. S.** 1981. On the incidence of *Gaigeria pachyscelis* Railliet and Henry, 1910 in sheep and goats. —*Indian J. Anim. Sci.*, **51** (4) : 459-465.

The paper deals with the hookworms' (a) incidence and intensity in India and (b) the effects of temperature and humidity on the development and hatching of eggs and (c) the formation of preparasitic larval stages of *G. pachyscelis*.

163. **Ansari, Z. A.** and **Parulekar, A. H.** 1981. Meiofauna of the Andaman Sea. —*Indian J. mar. Sci.*, **10** (3) : 285-288.

163a. **Arya, S. N.** 1981. Nematode fauna of Kumaon Region. IV. A new nematode *Subulascaris ranae* n. sp. from the frog *Rana cyanophlyctis*. —*Indian J. Helminth.*, **32** (2) (1980) : 89-92.

164. **Azmi, M. I.** 1981. Mechanism to overcome increased resistance to locomotion in *Helicotylenchus dihystera* (Cobb, 1893) Sher, 1961. —*Indian J. Nematol.*, **11** (1) : 1-4.

165. **Azmi, M. I.** 1981. Rate of multiplication and pathogenic effects of *Helicotylenchus dihystera* on koobabool (*Leucaena latisiliqua*). —*Indian J. Nematol.*, **11** (1) : 69-71.

166. **Bajaj, H. K., Kaushik, H. D.** and **Bhatti, D. S.** 1981. First record of parasitic larvae and a female of *Agamermis decaudata* Cobb *et. al* 1923 from Haryana and Punjab. —*Haryana J. hort. Sci.*, **10** (1-2) : 1-3.

167. **Baqri, Q. H.** and **Ahmad, N.** 1981. Nematodes from West Bengal (India) VII. Morphometric and allometric variations in *Tylenchorhynchus nudus* Allen, 1955 (Tylenchorhynchidae : Tylenchida). —*Bull. zool. Surv. India*, **3** (3) : 239-247.

168. **Baqri, Q. H., Das, P. K.** and **Ahmad, N.** 1981. Nematodes from West Bengal (India) X. A new species of *Anatonchus* (Cobb, 1916) De-Coninck, 1939 (Anatonchidae : Mononchida). —*Bull. zool. Surv. India*, **4** (2) : 209-211.

169. **Baqri, Q.H.** and **Jairajpuri, M. S.** 1981. A new species of the genus *Paralongiadorus* (Longidoridae : Nematoda).—*Bull. zool. Surv. India*, **4** (1) : 37-39.

170. **Baruah, P. K., Singh, R. P.** and **Bali, M. K.** 1981. Embryonic changes of *Neoascaris vitulorum* egg during culture. —*Haryana agric. Univ. J. Res.*, **11** (1) : 136-137.

171. **Bhatnagar, P. K.** and **Paul Gupta, R. K.** 1981. Note on ovicidal and larvicidal effects of some anthelmintics against *Oesophagostomum columbianum* in vitro. —*Indian J. Anim. Sci.*, **51** (11) : 1099-1100.

172. **Chattopadhyay, A.P., Biswas, G., Chowdhury, A.** and **Guha, T.** 1981. Comparative morphology of whipworm ova of pig and their attendants by micrometry and scanning electron microscopy. —*Indian J. Anim. Hlth.*, **20** (1) : 79-80, pl. 1.

173. **Chauhan, P.P.S.** and **Pande, B. P.** 1981. Observations on the embryonic development of bubaline and bovine strains of *Neoascaris vitulorum* (Goeze, 1782) Travassos, 1927 eggs. —*Indian J. Anim. Sci.*, **51** (4) : 439-445.

The progressive development of *N. vitulorum* egg from bubaline and bovine sources to its infective stage, and morphologic features of first and 2nd stage larvae are reported for the first time.

174. **Choudhary, M.** and **Jairajpuri, M. S.** 1981. First record of the genus *Etamphidelus* Andrassy, 1977 (Nematoda) from India.—*Curr. Sci.*, **50** (7) : 331-332.

Andrassy proposed the genus *Etamphidelus* with the type species *E. japonicus*, from Japan. *E. japonicus* was found in the soil of H. P. and this is the first record from India.

175. **Darekar, K. S., Kadam, M. V., Ajri, D. S.** and **Dorge, S. K.** 1981. Occurrence of maize cyst nematode, *Heterodera zeae* in Maharashtra state. —*J. Maharashtra agric. Univ.*, **6** (2) : 156.

176. **Darekar, K. S.** and **Khan, E.** 1981. Soil and plant parasitic nematodes from Maharashtra, India : Two new species of *Hemicycliophora* De Man, 1921 (Tylenchida : Nematoda).—*Indian J. Nematol.*, **11** (1) : 35-41.

177. **Darekar, K. S.** and **Khan, E.** 1981. *Seshadriella* (Tylenchida : Nematoda) a new nematode genus from Maharashtra. —*Biovigyanam*, **7** (1) : 85-87.

178. **Darekar, K. S.** and **Patil, B. D.** 1981. Reaction of some cowpea varieties to root-knot nematode. —*Indian J. Nematol.*, **11** (1) : 83-84.

179. **Darekar, K. S., Patil, B. D., Pawar, D. B.** and **Ajri, D. S.** 1981. Occurrence of *Radopholus similis* (Cobb, 1893) Thorne, 1949 on banana in Maharashtra. —*Indian J. Nematol.*, **11** (1) : 91.

180. **Deshmukh, P. G.** and **Shamim, S.** 1981. *Hastospiculum bombayensis* n. sp. from *Coluber helena*. —*Indian J. Helminth.*, **32** (2) (1980) : 107-111.

Five snakes of the species, *Coluber helena* were examined and two immature females of filarial nematodes were recovered from the subcutaneous tissue of the host. Besides a new species the study deals with nine other known species.

181. **Dhanachand, C. H.** and **Jairajpuri, M.S.** 1981. Some observations on the genus *Paraxonchium* (Dorylaimida) with description of a new species from Manipur, India.—*Indian J. Nematol.*, **11** (1) : 61-66.

182. **Dhar, D. N.** and **Sharma, R. L.** 1981. Immunization with irradiated larvae against *Dictyocaulus filaria* in young lambs. —*Vet. Parasitol.*, **9** (2) : 125-132.

183. **Dhar, D. N., Sharma, R. L.** and **Bansal, G. C.** 1981. The effect of inoculum size and Betamethasone treatment on the course of infection with *Dictyocaulus filaria* in lambs. —*Vet. Parasitol.*, **8** (3) : 219-228.

184. **Dhar, R. L.** and **Fotedar, D. N.** 1981. On *Procamallanus (Monospiculus) kashmirensis* sp. nov. from freshwater fish, *Wallago attu* from Jammu, India.—*Indian J. Helminth.*, **31** (2) (1979) : 128-134.

Two male and three female specimens of this form were collected from the air-bladder of a freshwater fish, *W. attu* from river Chinab at Jammu.

185. **Ganguly, S.** and **Dasgupta, D. R.** 1981. Cellular responses and changes in phenols in resistant and susceptible tomato varieties inoculated with the root-knot nematode, *Meloidogyne incognita*.—*Indian J. Ent.*, **44** (2) : 166-171.

186. **Gaur, H. S.** and **Mishra. S. D.** 1981. Pathogenicity of the lance nematode, *Hoplolaimus indicus* to cotton, *Gossypium hirsutum*. —*Indian J. Nematol.*, **11** (1) : 87-88.

187. **Gill, J. S.** 1981. Fighting the foliar nematode of chrysantheum. —*Indian Hort.*, **25** (4) : 21-22.

188. **Gosavi, A. V., Renapurkar, D. M.** and **Kulkarni, A. B.** 1981. Effect of cocount milk on in vitro embryonic development of *Hammersch-nidtiella diesingi*, Leidy (Nematoda : Thelastomatidae). —*Biovigyanam*, **7** (2) : 187-189.

189. **Gour, S. N. S.** 1981. Hook worm infection in animals. —*Indian Fmr's Dig.*, **14** (6) : 7-8.

190. **Goyal, P. K., Apte, S. D.** and **Johri, G. N.** 1981. Effect of singly sensitized bursal extracts on the antibody production in WLH chickens to experimental infection on *Ancylostoma canium* larvae. —*Bioresearch*, **5** (1) : 47-52.

191. **Grewal, S. S.** and **Sandhu, H.** 1981. *Thelandros* (*Thelandros*) *freitasi*, n.sp. from *Hemidactylus flaviviridis*. —*J. scient. Res.*, **3** (1) : 1-3.

192. **Gupta, C. S.** 1981. Effect of mebendazole (R, 17-635) on the expulsion of *Nematospiroides* in mice. —*Geobios*, **8** (2) : 54-57.

The anthelmintic efficacy of mebendazole (R, 17-635) against the rodent hookworm *N. dubius* infection in swiss albino mice was assessed.

193. **Gupta, D. C.** and **Ram, K.** 1981. Studies on the control of *Meloidogyne javanica* infecting chickpea in different types of soil. —*Indian J. Nematol.*, **11** (1) : 77-80.

194. **Gupta, N.K.** and **Duggal, C.L.** 1981. On the redescription of *Tanqua anomala* (V. Linstow, 1904) Baylis 1916 (Nematoda : Gnathostomatidae) and discussion on the synonymy of *T. ophidia* Jhonston and Mawson, 1948. —*Res. Bull. Panjab Univ.*, **30** (1-4) (1979) : 61-64.

195. **Gupta, N. K.** and **Dutt, K.** 1981. On *Ancylostoma canium* (Ercolani, 1859) V. Linstow, 1889, a hookworm of dog in India. —*Res. Bull. Panjab Univ.*, **30** (1-4) (1979) : 57-60.

A. canium was recovered from the intestine of a dog at Chandigarh. Its anterior extremity is bent dorsally, the buccal capsule is chitinized with 3 pairs of ventral teeth.

196. **Gupta, N. K.** and **Dutt, K.** 1981. On the morphology of *Syphacia stroma* Morgan, 1932—A nematode parasite of rodents. —*Res. Bull. Panjab Univ.*, **30** (1-4) (1979) : 65-69.

S. stroma has been recorded for the first time from the intestine of a new host, *Sciurus palmarum*.

196a. **Gupta, R. P., Malik, P. D.** and **Gautam, O. P.** 1981. The anthelmintic activity of Fenbendazole against gastrointestinal nematodes, cestodes and paramphistomes in sheep. —*Indian vet. J.*, **58** (3) : 246-247.

197. **Gupta, S. P.** and **Kumar, P.** 1981. On some species of the genus *Habronema* Diesing, 1861 (Nematoda : Spiruridae Oerley, 1885) from avian hosts from Lucknow. —*Indian J. Helminth.*, **32** (2) (1980) : 143-158.

Two males and three females were collected from the tunic of gizzard of a bird, Indian Night Jar, *Caprimulgus asiaticus* Latham, at Lucknow.

198. **Gupta, V.** and **Bakshi, R.** 1980. Nematode parasites of fishes I. Three new nematode parasites from freshwater fishes of Lucknow. —*Indian J. Helminth.*, **31** (2) (1979) : 157-168.

199. **Gupta, V. P.** and **Pande, B. P.** 1981. *Cyathospirura chabaudi* n. sp. from pups infected with re-encapsulated larvae from a paratenic host. —*Indian J. Anim. Sci.*, **51** (5) : 526-534.

The present paper gives an account of re-encapsulated larvae, developing juveniles, preadults and adults recovered during autopsies, and distinctive features of partial life cycle, and histopathological findings evident in the lesions encountered.

199a. **Gupta, V. P.** and **Pande, B. P.** 1981. Mammalian phase in life-cycle of *Simondsia paradoxa* Cobbold, 1864 (Ascarepsinae, Thelaziidae, Spirurata) and its histopathology in experimentally infected piglets. —*Indian J. Anim. Sci.*, **51** (9) : 853-868.

Concise accounts of salient features of different developmental stages of juveniles and adults, from experimental definitive host and pathological findings, gross and microscopic, constituting significant additions are appended.

200. **Haseeb, A.**, **Khan, A. M.** and **Saxena, S. K.** 1981. Relationship of inoculum density of *Rotylenchulus reniformis* with the growth of chilli and final population of the nematode. —*J. scient. Res.*, **3** (2) : 111-112.

An attempt has been made to determine relationship of inoculum densities of *R. reniformis* on the growth of chilli.

201. **Jagdale, G. B.**, **Pokharkar, R. N.** and **Darekar, K. S.** 1981. Seasonal fluctuation of Citrus nematode population. —*J. Maharashtra agric. Univ.*, **6** (3) : 265-266.

202. **Jain, R. K.**, **Patil, B. B.** and **Mathur, P. N.** 1981. Association of high population of *Tylenchorhynchus* and *Hoplolaimus* to low yield of Oat. —*Indian J. Mycol. & Pl. Path.*, **11** (1) : 141-144.

203. **Jana, A.** and **Baqri, Q. H.** 1981. On the species of *Aporcelaimellus* Heyns, 1965 from West Bengal (Aporcelaimidae : Nematoda). —*Bull. zool. Surv. India*, **3** (3) : 221-225.

204. **Jayaprakash, A.** 1981. Role of hatching factors in larval emergence from cysts of *Heterodera orizicola*, a nematode pest of rice. —*Curr. Sci.*, **50** (13) : 601.

205. **Jayaprakash, A.**, **Rao, Y. S.** and **Mohandas, C.** 1981. Biochemical changes in rice associated with the rice-root nematode, *Hirschmanniella oryzae* infestations. —*Curr. Sci.*, **50** (4) : 186-87.

206. **Kali Ram** and **Gupta, D. C.** 1981. Studies on the control of *Meloidogyne javanica* infecting chickpea (*Cicer arietinum*). —*Haryana agric. Univ. J. Res.*, **11** (1) : 77-81.

207. **Kaushik, H. D.** and **Bajaj, H. K.** 1981. Control of root-knot nematode *Meloidogyne javanica* infesting mung bean and gram by seed treatment. —*Haryana agric. Univ. J. Res.*, **11** (1) : 106-108.

The present studies report the efficacy of aldicarb sulfone 75 WP (UC 21865), carbofuran 50 SP (furadan), bendiocarb 80 WP (garvox) and phenamiphos 40 EC (nemacur) for controlling the root-knot nematode, *M. javanica* on mung bean (*Vigna radiata*) (L.) Wilczek and gram (*Cicer arietinum* L.) in pots under screen house conditions.

208. **Kaushik, R. K., Katiyar, J. C.** and **Sen, A. B.** 1981. A new *in vitro* screening technique for anthelmintic activity using *Ascaridia galli* as a test parasite. —*Indian J. Anim. Sci.*, **51** (9) : 869-872.

209. **Khan, A.M.** 1981. Certain biotic factors influencing pathogenicity in nematodes. —*Indian Phytopath.*, **34** (2) : 143-159.

210. **Khera, S.** 1981. Paudha-Sutrakrimi aur Kheti (In Hindi). —*Prani Jagat, zool. Surv. India*, (1) (1980) : 83-93.

211. **Kumar, M.** and **Pachauri, S. P.** 1981. Microfilariasis—a serious threat to buffaloes of Tarai region.—*Indian Fmr's Dig.*, **14** (6) : 21-23.

212. **Kumar, P.** 1981. On two new species of the genus *Hoplolaimus* Daday (Nematoda : Hoplolaimidae). —*Bioresearch*, **5** (1) : 67-71.

213. **Lal, S. S.** and **Mithal, R. P.** 1981. Distribution of glycogen and lipids in some vertebrate nematodes. —*Bioresearch*, **5** (1) : 73-77.

214. **Mangat, B.P.S.** and **Sharma, N.K.** 1981. Influence of host nutrition on multiplication and development of citrus nematode. —*Indian Phytopath.*, **34** (1) : 90-91.

215. **Mathur, B. N., Arya, H. C., Handa, D. K.** and **Mathur, R. L.** 1981. The biology of cereal—cyst nematode, *Heterodera avenae* in India. III. Factors affecting population level and damage to host crops. —*Indian J. Mycol. & Pl. Path.*, **11** (1) : 5-13.

216. **Mathur, V. K., Sanwal, K. C., Singh, R. V.** and **Lal, A.** 1981. Role of soil clods and plant debris mixed with true seed in dissemination of plant parasitic nematodes. —*Indian J. Nematol.*, **11** (1) : 92-94.

216a. **Matta, S. C.** and **Ahluwalia, S. S.** 1981. Studies on the effect of Mebendazole (Pantelmin-Ethnor) on the developing stages and adult worms of *Ascaridia galli* in fowls. —*Indian vet. J.*, **58** (6) : 447-448.

217. **Mishra, S. D.** and **Gaur, H. S.** 1981. Effect of individual and concomitant inoculation with *Meloidogyne incognita* and *Rotylenchulus reniformis* on the growth of black gram (*Vigna mungo*). —*Indian J. Nematol.*, **11** (1) : 25-28.

218. **Mukherjee, B.** and **Dasgupta, M. K.** 1981. New records of plant parasitic nematode infestation and their significance in decline in tea plantations of West Bengal, India. —*Curr. Sci.*, **50** (18) : 824-825.

Only four plant parasitic nematodes have so far been recorded on tea from W. Bengal and altogether 35 nematodes have been found to be associated with tea in India. The intensive survey was undertaken during May to June, 1980.

219. **Mukherjee, B.** and **Dasgupta, M. K.** 1981. Soil and plant nematodes of West Bengal, India. —*Indian J. Nematol.*, **11** (1) : 72.

220. **Mukhopadhyaya, M. C.** 1981. Population fluctuations of *Pratylenchus pratensis* (Nematoda : Pratylenchinae) under different crop rotations. —*Proc. zool. Soc. Calcutta*, **32** (1-2) (1979) : 89-95.

221. **Nath, R.** and **Dwivedi, R. P.** 1981. Effect of root-knot nematode on development of gram caused by *Fusarium oxysporum* f. *ciceri* and root rot by *Rhizoctonia* sp. —*Indian J. Mycol. & Pl. Path.*, **11** (1) : 46-49.

222. **Nigam, S. C.** 1981. Effect of crowding on the uptake of lipid in *Ascaridia galli* (Nematoda). —*Bioresearch*, **5** (1) : 105-108.

223. **Paruthi, I. J.** and **Bhatti, D. S.** 1981. Estimation of loss in wheat yield due to *Anguina tritici* and seedgall infestation in market grains. —*Indian J. Nematol.*, **11** (1) : 15-18.

224. **Patel, G. J., Shah, H. M., Patel, D. J.** and **Valand, G.B.** 1981. Effective duration of some proven nematicides in control of root knot disease in bidi tobacco nursery. —*Indian J. Nematol.*, **11** (1) : 74-77.

225. **Pundhir, V. S.** 1981. These tiny animals must be controlled too. —*Indian Fmr's Dig.*, **14** (8) : 33-35, 37.

226. **Reddy, P. P.** 1981. Pathogenicity of *Meloidogyne incognita* to passion fruit. —*Indian J. Nematol.*, **11** (1) : 80-81.

227. **Sahu, D.** and **Agnihotri, N. P.** 1981. Persistence of mephosfolan in soil and maize crop. —*Indian J. Ent.*, **42** : 24-27.

228. **Sandhu, T. S., Kooner, B. S., Singh, I.** and **Singh, K.** 1981. Reaction of certain chickpea varieties to *Meloidogyne incognita*. —*Indian J. Nematol.*, **11** (1) : 86-87.

229. **Sarma, A.L.N., Satapathy, S.** and **Rao, D. G.** 1981. Phytal macro and meiofauna of Chilka. —*Indian J. mar. Sci.*, **10** (1) : 61-65.

An attempt has been made to fractionate and study the phytal macro and meiofauna to know their relative numerical densities in the Chilka littoral system and to compare with the littoral benthic macro and meiofaunal communities.

230. **Shamim, S.** and **Deshmukh, P. G.** 1981. *Gallioxynema thapari* n. gen. n. sp. from *Gallus gallus domesticus*. —*Indian J. Helminth.*, **32** (2) (1980) : 112-116.

231. **Sharma, S. K., Sakhuja, P. K.** and **Singh, I.** 1981. Effect of mustard cake on the hatching and cyst population of *Heterodera avenae* on wheat. —*Indian J. Nematol.*, **11** (1) : 11-14.

232. **Singh, D. B.** and **Khan, E.** 1981. Morphological variations in populations of *Pratylenchus thornei* Sher & Allen, 1953. —*Indian J. Nematol.*, **11** (1) : 53-60.

233. **Singh, D. B., Reddy, P. P., Rao, V. R.** and **Rajendran, R.** 1981. Reaction of some varieties and some selection of French bean to *Meloidogyne incognita*. —*Indian J. Nematol.*, **11** (1) : 81-83.

234. **Singh, D. B., Reddy, P. P.** and **Sharma, S. R.** 1981. Effect of root knot nematode *Meloidogyne incognita* on fusarium wilt of French bean. —*Indian J. Nematol.*, **11** (1) : 84-85.

235. **Singh, H., Yadav, B. S.** and **Pathak, A. K.** 1981. Studies on control of root knot nematode *Meloidogyne incognita* (Kofoid and White, 1919) Chitwood, 1949 on ginger (*Zingiber officinale* Rose). —*Rajasthan J. Pesticides*, **8** (1) : 11-16.

236. **Singh, I., Sharma, S. K., Sakhuja, P. K.** and **Sharma, N. K.** 1981. Efficacy and resistance of some nematicides against root-knot nematode *Meloidogyne incognita* on pulses. —*Indian J. Nemat.*, **11** (1) : 67-69.

237. **Sinha, P. P.** and **Roy, C. S.** 1981. Effect of root dipping of chilli, *Capsicum annum* Linn. on insects and nematodes. —*Indian J. Ent.*, **43** (1) : 87-91.

238. **Sivakumar, C. V.** and **Khan, E.** 1981. Two new species of *Scutellonema* (Nematoda : Tylenchida) from Tamil Nadu, India. —*Indian J. Nematol.*, **11** (1) : 47-52.

239. **Sood, M. L.** and **Parshad, V. R.** 1981. A reference list of nematode parasites from Indian rodents. —*Res. Bull. Panjab Univ.*, **29** (1-4) (1978) : 35-38.

A list of Indian rodents along with their nematode parasites is given. Also the habitat and the locality are given in this paper.

240. **Soota, T. D.** 1981. On some nematodes from the unnamed collection of the Zoological Survey of India, alongwith the description of a new species. —*Rec. zool. Surv. India*, **79** (1-2) : 55-71.

The paper deals with part of the nematode component accumulated during the course of these investigations and also incorporates some material collected by other departmental survey parties.

241. **Soota, T. D.** and **Dey Sarkar, S. R.** 1981. On some nematodes parasitic in vertebrate hosts from Bihar, India. —*Rec. zool. Surv. India*, **78** (1-4) : 121-127.

242. **Soota, T. D.** and **Dey Sarkar, S. R.** 1981. Additions to the nematodes parasitic in vertebrates of Darjiling District, West Bengal, India. —*Rec. zool. Surv. Iudia*, **79** (1-2) : 35-41.

Some materials from this district, comprising ten species belonging to nine genera and nine families have been studied. Of these, one species is new and all the remaining ones either form new locality records or show interesting variations.

243. **Soota, T. D.** and **Dey Sarkar, S. R.** 1981. On some nematodes from Solan district, Himachal Pradesh, India. —*Rec. zool. Surv. India*, **79** (1-2) : 169-177.

The paper deals with 11 species of nematodes from Solan District, H. P. One of them is new and the remaining known ones form new locality records and, in some cases, show interesting variations.

244. **Sosamma, V. K.** and **Koshy, P. K.** 1981. Other host records of *Radopholus similis*. —*Indian J. Nematol.*, **11** (1) : 73-74.

245. **Srivastava, J. N.** and **Chauhan, S. V. S.** 1981. Morphological and histochemical studies on pollen abortion in *Solanum melongena* plants infested by *Meloidogyne incognita*. —*Indian Phytopath.*, **34** (1) : 43-47.

246. **Sultan, M. S.** 1981. On the *Rotylenchus—Helicotylenchus* Complex. —*J. scient. Res.*, **3** (1) : 15-16.

247. **Sultana, S.** 1981. Spiral nematodes of the sub-family Rotylenchinae Golden, 1971 (Tylenchida : Hoplolaimidae) from India. —*Nematol. Medit.*, **9** : 35-47.

248. **Tyagi, A., Ratnam, B. V.** and **Tyagi, K.** 1981. Histochemical studies of tomato root galls caused by *Meloidogyne incognita*. —*Indian Phytopath.*, **34** (1) : 96-99.

249. **Upadhyay, K. D.** and **Swarup, G.** 1981. Growth of maize plants in the presence of *Tylenchorhynchus vulgaris* Upadhyay *et. al.* 1973, singly and in combination with *Pratylenchus zeae* Graham, 1951, and *Fusarium moniliforme* Sheld. — *Indian J. Nematol.*, **11** (1) : 29-34.

250. **Upadhyay, K. D.** and **Swarup, G.** 1981. Growth of wheat in the presence of *Merlinius brevidens* singly and in combination with *Tylenchorhynchus vulgaris*. —*Indian J. Nematol.*, **11** (1) : 42-46.

251. **Veeravel, R.** 1981. Nematodes on sugarcane. —*Kisan Wld.*, **8** (3) : 46.

252. **Venkitesan, T. S., Charles, J. S.** and **Sheela, M. S.** 1981. New records of plant parasitic nematodes from Kerala. —*Agric. Res. J. Kerala*, **19** (1) : 139-141.

253. **Verma, A. C., Pathak, A. K.** and **Yadav, B. S.** 1981. Susceptibility of some clusterbean (*Cyamopsis tetragonaloba* Taub.) varieties to root-knot nematode, *Meloidogyne incognita* (Kofoid and White, 1919) Chitwood, 1949. —*Rajasthan J. Pesticides*, **8** (2) : 74-78.

254. **Verma, R. S.** et. al. 1981. *Aphelenchoides graminophilus* sp. nov. (Nematoda : Aphelenchoididae) from Uttar Pradesh. —*Bull. Ent.*, **22** (1-2) : 6-8.

Specimens belonging to a new species of the genus *Aphelenchoides* Fischer, were collected during the investigations on nematodes associated with cereals in U. P. and reported in the present paper.

255. **Vijayalakshmi, K.** and **Khan, E.** 1981. A new species of *Protrellatus* (Nematoda : Thelastomatidae) from common house cricket, *Gryllus domesticus*. — *Indian J. Nematol.*, **11** (1) : 88-91.

256. **Vyas, S., Vardhani, V. V.** and **Johri, G. N.** 1981. *Ancylostoma caninum* : immunization through transfer of sensitized lymphoid cells and their effect on the expulsion and/or destruction of worm burden in Swiss albino mice. — *Indian J. exp. Biol.*, **19** (8) : 752-753.

257. **Weilgama, D. J.** and **Perera, P. S. G.** 1981. Efficacy of febantel (Rintab) on gastro—intestinal nematodes of goats in Sri Lanka. —*Ceylon vet. J.*, **29** (1-4) : 14-15.

258. **Yatham, N. R.** and **Narayan Rao, P.** 1981. Studies on *Heterotylenchus crassirostris* sp. n. parasitic in *Musca crassirostris* Stein and *Stomyxis calcitrans* L. — *Indian J. Nematol.*, **11** (1) : 19-24.

7. ACANTHOCEPHALA

258a. **Ahmed, A. T. A.** and **Abdur Rouf, A. J. M.** 1981. Acanthocephalan parasites of freshwater and estuarine fishes of Bangladesh. —*Proc. zool. Soc. Bangladesh* : 118-125 (Third National Zool. Conference).

259. **Gupta, S. P.** and **Gupta, R. C.** 1980. On six new Acanthocephalan parasites from marine fishes of Arabian Sea, at Quilon, Kerala. —*Indian J. Helminth.*, **31** (2) (1979) : 135-156.

260. **Rengaraju, V.** and **Das, E. N.** 1981. On a new species of the genus *Oligacanthorhynchus* Travassos, 1915 (Acanthocephala : Oligacanthorhynchidae) from India. —*Rec. zool. Surv. India*, **78** (1-4) : 37-40.

261. **Soota, T. D.** and **Bhattacharya, S. B.** 1981. On some Acanthocephalans from Indian marine fishes. —*Bull. zool. Surv. India*, **3** (3) : 227-233.

8. ANNELIDA

262. **Ali, S.**, **Rahman, A.** and **Majid, A.** 1981. Studies on benthic macroinvertebrates. —*Proc. zool. Soc. Bangladesh*, (Third National Zoological Conference) : 145-151.

263. **Ismail, S. A.** and **Kaleemurrahman, M.** 1981. Report on the occurrence of bioluminescence in the earthworm, *Lampito* (= *Megascolex*) *mauritii*. —*Curr. Sci.*, **50** (12) : 555.

264. **Julka, J. M.** 1981. Taxonomic studies on the earthworms collected during the Subansiri Expedition in Arunachal Pradesh. —*Rec. zool. Surv. India, Occ. Pap.*, No. **26** : 1-53.

The paper deals with taxonomic studies on 27 species from Arunachal Pradesh of which 11 are new to science.

265. **Kale, R. D.** and **Krishnamoorthy, R. V.** 1981. What affects the abundance and diversity of earthworms in soils ? —*Proc. Indian Acad. Sci.* (*Anim. Sci.*), **90** (1) : 117-121.

The characterization of the organic matter of the soil, influencing the specific distribution of worms, has been described.

266. **Kale, R. D.** and **Krishnamoorthy, R. K.** 1981. Litter preferences in the earthworm *Lampito mauritii*. —*Proc. Indian Acad. Sci.* (*Anim. Sci.*), **90** (1) : 123-128.

The present study describes some preferences to leaf materials in the species, *Lampito mauritii*.

267. **Mahajan, C. L.**, **Sharma, S. D.**, **Sharma, S. P.** and **Arora, N. K.** 1981. Benthic fauna in a wetland ecosystem (Ghana Bird Sanctuary, Bharatpur) subjected to drought stress. —*Int. J. Ecol. envir. Sci.*, **7** : 145-148.

The species composition, population size and biomass of major macrobenthic invertebrate groups (Oligochaeta, Insecta and Mollusca) in Ghana Bird Sanctuary, Bharatpur have been studied during 1978-79.

268. **Nageswara Rao, C. A.** 1981. On two new polychaetes (Nereidae : Annelida) from estuarine waters of India. —*Bull. zool. Surv. India*, **3** (3) : 213-217.

269. **Nageswara Rao, C. A.** and **Soota, T. D.** 1981. On some polychaetes from Gujarat coast. —*Rec. zool. Surv. India*, **79** (1-2) : 73-82.

The paper deals with 37 species of polychaetes collected from Gujarat coasts. Most of the species form new locality records for the area, two for the Indian waters, and a few show interesting variations. Also included are comparative observations of the similarities of the habitats, namely coral reefs, of the above area with those of two other areas, Gulf of Mannar and Andaman and Nicobar Islands.

270. **Sanjeeva Raj, P. J.** and **Gladstone, M.** 1981. On a new species of the landleech of the genus *Haemadipsa* Tennent, 1859 from the peninsular India. —*Rec. zool. Surv. India*, **79** (1-2) : 1-18.

In the course of an extensive survey and study of the haemadipsids of the peninsular India, three stations out of a total of 28 stations at an altitude of about c.4500 to c.6200 ft., have a landleech that seems to have not been

described so far and therefore it is described as a new species herein together with anatomical and ecological details concerning the species.

271. **Soota, T. D.** and **Halder, K. R.** 1981. On some earthworms from eastern himalayas. —*Rec. zool. Surv. India*, **79** (1-2) : 231-234.

272. **Soota, T. D., Misra, A.** and **Chakraborty, R. K.** 1981. Polychaete fauna of Gujarat coast. —*Rec. zool. Surv. India*, **79** (1-2) : 93-104.

The present paper deals with 25 species of polychaetes from the unnamed collections of the Zoological Survey of India, of which four show interesting variations and 12 form new locality records for the area, including 2 for the Indian waters. An up-to-date list of the species of polychaetes so far known from Gujarat Coast has also been given.

273. **Yadav, U. K. R., Karki, S. B.** and **Mishra, P. N.** 1981. Studies on local population of oligochaetes in a Lake and three ponds of Kathmandu Valley. —*J. nat. Hist. Mus.*, **5** (1) : 49-55.

Investigation on the populations of the oligochaetes at different depths of a lake and three ponds were carried out from July to August 1980 and only a single species, *Brachiura sowerbyi* (Beddard) of oligochaetes fauna was identified as a new record for Nepal.

9. SIPUNCULIDA

274. **Haldar, B. P.** 1981. On the climatology of the Beyt Island, Western India, with special reference to the systematics of *Phoronis australis* Haswell (Phoronida). —*Indian J. Zootomy*, **22** (1) : 59-63.

10. MOLLUSCA

275. **Alagarswami, K.** and **Chellam, A.** 1981. Change of form and dimensional relationship in the Pearl Oyster *Pinctada fucata* from Gulf of Mannar. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 1-14.

Samples of the pearl oyster, *Pinctada fucata* collected from Tholayiram, Pulipundu and Kudamuthu paars in the Gulf of Mannar were analysed to study the relationship among the linear dimensions namely dorsoventral measurment, hinge length, anteroposterior measurement and thickness.

276. **Ansari, Z. A., Parulekar, A. H.** and **Matondkar, S. G. P.** 1981. Seasonal changes in meat weight and biochemical composition in the black clam *Villorita cyprinoides* (Grey). —*Indian J. mar. Sci.*, **10** (2) : 128-131.

277. **Appukuttan, K. K.** 1980. On the occurrence of the green mussel *Perna viridis* (Linnaeus) in Andaman Island. —*Indian J. Fish.*, **24** (1 & 2) [1977] : 244-247.

278. **Babu, G. R., Jyothirmayi, G. N., Prasad, B.S.V.** and **Rao, P. V.** 1981. Relative effect of furco x xiphidio cercarial infections on metabolism of the snail host *Lymnaea luteola*. —*Indian J. exp. Biol.*, **19** (12) : 1203-1204.

279. **Balakrishnan, S.** 1981. On the periostracum of the freshwater bivalve *Lamellidens marginalis*. —*Proc. Indian Acad. Sci.* (*Anim. Sci.*), **90** (1) : 79-86.

The structure and chemical composition of the periostracum of the bivalve *L. marginalis* and the change in chemical composition during growth stages were investigated.

294. **Mohan, M.V.** and **Cheriyan, P. V.** 1981. Oxygen consumption of *Nausitora hedleyi* Schepman and *Teredo furcifera* Von Martens in relation to body weight. —*Indian J. mar. Sci.*, **10** (2) : 192-194.

Metabolism of the euryhaline *N. hedleyi* and the stenohaline *T. furcifera*, from the Cochin Harbour region was studied in relation to body weight.

295. **Mohan, M.V.** and **Damodaran, R.** 1981. Allometric relationship in the clam, *Sunetta scripta*. —*Indian J. mar. Sci.*, **10** (2) : 198-200.

296. **Nagabhushanam, R.** and **Bidarkar, D. S.** 1980. Reproductive biology of Indian rock oyster *Crassostrea cucullata*.— *Indian J. Fish.*, **24** (1 & 2) (1977) : 135-142.

Histological study of gonad of *Crassostrea cucullata* revealed 4 stages : (1) recovery/regression (2) early gametogenesis/early development (3) late growing/mature and (4) recently spent. There was no resting stage. Recovery of gametes took place in February. The gametogenesis was observed in March and April and maturing stage was recorded in May and June. By July the whole population was found in ripe condition but owing to the low salinity during monsoon, no trace of spawning was noticed till September. A single spawning season was recorded from October to January.

297. **Nagabhushanam, R.** and **Bidarkar, D.S.** 1981. Studies on seasonal changes in the biochemical constituents of the oyster *Crassostrea cucullata*. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 156-164.

298. **Nagabhushanam, R.** and **Farooqui, U.M.** 1981. Thermal stress induced neurosecretory alterations in normal and reserpinized clam *Katelysia opima*.— *Indian J. exp. Biol.*, **19** (9) : 893-895.

299. **Nair, V. R., Gajbhiye, S. N., Jiyalal Ram, M.** and **Desai, B. N.** 1981. Biomass and composition of zooplankton in Auranga, Ambika, Purna and Mindola estuaries of South Gujarat. — *Indian J. mar. Sci.*, **10** (2) : 116-122.

Zooplankton biomass and composition in 4 estuaries located in South Gujarat are studied during the flood and ebb conditions.

300. **Nanda, D. K.** and **Tarafdar, J. A.** 1981. Cytomorphological studies on the neurosecretory cells in freshwater pelecypod, *Lamellidens marginalis* (Simpson). —*J. zool. Soc. India*, **32** (1-2) (1980) : 1-10.

301. **Narasimham, K. A.** 1981. Prospects for clam culture. —*Fmr's J.*, **1** (3) : 15-17.

302. **Nautiyal, L. P.** and **Lal, M. S.** 1981. Limnological studies on some hill streams of Garhwal, Himalayas II. Variations in water chemistry of eastern Mayar. —*Indian J. Zootomy*, **22** (2) : 113-116.

303. **Nayar, K. N., Mahadevan, S., Ramadoss, K., Sundaram, N.** and **Rajan, C. T.** 1981. Experimental study of the settlement and collection of pearl oyster spat from Tuticorin area. — *Indian J. Fish.*, **25** (1 & 2) (1978) : 246-252.

304. **Oommen, V. P.** 1980. Two Octopods new to Arabian Sea. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 25-32.

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The present paper deals with 25 species of polychaetes from the unnamed collections of the Zoological Survey of India, of which four show interesting variations and 12 form new locality records for the area, including 2 for the Indian waters. An up-to-date list of the species of polychaetes so far known from Gujarat Coast has also been given.

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304. **Oommen, V. P.** 1980. Two Octopods new to Arabian Sea. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 25-32.

280. **Bhanu, R.C.R., Shyamasundari, K., Rao, K. H.** and **Rao, D.G.V,P.** 1981. Effect of salinity and temperature on the gastropod, *Thais rudolphi* (Lamarck) from Waltair Coast. —*Indian J. mar. Sci.*, **10** (2) : 195-197.

Salinity and temperature and their combined effect on the survival of *T. rudolphi* were studied.

281. **Chaturvedi, M. L.** and **Agarwal, R. A.** 1981. Comparative study of strong pattern and site of synthesis of uric acid in the snails *Viviparus bengalensis* (Lamarck) and *Pila globosa* (Swainson), during active and dormant period. —*Indian J. exp. Biol.*, **19** (2) : 130-134.

282. **Chellam, A.** 1981. Growth of pearl oyster *Pinctada fucata* in the pearl culture farm of Veppalodai. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 77-83.

283. **Das, A. K., Mitra, S. C.** and **Mukhopadhyaya, S.** 1981. Studies on some molluscan collections by the Golden Crown' from the Bay of Bengal with a note on the camouflage habit of a gastropod *Xenophora pallidula* Reeve. —*Proc. zool. Soc. Calcutta*, **32** (1-2) (1979) : 79-87.

284. **Deshpande, U. D.** and **Nagabhushanam, R.** 1981. Toxicity of sodium pentachlorophenate (Na-PCP) to the marine pulmonate, *Onchidium verruculatum*. —*Indian J. mar. Sci.*, **10** (4) : 384.

285. **Dutt, S. C.** and **Bali, H. S.** 1981. Studies on the life-history of the aquatic snails *Lymnaea luteola* Lamarck, *L. auricularia rufescens* Gray and *Indoplanorbis exustus* Deshayes—*Indian J. Anim. Sci.*, **51** (2) : 215-220.

286. **Ghare, M. A.** 1981. Occurrence of *Placenticeras placenta* (Dekay) in Ariyalur Group of South Indian Cretaceous rocks, Trichinopoly district, Tamil Nadu.—*Biovigyanam*, **7** (1) : 9-10.

287. **Kanwar, U.** and **Juneja, K. M.** 1981. Structural and cytophysiological studies on the digestive gland cells of the marine snail, *Trochus radiatus*. —*Res. Bull. Punjab Univ.*, **29** (1-4) (1978) : 29-34.

The present report supplements those observations on a marine snail, *T. radiatus*, which feeds on marine algae.

288. **Kulkarni, A. B.** and **Utkar, V. N.** 1981. A study on the carbohydrate metabolism in the freshwater Prosobranch snail, *Viviparus bengalensis* (Lamarck). —*J. scient. Res.*, **3** (2) : 75-78.

289. **Kulkarni, A. P., Utkar, V. N.** and **Kulkarni, D. B.** 1981. Effect of cortisone (injectable) on tissue glycogen in the land snail, *Cryptozona semirugata* (Beck). —*J. scient. Res.*, **3** (1) : 21-23.

290. **Lomte, V. S.** and **Jadhav, M. L.** 1981. A study on the kidney and nitrogenous excretory products in the freshwater bivalve, *Lamellidens corrianus*. —*J. scient. Res.*, **3** (2) : 95-100.

The anatomy and histology of the kidney and the nitrogenous excretory products like ammonia, urea and uric acid in *L. corrianus* heve been studied.

291. Deleted.

292. **Menon, K.B., Ganti, S. S.** and **Karande, A. A.** 1981. Field observations on the marine bivalve *Scapharca deyrollei* Jousseaume. —*Indian J. mar. Sci.*, **10** (2) : 123-127.

Prevalence and incidence of *S. deyrollei* in Alibag waters about 100 km. away from Bombay have been studied.

293. **Mohan, M. V.** 1981. Matrix diagram for the presentation of seasonal intensity data of shipworms. —*Indian J. mar. Sci.*, **10** (1) : 96-97.

Two Octopods, namely *Argonauta argo* Linnaeus, a species hitherto unrecorded from the Arabian Sea and *Berrya annae* sp. nov., obtained from the collection of R/V Varma and R/V Klaus Sunnana of the Integrated Fisheries Project and R/V Rastrelliger of Pelagic Fishery Project Cochin, are described.

304a. **Patil, P. J.** 1981. Early development in *Cellana rota* (Chemnitz). —*Geobios*, **8** (1) : 22-25.

The study deals with the description of fertilization and larval development of the limpet *C. rota* from Mirkarwada rocky shore, Ratnagiri.

305. **Perera, C. R. D.** and **Breckenridge, W. R.** 1981. A histophysiological study of the alimentary system of *Achatina fulica* (Gastropoda : Pulmonata, Stylommatophora) with particular reference to glands in the tract. —*Ceylon J. Sci. (Biol. Sci.)*, **14** (1 & 2) : 152-192.

306. **Puttaswamy, Reddy, D. N. R.** and **Naik, L. K.** 1981. Occurrence of *Cryptozona semirugata* (Beck) (Stylommatophora : Ariophantidae) on cultivated plants. —*Curr. Res. mon. Newsl.*, **10** (4) : 61.

307. **Rai, D. N., Roy, S. P.** and **Sharma, U. P.** 1981. Freshwater gastropod (Mollusca) community structure in relation to the macrophytes of littoral zone of a fish pond at Bhagalpur (Bihar). —*Indian J. Ecol.*, **8** (1) : 88-95.

308. **Rajalakshmi Bhanu, R. C., Shyamasundari, K.** and **Rao, K. H.** 1981. Histology and histochemistry of gastropod snail, *Thais bufo* (Lamarck) from Waltair Coast. —*Indian J. Zootomy*, **22** (2) : 65-69.

309. **Rajni, Khot** and **Nagabhushanam, R.** 1981. Reproductive biology of the Indian freshwater snail, *Melanoides tuberculatus*. —*J. zool. Soc. India*, **32** (1-2) (1980) : 71-82.

310. **Ramamohana Rao, V., Rao, T. A., Reuben, S.** and **Manickam, P. E. S.** 1980. On the culture possibilities of *Meretrix casta* in Bhimunipatnam backwaters. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 263-268.

It is observed that a rich natural bed of the clam, *M. casta* existed in the Bhimunipatnam backwaters, 32 kms. north of Visakhapatnam.

311. **Rangarajan, K.** 1980- Prospects of mussel culture in an estuarine environment. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 237-241.

312. **Rao, D. G. V. P.** and **Veeresalingam, M.** 1981. Oxygen consumption in relation to body size in the bivalve *Barbatia obliquata*. —*Geobios*, **8** (2) : 84-86.

Investigation was undertaken with a view to study the oxygen consumption and metabolic rate in relation to body size in *B. obliquata* to make an interspecific comparison with the other molluscs.

313. **Rao, G. M.** and **Chari, N.** 1981. Metabolic differentiation of white and pink components of catch and heart muscles of a freshwater mussel, *Lamellidens corrianus* (Lea). —*Indian J. exp. Biol.*, **19** (3) : 225-227.

314. **Rao, Y. P.** and **Rao, D. G. V. P.** 1981. Survival of *Cerithidea (Cerithideopsilla) cingulata* (Gmelin, 1790) and *Cerithium coralium* Kiener, 1841, under anoxia and low salinities. —*Indian J. Zootomy*, **22** (1) : 29-34.

315. **Raut, S. K.** 1981. Population interaction among freshwater snails. —*Proc. Symp. Ecol. Anim. Popul. zool. Surv. India*, (2) (1978) : 163-173.

316. **Raut, S. K.** 1981. Sex ratio in *Viviparus bengalensis* (Lamarck) (Gastropoda : Viviparidae). —*Bull. zool. Surv. India*, **4** (1) : 13-15.

317. **Raut, S. K.** and **Ghose, K. C.** 1981. Factors influence mortality in land snail, *Achatina fulica* Bowdich and *Macrochlamys indica* Godwin-Austen during aestivation. —*Proc. zool. Soc. Calcutta*, **32** (1-2) (1979) : 107-120.

318. **Singh, M. N.** and **Psasad, B.** 1981. Use of calcium arsenate as bait to control the giant African snail *Achatina fulica*. —*Indian J. Zootomy*, **22** (1) : 15-17.

319. **Singh, M. N.** and **Prasad, B.** 1981. Use of metaldehyde to control the giant African snail, *Achatina fulica* Bowdich. —*Indian J. Zootomy*, **22** (2) : 105-107.

320. **Singh, R.** and **Agrawal, R. A.** 1981. Reversal of effects of alkylating agents through the use of prostaglandin E, in the ovotestes of the snail, *Lymneae acuminata*. —*Curr. Sci.*, **50** (17) : 780-781.

321. **Subba Rao, N.V. Raut, S.K.** and **Mitra, S. C.** 1981. Observations on the fecundity of the garden snail, *Opeas gracile* (Hutton) (Pulmonata : Subulinidae).—*J. zool. Soc. India*, **32** (1-2) (1980) : 107-110.

322. **Subba Rao, N. V., Raut, S. K.** and **Mitra, S. C.** 1981. Observations on the growth rate of the common garden snail, *Opeas gracile* (Hutton) (Stylommatophora : Subulinidae). —*Bull. zool. Surv. India*, **4** (2) : 205-207.

323. **Subba Rao, N. V.** and **Surya Rao, K. V.** 1981. Occurrence of a coral boring bivalve *Gregariella coarctata* (Carpenter) (Bivalvia : Mytilidae) in the Indian waters. —*Bull. zool. Surv. India*, **4** (2) : 213-215.

324. **Sudarshan, R.** and **Neelakantan, B.** 1981. Diurnal stereotypy of the periwinkle, *Littorina intermedia*. —*Indian J. mar. Sci.*, **10** (4) : 385-386.

325. **Yadav, U. R., Karki, S. B., Karki, T.B., Jha, S. N.** and **Mehta, J.** 1981. Studies on the macrofauna of Godavari Khola, Kathmandu Valley, Nepal. —*J. nat. Hist. Mus.*, **5** (1) : 23-36.

Benthic macro-invertebrate fauna in Godavari Khola were studied along with their seasonal abundance and biomass between July and November 1980. A total of 25 taxa of macrofauna were recorded—oligochaetes and molluscs were the dominant groups.

11. ARTHROPODA

(a) Trilobita

326. **Suneja, I. J.** 1981. An asaphiscid from Middle Cambrian beds of north western Kashmir (India). —*Res. Bull. Punjab Univ.*, **30** (1-4) (1979) : 45-48.

This communication places on record for the first time the occurrence of an addl. *Anomocarella* sp. in the Middle Cambrian beds of the Hundwara basin (J. & K.).

(b) Arachnida

327. **Brignoli, P. M.** 1981. Spiders from Ceylon. III. A new *Speocera* (Araneae, Ochyroceratidae).—*Ceylon J. Sci. (Biol. Sci.)*, **14** (1 & 2) : 120-121.

327a. **Chakrabarti, A.** and **Misra, S. K.** 1981. Incidence of *Demodex* spp. in the eyelids of local cattle in Orissa. —*Indian vet. J.*, **58** (3) : 250.

328. **Chakrabarti, S.** and **Ghosh, B.** 1981. Two new species of Eriophyid mites (Acari : Eriophyoidea) from Hooghly District of West Bengal, India.—*Indian J. Acar.*, **5** (1 & 2) (1980) : 29-31.

329. **Chandrashekhar, S., Suryanarayanan, T. S.** and **Narasimham, C. L.** 1981. Occurrence of *Beauveria alba* on a spider. —*Curr. Sci.*, **50** (5) : 248.

330. **Chowdhury, S. H.** and **Nagri, S.** 1981. Rice-field spiders from Chittagong.—*Proc. zool. Soc. Bangladesh*, 53-72. (Third National Zoology Conference).

The authors have studied 12 species, representing five families and identified them. They have also furnished a note on some pertinent taxonomic features.

331. **Dhali, S. G., Bhaduri, A. K.** and **Raychaudhuri, D. N.** 1981. Taxonomic investigations of soil oribatid mites (Acari) of Sikkim Himalaya. —*Indian J. Acar.*, **5** (1 & 2) : 50-55.

332. **Gill, H. S.** and **Bhattacharyulu, Y.** 1981. Note on laboratory studies on the life-history of *Rhipicephalus haemaphysaloides* Supino, 1897 (Acarina : Ixodidae).—*Indian J. Anim. Sci.*, **51** (9) : 901-902.

333. **Gill, H.S.** and **Bhattacharyulu, Y.** 1981. Note on laboratory studies on the life history of *Haemaphysalis bispinosa* Neumann, 1897 (Acarina : Ixodidae).—*Indian J. Anim. Sci.*, **51** (9) : 903-904.

334. **Gupta, S. K.** 1981. Some soil prostigmatid mites (Acari) from Bihar. —*Progress in Soil Biology and Ecology in India*, Ed. G. K. Veeresh : 93-99.

335. **Gupta, S. K.** 1981. On a collection of Phytoseiidae (Acari : Mesostigmata) from Himachal Pradesh (India), with description of two new species.—*Indian J. Acar.*, **5** (1 & 2) (1980) : 32-36.

336. **Gupta, S. K.** 1981. Phytoseiidae (Acari : Mesostigmata) from Jammu and Kashmir, India, with description of five new species. —*Indian J. Acar.*, **5** (1 & 2) (1980) : 37-49.

337. **Gupta, S. K.** and **Ray, S.** 1981. Species of the subgenera *Paraphytoseius* and *Asperoseius* from India with description of a new species of *Paraphytoseius*. —*Bull. zool. Surv. India*, **4** (1) : 41-46.

338. **Gupta, Y. N.** 1981. On a collection of Tetranychid mites from Jammu and Kashmir with description of one new species of *Eotetranychus* (Acarina : Tetranychidae). —*Bull. zool. Surv. India*, **3** (3) : 235-238.

339. **Haq, M. A.** and **Adolph, C.** 1981. A comparative study of the duration of the life cycles of four species of oribatid mites (Acari : Oribatei) from the soil of Kerala. —*Indian J. Acar.*, **5** (1 & 2) (1980) : 56-61.

340. **Ilkal, M. A.** and **Dhanda, V.** 1981. Laboratory studies on the life-history of *Haemaphysalis intermedia* Warburton and Nuttall, 1909 (Acarina : Ixodidae). —*Indian J. Anim. Sci.*, **50** (2) : 198-202.

341. **Kanagaratnam, P., Pinto, J. L. J. G.** and **Sinnathamby, S. V.** 1981. Some minor pests of coconut ; new record for Sri Lanka. —*Ceylon Cocon. Q.*, **32** (3-4) : 93-95.

342. **Khan, M. H.** 1981. Laboratory assay of some newer compounds against the cattle tick *Boophilus microplus* (Canestrini) (Acarina : Ixodidae). —*Indian J. Anim. Hlth.*, **20** (1) : 41-44.

343. **Krishna Rao, N. S., Raghunath, H. R.** and **Channbasavanna, G. P.** 1981. House dust mites from India. —*Indian J. Acar.*, **5** (1 & 2) (1980) : 85-94.

Examination of over 700 house dust samples from different parts of India, mainly from Karnataka, over a period of two years revealed 23 species of mites, grouped under 5 families of Astigmata and one of Prostigmata. Of these, 11 are new records for India and 6 species are newly recorded from house dust.

344. **Kulkarni, S. M.** 1981. Two new species of the genus *Leptotrombidium* (Acari : Trombiculidae) from India. —*Indian J. Acar.*, **5** (1 & 2) (1980) : 62-68.

345. **Maske, D. K.** and **Ruprah, N. S.** 1981. Note on bionomics of psoroptic mange buffaloes. —*Indian J. Anim. Sci.*, **51** (4) : 494-497.

The present investigation deals with the prevalence and bionomics of bubaline psoroptic mange in Haryana—an area noted for its buffalo wealth.

346. **Maske, D. K.** and **Ruprah, N. S.** 1981. Note on *in vitro* survival of psoroptic mange in buffaloes at different temperature and relative humidities. —*Indian J. Anim. Sci.*, **51** (5) : 563-564.

347. **Miranpuri, G. S.**, **Srivastava, S. C.** and **Malhotra, M. N.** 1981. *In vitro* tests with some acricides against cattle tick, *Boophilus microplus* (Canestrini). —*Indian J. Anim. Hlth.*, **20** (2) : 99-101.

347a. **Mohanasundaram, M.** 1981. Two new species of Nalepellidae (Eriophyroidea : Acarina) from South India. —*Bull. Ent.*, **22** (1-2) : 11-14.

348. **Mohanasundaram, M.** 1981. Three new species of *Acalitus* (Acari : Eriophyidae) from South India. —*Indian J. Acar.*, **5** (1 & 2) (1980) : 21-26.

349. **Mohanasundaram, M.** 1981. Gall mites of the tribe Phytoptini (Acari : Eriophyidae) from South India. —*Indian J. Acar.*, **5** (1 & 2) (1980) : 1-20.

350. **Mondal, S.** and **Chakrabarti, S.** 1981. Studies on the Eriophyid mites (Acarina : Eriophyoidea) of India. VI. New species from West Bengal. —*Oriental Ins.*, **14** (4) (1980) : 453-459.

351. **Nahar, S. C.** and **Gupta, S. K.** 1981. A preliminary report of stored grain mites of Bihar. —*Bull. Grain Technol.*, **18** (2) : 130-134.

352. **Nandi, N. C.** 1981. *Amblyomma javanense* (Supino, 1897) from a new host, *Manis crassicaudata* Gray together with a description of its nymph from Goa, India. —*Bull. zool. Surv. India*, **4** (1) : 23-26.

353. **Pai, C. G. A.** and **Prabhoo, N. R.** 1981. Microarthropods associated with post-harvest decay of paddy tillers in Kerala. —*Int. J. Ecol. envir. Sci.*, **7** : 123-129.

The composition of the microarthropods and their probable role in the post-harvest decay of the paddy tillers have been worked out.

354. **Parshad, B.**, **Menon, M. G. R.** and **Alam, S. M.** 1981. Observations on predatory spider. I. In buildings and laboratories. —*Bull. Ent.*, **22** (1-2) : 61-66.

355. **Parshad, B.**, **Menon, M. G. R.** and **Alam, S. M.** 1981. Observation on predatory spiders. I. On cotton and citrus. —*Bull. Ent.*, **22** (1-2) : 82-96.

The bionomics of predatory spiders associated with the pest complex of cotton and citrus and their utilization in the biological control have been studied.

356. **Perera, P. A. C. R.** 1981. A beneficial mite on coconut. —*Ceylon Cocon. Q.*, **32** (3-4) : 114-115.

357. **Prasad, V. G.** and **Bagle, B. G.** 1981. Evaluation of acaricides for the control of litchi mite, *Aceria litchii* Keifer (Acarina : Eriophyidae). —*Pesticides*, **15** (1) : 22-23.

358. **Prasad, V. G.** and **Singh, R. K.** 1981. Prevalence and control of litchi mite, *Aceria litchii* Kiefer in Bihar. —*Indian J. Ent.*, **43** (1) : 67-75.

359. **Putatunda, B. N., Gupta, S. K.** and **Singh, J.** 1981. Mites associated with poultry in West Bengal : *Contribution to Acarology in India*, Ed. **G. P. Channabasavana** : 85-93.

360. **Puttaswamy** and **Channabasavanna, G. P.** 1981. Influence of host plants on the development, fecundity and longevity of *Tetranychus ludeni* Zacher (Acari : Tetranychidae). —*Indian J. Acar.*, **5** (1 & 2) (1980) : 80-84.

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362. **Puttaswamy** and **Reddy, D. N. R.** 1981. Record of some new pests infesting french bean (*Phaseolus vulgaris* L.) a popular vegetable. —*Curr. Res. mon. Newsl.*, **10** (3) : 39-40.

363. **Raghunath, H. R., Channabasavanna, G. P.** and **Krishna Rao, N. S.** 1981. Description of *Acarus griffithsi* sp. nov. (Acari : Acaridae) from Bangalore, India. —*Indian J. Acar.*, **5** (1 & 2) (1980) : 95-100.

364. **Rajagopalan, P. K.** and **Sreenivasan, M. A.** 1981. Ixodid ticks on cattle and buffaloes in the Kyasanur forest disease area of Karnataka State. —*Indian J. med. Res.*, **73** (6) : 880-889.

Sixteen species of ixodid ticks belonging to six genera and found parasitizing cattle and buffaloes in Balagodu and Kangodu villages of Kyasanur forest disease area in Karnataka State, are discussed here.

365. **Reddy, M. V.** 1981. Faunal composition of summer population of soil microarthropods of tea-nursery beds at Nayabunglow, North Eastern India. —*Indian J. Ecol.*, **8** (1) : 108-111.

366. **Sanyal, A.** 1981. Ecology of soil-oribatid mites in an uncultivated field of Gangetic delta of West Bengal in relation to soil pH and salinity : *Veeresh, G.K. (ed.). Progress in Soil Biology and Ecology in India.—Proc. 2nd All India Symposium on Soil Biology and Ecology* : 107-112.

367. **Satyanarayana, N.V.V., Rao, B. V.** and **Reddy, P. R.** 1981. A brief note on the biology of *Amblyomma integrum* Karsch, 1897. —*Indian vet. J.*, **58** (2) : 112-117.

368. **Saxena, V. K.** and **Sharma, V. P.** 1981. Water mites (*Arrenurus sp.*) parasitizing mosquitoes in Uttar Pradesh, Terai, Dist. Nainital—*Indian J. Malar.*, **18** (1) : 51-52.

369. **Sharma, A. K.** and **Awasthi, D. K.** 1981. Fruit galls of *Prosopis cineraria* (L.) Druce—a new record. —*Curr. Sci.*, **50** (8) : 371-372.

The mite causing infection was identified as *Eriophyes prosopidis* Saksena and was detected during collection of fruits from Modinagar.

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370. **Shastri, U. V.** and **Deshpande, P. D.** 1981. *Hyalomma anatolicum anatolicum* (Koch, 1844) as a possible vector for transmission of *Trypanosoma theileri*, Laveran, 1902 in cattle. —*Vet. Parasitol.*, **9** (2) : 151-156.

371. **Shastri, U.V.** and **Ghafoor, M. A.** 1981. Hard ticks *Hyalomma anatolicum anatolicum* and *Boophilus microplus* as possible vectors of filarioid nematode of cattle in India. —*Indian vet. J.*, **58** (10) : 774-776.

The study yielded discovery of filarioid larval forms in various stages of development on both the tick species.

372. **Singh, J.** and **Wallwork, J. A.** 1981. Some important characters of lower and higher oribatid mites under scanning microscope. —*Oriental Ins.*, **14** (4) (1980) : 409-414.

373. **Sinha, S.R.P., Ansari, M. Z.** and **Sahai, B. N.** 1981. Experimental acaricidal trial on cattle against *Boophilus microplus* (Canestrini). —*Indian J. Anim. Hlth.*, **20** (1) : 51-54.

374. **Srivastava, S., Bhullar, J.S.** and **Dogra, G. S.** 1981. Incidence of Fruit Rind Disorder and Mites on Mandarins in Himachal Pradesh. —*Punjab. Hort. J.*, **21** (1 & 2) : 99-102.

375. **Srivastava, S. C., Khan, M. H.** and **Moin, R.** 1981. Note on the biology of poultry tick, *Argas persicus* (Oken) (Acarina : Argasidae). —*Indian J. Anim. Sci.*, **51** (3) : 387-389.

376. **Tikader, B. K.** 1981. Studies on spiders of the genus *Lutica* Marx (Family—Zodariidae) from India. —*J. Bombay nat. Hist. Soc.*, **78** (1) : 139-142.

The author has provided a key to species and illustrated epigyne and internal genitalia of two known species of the genus *Lutica* and described a new species.

377. Deleted.

378. **Tikader, B. K.** 1981. A new species of rare spider of the genus *Hyptiotes* (Family Uloboridae) from India. —*Curr. Sci.*, **50** (3) : 154-155.

379. **Tikader, B.K.** and **Bal, A.** 1981. Studies on some orb-weaving spiders of the genera *Neoscona* Simon and *Araneus* Clerck of the family Araneidae (=Argiopidae). —*Rec. zool. Surv. India Occ. Pap.* No. 24 : 1-60.

26 species are dealt with, of which 13 are known and nine are new species. Keys, notes on affinities, distribution and main taxonomic characters of the family besides type informations have been given.

380. **Tikader, B. K.** and **Biswas, B.** 1981. Spider fauna of Calcutta and vicinity. Part I. —*Rec. zool. Surv. India, Occ. Pap.* No. **30** : 1-149.

The paper deals with 99 spp. in 47 genera in 15 families, including one species as new from Calcutta (W. B.). In addition to descriptions, keys, notes on affinities, synonymies and field ecology have been given.

381. **Tikader, B. K.** and **Malhotra, M. S.** 1981. Revision of spiders of the genus *Ctenus* Walckenaer from India (Araneae : Ctenidae). —*Rec. zool. Surv. India*, **79** (1-2) : 105-124.

Ten known species and one new species have been redescribed and illustrated in details in this revisionary work. A key to the species is also given for early identification.

382. **Vadivelu, S.** 1981. Mite and nematode pest complex in *Polyanthes tuberosa* Linn. in Tamil Nadu.—*S. Indian Hort.*, **29** (4) : 233-234.

(c) Crustacea

383. **Anantharaman, K. V., Shakuntala, K.** and **Ravichandra Reddy, S.** 1981. Influence of endogenous factors on the pattern of ammonia excretion in the prawn *Macrobrachium lanchesteri* (de Man). —*Indian J. exp. Biol.*, **19** (1) : 42-45.

384. **Babu Rao, M., Mukhopadhyay, S. K.** and **Muley, E. V.** 1981. Seasonals and Socies of zooplanktonic organisms and their succession in two freshwater ponds at Wagholi, Poona.—*Proc. Symp. Ecol. Anim. Popul. zool. Surv. India*, (2) (1978) : 63-84.

385. **Babu Rao, M., Mukhopadhyay, S. K., Muley, E. V.** and **Siddiqui, S. Z.** 1981. Diversity in zooplankton community as an indicator of organic and industrial pollution in Hussain Sagar, Hyderabad. —*Bull. zool. Surv. India*, **4** (1) : 61-66.

386. **Chakrabarty, K.** 1981. A growth study of the crab *Scylla serrata* Forsk. in the Sundarbans. —*Indian J. For.*, **4** (2) : 102-106.

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396. **Gupta, L. P.** 1981. New locality record for *Ichthyorenus montanus* Schioedle & Meinerst (Crustacea : Isopoda : Cymothoidea). —*Bull. zool. Surv. India*, **3** (3) : 219.

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408. **Khan, S. A.** and **Natarajan, R.** 1981. Reproductive strategy in hermit crabs of Vellar estuary. —*Indian J. mar. Sci.*, **10** (1) : 70-73.

The reproductive cycle in 4 species of estuarine hermit crabs, viz. *Clibanarius longitarsus*, *C. padavensis*, *C. olivaceus* and *Diogenes avarus* of Vellar estuary and 1 species of land hermit crab *Coenobita cavipes* which occurs in large numbers on the banks of the estuary and hatch of the larvae in the estuary, has been investigated.

409. **Khan, S. A.** and **Natarajan, R.** 1981. Laboratory rearing of larval stages of the estuarine hermit crab *Clibanarius longitarsus* (De Haan) (Decapoda : Anomura). —*Indian J. mar. Sci.*, **10** (1) 74-81.

The larval development of an estuarine hermit crab *C. longitarsus*, which occurs abundantly in Vellar estuary has been studied by rearing the larvae in the laboratory.

410. **Khan, S. A.** and **Natarajan, R.** 1981. Effect of salinity on the larval development of the estuarine hermit crab *Clibanarius longitarsus* (De Hann). — *Indian J. mar. Sci.*, **10** (2) : 132-135.

411. **Khan, S. A.** and **Natarajan, R.** 1981. Coexistence in hermit crabs of Vellar estuary. —*Indian J. mar. Sci.*, **10** (2) : 201-204.

412. **Khan, S. A.** and **Natarajan, R.** 1981. Distribution of hermit carbs in Vellar estuary. —*Indian J. mar. Sci.*, **10** (4) : 353-356.

413. **Khan, S. A.** and **Natarajan, R.** 1981. Functional morphology of mouth parts and feeding behaviour in the estuarine hermit crab *Clibanarius longitarsus* (De Haan). —*Indian J. mar. Sci.*, **10** (4) : 357-362.

The mouth parts of *C. longitarsus*, complete with setal types, were studied to relate their structure and function and to elucidate the role of equal chelipeds during microphagy and macrophagy.

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The salinity influenced the distribution of hermit crabs in Porto Novo waters.

415. **Kulkarni, G. K., Nagabhushanam, R.** and **Joshi, P. K.** 1981. Neuroendocrine regulation of reproduction in the marine female prawn, *Parapenaeopsis hardwickii* (Miers). —*Indian J. mar. Sci.*, **10** (4) : 350-352.

The role of hormones, produced in different neuroendocrine centres, in oogenesis of *P. hardwickii*. has been studied.

416. **Madhupratap, M., Achuthankutty, C. T.** and **Nair, S. R. S.** 1981. Toxicity of some heavy metals to copepods *Acartia spinicauda* and *Tortanus forcipatus*. — *Indian J. mar. Sci.*, **10**(4) : 382-383.

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418. **Madhupratap, M., Nair, S.R.S., Achuthankutty, C. T.** and **Nair, V. R.** 1981. Major crustacean groups and zooplankton diversity around Andaman-Nicobar Islands. —*Indian J. mar. Sci.*, **10** (3) : 266-269.

419. **Mahmood, N., Khan, Y.S.A.** and **Hussain, M.** 1981. Shrimp fishery : Record of three sergestid shrimps in Bangladesh. —*Proc. zool. Soc. Bangladesh*, 204-214. (Third National Zoological Conference).

419a. **Manissery, J. K., Rao, D. S. K.** and **Devaraj, K. V.** 1981. Observations on the feeding of the duck weed (*Lemna minor*) by an ostracod (*Cypris* sp.). — *Curr. Res. mon. Newsl.*, **10** (3) : 52-53.

420. **Manohar, L., Seenappa, D., Venkateshappa, T.** and **Shetty, H. P. C.** 1981. A new species of *Catlaphilla* (Catlaphillidae) Tripathi, 1960, parasitic on *Labeo fimbriatus* Bloch. —*Mysore J. agric. Sci.*, **15** (1) : 87-90.

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422. **Menon, P. K. B.** and **Rait, H. K.** 1981. Post-embryonic life history of *Porcellionides pruinosus* (Brandt.) and *Cubaris robusta* (Collinge). —*Res. Bull. Punjab Univ.*, **30** (1-4) (1979) : 1-11.

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424. **Muthu, M. S.** and **Laxminarayana, A.** 1980. Induced maturation and spawning of Indian penaeid prawns. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 172-180.

The successful application of the eyestalk ablation technique to induce maturation and spawning in *Penaeus indicus*, *P. monodon*, *Metapenaeus dobsoni* and *Parapenaeopsis stylifera* under controlled conditions was discussed here.

425. **Nagabhushanam, R.** and **Farooqui, U. M.** 1981. Photoperiodic stimulation of ovary and testis maturation in the immature marine crab, *Scylla serrata* Forskal. —*Indian J. mar. Sci.*, **10** (4) : 396-398.

426. **Nair, G. A.** 1981. On ecological factors influencing the abundance of *Porcellio laevis* (Latreille) (Oniscoidea : Porcellionidae). —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 40-49.

A comprehensive report on the physico-chemical and biological factors affecting the abundance of *P. laevis* population in Delhi region is presented.

427. **Narasimha Rao, C., Shakuntala, K.** and **Reddy, S. R.** 1981. Moult-reproduction relationship in the freshwater prawn *Macrobrachium lanchesteri* (de Man). —*Proc. Indian Acad. Sci.* (*Anim. Sci.*), **90** (1) : 39-52.

428. **Nayak, V. N.** 1981. Larval development of the hermit crab *Diogenes planimanus* Henderson (Decapoda, Anomura, Diogenidae) in the laboratory. —*Indian J. mar. Sci.*, **10** (2) : 136-141.

Larval development of *D. planimanus* comprising 3 zoeal and a glaucothoe in addition to the 1st crab instar is described.

429. **Prabha, C.** and **Pillai, N. K.** 1981. *Thysanote polyfimbriata*, a new Lernaeopodid copepod parasitic on *Epinepheles* in Kerala waters. —*Rec. zool. Surv. India*, **79** (1-2) : 179-185.

A new species of *Thysanote* is described and a new definition of the genus is provided. *T. polyfimbriata* is unique in having bushy growths of processes on the maxillae and trunk, the processes being dichotomously branched at least four times.

430. **Radhakrishsnan, E. V.** 1980. Breeding of laboratory reared spiny lobster *Panulirus homarus* (Linnaeus) under controlled conditions.—*Indian J. Fish.*, **24** (1 & 2) (1977) : 269-270.

431. **Raghunathan, M. B.** 1981. Copepod component of zooplankton in a tropical estuary. —*Indian J. Zootomy*, **22** (3) : 197-201.

432. **Rajan, K. V. M., Meenakumari, B.** and **Balasubramanyan, R.** 1981. Spiny lobsters and their fishing techniques. *Fishery Technol.*, **18** (1) : 1-11.

433. **Ram, L.** 1981. New locality records for *Ichthyoxenus montanus* Schioedte & Meinert (Crustacea, Isopoda, Cymothoidea). —*Bull. zool. Surv. India*, **3** (3) : 219.

434. **Ramamurthi, R., Balavenkatasubbaiah, M., Reddy, R. D., Naidu, K. A., Purushotham, K. R., Naidu, K. D., Reddy, P. S.** and **Rao, J. V. R.** 1981. Changes in the ionic composition of crab and fish during solar eclipse. —*Geobios*, **8** (4) : 170-172.

Ca++ Na+ and K+ ions in crab haemolymph and fish blood were estimated at total and partial solar eclipse stations. In crab, Ca++ decreased and K+ increased at both places whereas Na+ increased at total and decreased due to partial eclipse. Ca++ and Na+ decreased whereas K+ increased in fish.

435. **Ramamurthy, S., Annigeri, G. G.** and **Kurup, N. S.** 1981. Resource assessment of the penaeid prawn *Metapenaeus dobsoni* (Miers) along the Mangalore Coast. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 52-66.

436. **Ramamurthy, S.** and **Manickaraja, M.** 1980. An experiment on the culture of *Penaeus indicus* (Milne Edwards) in an estuarine pond at Mangalore. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 210-212.

437. **Ramamurthy, S.** and **Manickaraja, M.** 1981. Relation between tail and total lengths and total and carapace lengths for three commercial species of penaeid prawns of India. —*Indtan J. Fish.*, **25** (1 & 2) (1978) : 233-236.

438. **Rao, D. G. V. P., Rao, Y. P.** and **Murthy, V. L.** 1981. Oxygen consumption and metabolic rate in relation to temperature in *Balanus tintinnabulum tintinnabulum* (L.). —*Indian J. mar. Sci.*, **10** (4) : 387-389.

The effect of temperature on the size related metabolism of *B. tintinnabulum tintinnabulum* from a tropical region was studied.

439. **Reddy, D. C.** *et. al.* 1981. Daily rhythms in levels of blood glucose and hepatopancreatic glycogen in the freshwater field crab *Oziotelphusa senex senex* (Fabricius). —*Indian J. exp. Biol.*, **19** (4) : 403-404.

440. **Sankolli, K. N., Shenoy, S.** and **Jalihal, D. R.** 1981. Freshwater prawns as possible biological agents in the management of oxidation in pond ecosystem. —*Proc. Symp. Ecol. Anim. Popul. zool. Surv. India*, (2) (1978) : 127-132.

441. **Sarvaiya, R. T.** 1981. Prawn fisheries of Kutch with special reference to Sukhper and Lakhpat. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 35-41.

442. **Sastry, D. R. K.** 1981. On some crustacean associates of Echinodermata from the Bay of Bengal. —*Rec. zool. Surv. India*, **79** (1-2) : 19-30.

The present commnication deals with five species of crustacean associates of Crinoidea and Echinoidea in the Bay of Bengal. The probable relationship with their respective hosts are briefly classified.

443. **Sharma, B. K.** and **Tiwari, K. K.** 1981. Studies on head pores of some Indian species of Chydorids (Cladocera : Chydoridae). —*Bull. zool. Surv. India*, **4** (2) : 191-197.

444. **Somasekhar, T., Subramanyam, M. V. V.** and **Krishnamoorthy, R. V.** 1981. Depth discrimination in the freshwater field crab *Oziotelphusa senex senex*. —*Indian J. exp. Biol.*, **19** (10) : 991-992.

445. **Subramanyam, M. V. V.** and **Krishnamoorthy, R. V.** 1981. Haematological changes in the field crab on adaptation to higher salinity. —*Indian J. mar. Sci.*, **10** (1) : 101-102.

The general relationship between haemocyte concentration in relation to sex, size and salinity adaptation of *Oziotelphusa senex senex* is studied.

446. **Thomas, M. M.** 1980. Decapod crustaceans new to Andaman and Nicobar Islands. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 56-61.

Altogether 13 species have been recorded. Of these 9 species are reported for the 1st time from Andaman and Nicobar Islands.

447. **Thomas, M. M.** 1980. A new record of *Epipenaeon ingens* Nobili (Bopyridae : Isopoda) parasitic on *Penaeus semisulcatus* De Mann from Palk Bay and Gulf of Mannar. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 258-261.

448. **Varghese, M. D.** 1981. On the importance of *Mesopodopsis zeylanica* (Crustacea, Mysidacea) as food of fish. —*Fishery Technol.*, **18** (1) : 61-62.

449. **Venkateswaran, K., Sethuramalingam, S.** and **Natarajan, R.** 1981. Gut microflora of some edible crabs from Porto-Novo coast. —*Indian J. mar. Sci.*, **10** (4) : 399-401.

450. **Vijayan, P. K.** and **Balachandran, K. K.** 1981. Studies on blue discolouration in canned body meat of crab (*Scylla serrata*).—*Fishery Technol.*, **18** (2) : 117-122.

451. **Yousuf, A. R.** and **Qadri, M. Y.** 1981. Ecology of *Diaphanosoma brachyurum* Lieven (Cladocera : Crustacea) in Lake Manasbal, Kashmir. —*J. Indian Inst. Sci.* (*Biol. Sci.*), (C) **63** (4) : 35-42.

Influence of some physico-chemical characteristics on the seasonal abundance and vertical distribution of *D. brachyurum* is described.

(d) Myriapoda

452. **Borle, M. N., Taley, Y. M.** and **Radhke, S. G.** 1981. A new predator of millipede (*Ktenostreptus* sp.). —*P. K. V. Res. J.*, **5** (2) : 229-230.

453. **Nair, V. S. K.** 1981. The probable neurosecretory control of vitellogenesis in the millipede, *Jonespeltis splendidus* Verhoeff (Diplopoda : Myriapoda). —*Entomon*, **6** (1) : 7-13.

The effect of bilateral extirpation of the neurohaemal organs and connective bodies and on oocyte development and vitellogenesis was studied in *J. splendidus*.

454. **Prasad, M., Dey, P.** and **Khan, T. N.** 1981. Bioecology of banana inhabiting millipede, *Anoplodesmus saussurei* (Hamb.) (Diplopoda : Paradoxosomatidae). —*Bull. zool. Surv. India*, **3** (3) : 125-135.

455. **Prasad, M.** and **Dey, P.** 1981. Millipede, a unique animal. —*Zoologiana*, No. 4 : 87-90.

456. **Somasundaram, P.** and **Choekalingam, S.** 1981. Influence of food quality and its utilization in millipede, *Spirostreptus asthenes*. —*Geobios*, **8** (2) : 49-51.

Based on the efficiency of assimilation and conversion of food, it is found that *S. asthenes* prefers carrot as more suitable food than potato.

(e) Insecta

A. General Insects

457. **Abhyankar, K. M., Nene, S. R.** and **Iyer, K. N.** 1981. Cautions involved and benefits accrued in the use of 'Ambush' (permethrin) in cotton pest management. —*Andhra agric. J.*, **27** (1-2) (1980) : 97-98.

458. **Alam, M. S., Alam, S.** and **Karim, A. N. M. R.** 1980. Studies on varietal resistance to insect pests of rice in Bangladesh. —*Proc. zool. Soc. Bangladesh*, : 44-48. (Third National Conference of Zoology).

459. **Batra, R. C.** 1981. Pests of guava and their control. —*Fmr. & Parl.*, **16** (3) : 13-14, 28.

460. **Bhat, M. V.** and **Patil, V. L.** 1981. Role of cypermethrin in cotton pest management. —*Andhra agric. J.*, **27** (1-2) (1980) : 86-87.

461. **Bhirud, K. M.** and **Chauhan, Y. S.** 1981. Efficacy of different fertilizer pesticides mixtures in controlling soil borne pests. —*Pesticides*, **15** (1) : 18-19.

462. **Dahbholkar, A. R.** and **Mittal, V. P.** 1981. Protect your Jawar crop from these destructive insects. —*Fmr. & Parl.*, **16** (6) : 7-8, 30.

463. **Dhamdhere, S. V., Kapoor, K. N.** and **Singh, O. P.** 1981. Insect pests of pearl millet and their control. —*Fmr. & Parl.*, **16** (7) : 21.

464. **Goud, K. B., Kulkarni, K. A.** and **Thontadarya, T. S.** 1981. Residues of insecticides in safflower seeds. —*Pesticides*, **15** (3) : 12-13.

The studies were made to find out the residues of insecticides used for the control of Safflower aphid, *Dactynotus compositae* Theobald.

465. **Johari, R. K.** and **Khare, B. P.** 1981. Beware of insect enemies of stored wheat. —*Indian Fmr's Dig.*, **14** (1) : 39-40.

466. **Lal, S. S., Yadava, C. P.** and **Dias, C. A. R.** 1981. Insect pest control—a tool for producing pulses in plenty. —*Indian Fmg.*, **31** (5) : 54-58.

467. **Murthy, K. S. R. K.** 1981. Preliminary studies on the effect of weed control on build up of cotton pests. —*Andhra agric. J.*, **27** (1-2) (1980) : 102-103.

468. **Murugesan, S., Parameswaran, S.** and **Balasubramanian, M.** 1981. Synthetic pyrethroids in the control of cotton pests. —*Andhra agric. J.*, **27** (1-2) (1980) : 80-82.

469. **Odak, S. C.** 1981. Insect pest control in chickpea. —*Indian Fmg.*, **31** (5) : 59-62.

470. **Rao, N. V., Rao, V. L. V. P., Rao, B. H. K.** and **Reddy, P. S.** 1981. Note on the performance of new rice varieties in relation to insect pests. —*Indian J. agric. Sci.*, **51** (11) : 811-813.

471. **Rosaiah, B., Reddy, A. S., Rao, B.H.K., Lakshminarayana, K.** and **Venkatachari, B.** 1981. Comparative efficacy of fenvalerate in controlling cotton pests in relation to systemic granular insecticides. —*Andhra agric. J.*, **27** (1-2) (1980) : 88-90.

472. **Sandhu, M. S.** 1981. Insect pests of paddy and their control. —*Pgve. Fmg.*, **17** (6) : 7-8.

473. **Saroda, S. V.** and **Lal, R.** 1981. Insecticidal pest management of lady's finger and cauliflower. —*Rajasthan J. Pesticides*, **8** (2) : 66-73.

474. **Saxena, H. P.** 1981. Research on pests makes strides. —*Indian Fmg.*, **31** (5) : 50-53.

475. **Saxena, H. P.** 1981. Insect pests of arhar. —*Indian Fmg.*, **31** (9) : 16-17.

476. **Shah, A. H.** 1981. Pest surveillance and forecast as aids in integrated pest management in cotton. —*Andhra agric. J.*, **27** (1-2) (1980) : 115-117.

477. **Sharma, V. K.** 1981. Economics of pest control in apple diseases. —*Fmr. & Parl.*, **16** (2) : 17-18, 32.

478. **Sharma, V. K.** 1981. Save your potato crop from insect pest. —*Indian fmr's Dig.*, **14** (1) : 14-16.

The major pests, their identification, nature of damage and measures to control them are described here in brief.

479. **Singh, O. P.** 1981. Insect pests of soybean and their control. —*Fmr. & Parl.*, **16** (2) : 9-10, 36.

480. **Singh, O. P., Prakash, O.** and **Tewari, R. K.** 1981. Role of soil arthropods in sugarcane ratooning. —*Indian Sug.*, **31** (1) : 41-44.

481. **Subramaniam, T. R.** 1981. Integrated pest management in cotton—some problems and suggestions. —*Andhra agric. J.*, **27** (1-2) (1980) : 120-122.

482. **Thontadarya, T. S., Patil, B. V.** and **Hanumanna, M.** 1981. Light trap—a useful tool for surveillance and forecasting of cotton insect pests. —*Andhra agric. J.*, **27** (1-2) (1980) : 110-112.

483. **Verma, A. N.** 1981. Insect pests of crops and their classification. —*Fmr. & Parl.*, **16** (6) : 21-22, 38.

B. Insect Orders :

(i) Collembola

484. **Mitra, S. K., Hazra, A.K., Sanyal, A.K.** and **Mandal, S. B.** 1981. Changes in the population structure of Collembola and Acarina in a grassland ecosystem in Calcutta. —*Progress in Soil Biology and Ecology in India UAS—Tech. Series* No. **37** : 143-146.

(ii) Ephemeroptera

485. **Gupta, A.** and **George, M. R.** 1981. Population ecology and feeding propensities of two co-existing species of Baetidae (Insecta : Ephemeroptera).—*Proc. Symp. Anim. Popul. zool. Surv. India*, (2) (1978) : 95-104.

486. **Srivastava, V. D.** and **Ray, K. K.** 1981. Bio-ecological observations on *Cloeon kimminsi* Hubbard (Baetidae : Ephemeroptera). —*Proc. Symp. Ecol. Anim. Popul. zool. Surv. India*, (2) (1978) : 117-126.

(iii) Odonata

487. **Chowdhury, S. H.** and **Akhteruzzaman, Md.** 1981. A typical breeding behaviour of *Pantala flavescens* (Fab.) (Libellulidae, Anisoptera, Odonata). —*Proc. zool. Soc. Bangladesh*, : 87-89. (Third National Zoology Conference).

488. **Kumar, A.** 1981. Biology of Indian dragonflies, with special reference to seasonal regulation and larval development. —*Bull. Ent.*, **17** : 37-47.

489. **Kumar, A.** and **Prasad, M.** 1981. Field ecology, zoogeography and taxonomy of the Odonata of Western Himalaya, India.—*Rec. zool. Surv. India, Occ. Pap.* No. **20** : 1-118.

A checklist is given of 162 species of Odonata (66 Zygoptera ; 96 Anisoptera) from Western Himalaya, India (U. P. Himalaya, Himachal Pradesh and Kashmir Valley). Brief description of Odonata biotopes and phenology of Odonota in Western Himalaya is given. Notes have been appended, where possible, on field ecology. A key has been made for the male adults of above 162 species of Western Himalaya including for the first time photographs of the wings of a large

number of Indian species. The Zoogeography of Odonata of Western Himalaya has deen discussed for the first time and the species are classified into 4 faunal elements, viz. Oriental (131 species), Palaearctic (28 species); Ethiopian (2 species) and Circumtropical (1 species). Composition of the fauna is also compared with that of Central Himalaya (Nepal), Eastern Himalaya and Sri Lanka.

490. Deleted.

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493. **Ram, R.** 1981. Byadhpatange—Bhakshak aur Bhakshya (In Hindi). —*Prani Jagat, zool. Surv. India*, (1) (1980) : 101-120.

494. **Shukla, G. S.** and **Mishra, P. K.** 1981. Toxicity of six organophosphorus insecticides on nymphs of dragonfly, *Brachythermis contaminata* (Fabr.). —*J. envir. Biol.*, **2** (1) : 11-19.

Six insecticides Diazinon, Dimecron, Metasystox, Methyl-parathion, Nuvan and Parathion were used to assess LC 50 values to the freshwater nymphs of dragonfly, *B. contaminata*.

495. **Smith, C.** 1981. Dragonflies (Odonata) of Nepal with particular reference to Kathmandu Valley-Part 3—Agriidae and Gomphidae. —*J. nat. Hist. Mus.*, **5** (1) : 79.

Two species of Agriidae and 5 species of Gomphidae are described.

496. **Srivastava, V. D.** 1981. Keet jagat ke helicopter (In Hindi). —*Prani Jagat, zool. Surv. India*, (1) (1980) : 95-98.

497. **Varshney, R. K.** and **Prasad, M.** 1981. Asymmetrical wing venation in *Orthetrum triangulare triangulare* (Selys) (Odonata : Libellulidae). —*Sci. Cult.*, **47** (8) : 292-294.

(iv) Orthoptera

498. **Aswathanarayana, N. V., Aswath, S. K.** and **Manjunatha, K. R.** 1981. On the occurrence of metacentrics in a South Indian grasshopper. —*Curr. Sci.*, **50** (6) : 293-294.

The paper reports the presence of metacentrics in a grasshopper and describes the pattern of distribution of constitutive heterochromatin.

499. **Banerjee, S.** 1981. Effect of the gonads on the growth of fat body of *Poecilocerus pictus* (Orthoptera : Acrididae).—*Curr. Sci.*, **50** (15) : 695-696.

500. **Banerjee, S.** 1981. Histochemical studies on the fat body of *Poecilocerus pictus* Fabr. (Orthoptera, Acrididae). —*J. scient. Res.*, **3** (2) : 83-88.

The histochemistry of fat cells of 5th and 6th stage nymphs and adults of both the sexes were observed in order to find out changes with development under the control of ovaries and testes respectively.

501. **Bhargava, R. N.** 1981. A new species of *Scleropterus* (Haan) (Insecta : Grylloidea) from N.W. India.—*Geobios*, **8** (2) : 57-59.

A new species *S. lambai* is described from Timti forest, Dehra Dun, India and is known from both males and females.

477. **Sharma, V. K.** 1981. Economics of pest control in apple diseases. —*Fmr. & Parl.*, **16** (2) : 17-18, 32.

478. **Sharma, V. K.** 1981. Save your potato crop from insect pest. —*Indian fmr's Dig.*, **14** (1) : 14-16.

The major pests, their identification, nature of damage and measures to control them are described here in brief.

479. **Singh, O. P.** 1981. Insect pests of soybean and their control. —*Fmr. & Parl.*, **16** (2) : 9-10, 36.

480. **Singh, O. P., Prakash, O.** and **Tewari, R. K.** 1981. Role of soil arthropods in sugarcane ratooning. —*Indian Sug.*, **31** (1) : 41-44.

481. **Subramaniam, T. R.** 1981. Integrated pest management in cotton—some problems and suggestions. —*Andhra agric. J.*, **27** (1-2) (1980) : 120-122.

482. **Thontadarya, T. S., Patil, B. V.** and **Hanumanna, M.** 1981. Light trap—a useful tool for surveillance and forecasting of cotton insect pests. —*Andhra agric. J.*, **27** (1-2) (1980) : 110-112.

483. **Verma, A. N.** 1981. Insect pests of crops and their classification. —*Fmr. & Parl.*, **16** (6) : 21-22, 38.

B. Insect Orders :

(i) Collembola

484. **Mitra, S. K., Hazra, A.K., Sanyal, A.K.** and **Mandal, S. B.** 1981. Changes in the population structure of Collembola and Acarina in a grassland ecosystem in Calcutta. —*Progress in Soil Biology and Ecology in India UAS—Tech. Series* No. **37** : 143-146.

(ii) Ephemeroptera

485. **Gupta, A.** and **George, M. R.** 1981. Population ecology and feeding propensities of two co-existing species of Baetidae (Insecta : Ephemeroptera).—*Proc. Symp. Anim. Popul. zool. Surv. India*, (2) (1978) : 95-104.

486. **Srivastava, V. D.** and **Ray, K. K.** 1981. Bio-ecological observations on *Cloeon kimminsi* Hubbard (Baetidae : Ephemeroptera). —*Proc. Symp. Ecol. Anim. Popul. zool. Surv. India*, (2) (1978) : 117-126.

(iii) Odonata

487. **Chowdhury, S. H.** and **Akhteruzzaman, Md.** 1981. A typical breeding behaviour of *Pantala flavescens* (Fab.) (Libellulidae, Anisoptera, Odonata). —*Proc. zool. Soc. Bangladesh*, : 87-89. (Third National Zoology Conference).

488. **Kumar, A.** 1981. Biology of Indian dragonflies, with special reference to seasonal regulation and larval development. —*Bull. Ent.*, **17** : 37-47.

489. **Kumar, A.** and **Prasad, M.** 1981. Field ecology, zoogeography and taxonomy of the Odonata of Western Himalaya, India.—*Rec. zool. Surv. India, Occ. Pap.* No. **20** : 1-118.

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(iv) Orthoptera

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A new species *S. lambai* is described from Timti forest, Dehra Dun, India and is known from both males and females.

502. **Choudhuri, D. K.** and **Mandal, S.** 1981. Fluctuation of glycogen content in brain during post-embryonic development in *Schizodactylus monstrosus* D. : Effects of starvation stress and corpora allatectomy (Schizodactylidae : Orthoptera). —*Indian J. exp. Biol.*, **19** (6) : 532-534.

503. **Gautam, D. C.** 1981. Food consumption, utilisation and ecological efficiencies in nymph and adult of *Chrotogonus trachypterus* Blanch, (Orthoptera : Acridiidae). —*Indian J. Ecol.*, **8** (2) : 229-234.

504. **Goel, S. C., Jain, A. K.** and **Yadav, B. S.** 1981. Evaluation of damage potential of *Atractomorpha crenutata* Fab. (Orthoptera) on sunflower. —*Indian J. Ecol.*, **8** (1) : 50-54.

505. **Guleri, K.** and **Nath, A.** 1981. Penetration kinetics of DDT in desert locust *Schistocerca gregaria* Forskal. —*Indian J. exp. Biol.*, **19** (10) : 984-985.

506. **Kariappa, B. K.** and **Narasimhanna, M. N.** 1981. Studies on the life history of wingless grasshopper *Neorthacris acuticeps nilgirensis* Uvarov (Acrididae : Orthoptera) a pest on Mulberry. —*Indian J. Seric.*, **20** (1) : 27-30.

The life cycle of the grasshopper studied under the laboratory as well as field conditions at Kollegal area of Mysore district for a period of 2 years is illustrated. The incubation period was 29-31 days. There were 6 moulds and for the completion of one generation 150-175 days were required. Two generations occur in the field in a year and the eggs undergo aestivation in the summer months.

507. **Kariappa, B. K.** and **Narasimhanna, M. N.** 1981. Efficacy of insecticides against wingless grasshopper *Neorthacris acuticeps nilgirensis* U. infesting mulberry and the effect of feeding BHC sprayed leaves on silkworm *Bombyx mori* L. —*Indian J. Seric.*, **20** (1) : 31-34.

Feeding trials were conducted to judge the safe period for rearing silkworms. The results showed no harmful effect on the growth and survival rate of silkworms when seven days old sprayed leaves were fed.

508. **Muralirangan, M. C.** and **Ananthakrishnan, T. N.** 1981. *Eyprepocnemis alacris alacris* (Serville) —biology and functional morphology of the foregut in relation to feeding (Orthoptera : Acrididae). —*Proc. Indian Acad. Sci.* (*Anim. Sci.*), **90** (1) : 99-112.

Detailed observations on the biology of *E. alacris alacris* are presented along with information on changes in the functional morphology of the foregut in relation to feeding.

509. **Parihar, D. R.** 1981. Some ecological observations of insect pests of AAK (*Calotropis procera*) and their significance in Rajasthan desert. —*Indian J. For.*, **4** (3) : 191-195.

510. **Reddy, D. N. R., Puttaswamy** and **Hegde, N. S.** 1981. Pest infesting *Catharanthus roseus* (L.) a medicinal plant and their control. —*Lal Baugh, J. Mysore hort. Soc.*, **26** (2) : 49-51.

511. **Roonwal, M. L.** 1981. Field bioecology and morphometry of some central Indian grasshoppers (Acridoidea) with notes on a swimming species (Tetrigoidea). —*Proc. zool. Soc. Calcutta*, **32** (1-2) (1979) : 97-106.

512. **Sahai, Y. N., Dube, S. K.** and **Agnihotri, S.** 1981. Mating behaviour and oviposition in *Poecilocerus pictus* Fabr. (Orthoptera : Acrididae). —*J. scient. Res.*, 3 (20) : 117-119.

513. **Sakariah, B. P.** and **Das, N. M.** 1981. Relative toxicity of some of the newer insecticides to adults of *Euscyrtus concinnus* Haan (Eneopteridae : Orthoptera). —*Agric. Res. J. Kerala*, **19** (1) : 113-115.

514. **Saxena, S. C.** and **Kumar, V.** 1981. Effect of difluron & penfluron on integumentary chitin, protein & lipid of *Chrotogonus trachypterus* (Orthoptera : Acrididae). —*Indian J. exp. Biol.*, **19** (7) : 669-670.

515. **Saxena, S. C.** and **Kumar, V.** 1981. Blockade in chitin biosynthetic chain in the grasshopper *Chrotogonus trachypterus* treated with diflubenzuron & penfluron. —*Indian J. exp. Biol.*, **19**(12) : 1199-1200.

516. **Shishodia, M. S.** 1981. Tiddia aur unki roak tham (In Hindi). —*Prani Jagat, zool. Surv. India*, (1) (1980) : 57-62.

517. **Sinha, K. M.** 1981. Some observations on the ethology of cave-cricket, *Kempiola shankari* Sinha (Orthoptera : Phalangopsidae). —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 116-117.

(v) Dermaptera

518. **Mittal, O. P.** and **Suri, V.** 1981. Chromosome architecture in the earwig, *Proreus* sp. —*Curr. Sci.*, **50** (2) : 148-150.

519. **Mittal, O. P.** and **Suri, V.** 1981. Chromosome number and sex mechanism in fifteen species of earwigs (Dermaptera). —*Res. Bull. Panjab Univ.*, **29** (1-4) (1978) : 93-94.

520. **Srivastava, G. K.** 1981. Notes on the genus *Platylabia* Dohrn (Carcinophoridae, Platylabinae) with the description of two new species from India. —*Bull. zool. Surv. India*, **4** (1) : 103-109.

521. **Srivastava, G. K.** 1981. On a new species of the genus *Nannisolabis* Burr (Insecta : Dermaptera) from Burma with a key to oriental species. —*Bull. zool. Surv. India*, **4** (2) : 147-150.

A new species of the genus *Nannisolabis* Burr. from Burma is described alongwith a key to the identification of various species of this genus.

522. **Srivastava, G. K.** 1981. Notes on Bormans syntypes of some species of Dermaptera (Insecta). —*Annali Mus. Civ. Stor. nat. Giacomo Doria*, **53** : 287-306.

(vi) Dictyoptera

523. **Nanda, D. K.** *et. al.* 1981. Cytomorphic alterations in the cerebral neurosecretory cells of *Periplaneta americana* following heat stress. —*Indian J. Physiol. all. Sci.*, **35** (4) : 119-122.

524. **Sandhu, G. S.** and **Sohi, A. S.** 1981. Occurrence of different species of cockroaches at Ludhiana (Panjab). —*J. Bombay nat. Hist. Soc.*, **78** (1) : 179-181.

525. Deleted.

526. **Subramanyam, K., Pavankumar, T.** and **Sasira Babu, K.** 1981. Circadian activity of acetylolinesterase in the cockroach, *Periplaneta americana* L. —*Proc. Indian Acad. Sci. (Anim. Sci.)*, **90** (1) : 1-10.

Acetylcholinesterase activity in the central nervous system and coxal muscle of the cockroach under continuous dark conditions, showed free-running circadian oscillation.

(vii) Isoptera

527. **Banerjee, B.** 1981. Size class of workers and their distribution in the mounds of *Odontotermes redemanni* (Wasmann.) (Isoptera : Termitidae). —*Proc. zool. Soc. Calcutta*, **32** (1-2) (1979) : 121-126.

528. **Chhotani, O. B.** 1981. Morphometric analysis of populations from four different mounds of the Indian termite *Odontotermes obesus* (Rambur)—*Proc. Symp. Biosystemic of Social Insects*, (Paris Jan. 1980) [Special Volume No. 19 of Systematic Assocn. Ed. P.E. House and J. L. Clement] : 147-161 (Academic Press, London).

529. **Chhotani, O. B.** 1981. Mahan pracheen vastu shilpi—Deemak. (In Hindi). —*Prani Jagat, zool. Surv. India*, (1) (1980) : 39-42.

530. **Maiti, P. K.** and **Chakraborty, S. K.** 1981. Two new termites of genus *Glyptotermes* (Kalotermitidae) from the Great Nicobar Island, Indian Ocean.—*Bull. zool. Surv. India*, **4** (1) : 71-84.

531. **Mishra, S. C.** and **Sen-Sarma, P. K.** 1981. Neutral lipid in different castes of termites. —*Indian J. Ent.*, **43** (1) : 80-82.

532. **Parihar, D. R.** 1981. Some observations on distribution and pest status of termites attacking forestry plantations in the Rajasthan desert. —*Indian J. For.*, **4** (1) : 22-25.

533. **Prasad, E. A. V.** and **Narayana, A. C.** 1981. Magnetic orientation in termite mounds. —*Curr. Sci.*, **50** (13) : 588-589.

534. **Roonwal, M. L.** 1981. Evolution and systematic significance of wing microsculpturing in termites (Isoptera). XI. Some hitherto unstudied genera and species in five families. —*Proc. Indian natn. Sci. Acad.*, (B) **47** (4) : 467-473.

Six genera of Kalotermitidae were studied. Micro-sculptures like, papillae, tubercles, pimpules, micrasters, non-asteroid micrasters and arrowheads occur in species which were studied. The evolutionary and systematic significance of these structures were discussed.

535. **Roonwal, M. L., Chhotani, O. B.** and **Verma, S. C.** 1981. Evolution and systematic significance of wing microsculpturing in termites (Isoptera). X. Subfamily Nasutitermitinae of family Termitidae. —*Proc. Indian natn. Sci. Acad.*, (B) **47** : 341-369.

536. **Roonwal, M. L.** and **Verma, S. C.** 1981. Evolution and systematic significance of wing micro-sculpturing in termites (Isoptera). VIII. Subfamily Amitermitinae of family Termitidae. —*Proc. Indian natn. Sci. Acad.*, (B) **46** (3) (1980) : 250-263.

Nine genera and 40 species of Amitermitinae from various regions of the world were studied. Micro-sculpturing on both wing-surfaces consists of a dense covering of two types of structures : (i) thin and pointed papillae on anterior and posterior wing margins and are directed distally and (ii) micrasters of non-asteroid and asteroid types. Evolutionary trends were discussed.

537. **Roonwal, M. L.** and **Verma, S. C.** 1981. Evolution and systematic significance of wing micro-sculpturing in termites (Isoptera). IX. Subfamily Termitinae of family Termitidae. —*Proc. Indian natn. Sci. Acad.*, (B) **46** (4) : 455-469.

538 **Thakur, M. L.** 1981. Revision of the termite genus *Odontotermes* Holmgren (Isoptera : Termitidae : Macrotermitinae) from India. —*Indian For. Rec. (N. S.) (Ent.)*, **14** (2) : 1-134, 53 pls.

The present monograph contains the comprehensive revision of 27 known species and the description of three new species.

539. **Thakur, M. L.** 1981. The synonymy, distribution and bioecology of *Odontotermes distans* Holmgren et Holmgren (Isoptera : Termitidae : Macrotermitinae). —*Proc. Indian Acad. Sci.* (Anim. Sci.), **90** (2) : 187-193.

540. **Verma, A. N., Bhanot, J. P.** and **Khurana, A. D.** 1981. Effect of using termite affected (Shrivalled) wheat seed obtained from termite damaged plants on the next crop. —*Indian J. Ecol.*, **8** (1) : 114-116.

541. **Verma, S. C.** and **Thakur, R. K.** 1981. Colony foundations by budding in *Euhamitermes lighti* Synder. —*J. Indian Acad. Wood Sci.*, **10** (2) : 88-89.

(viii) Mallophaga

(Phthiraptera)

542. **Agarwal, G. P.** and **Saxena, A. K.** 1981. Further observations on the freely circulating haemocyctes of *Lipeurus lawrensis tropicalis* Peters (Phthiraptera : Ischnocera).—*Curr. Sci.*, **50** (12) : 551.

543. **Devi, N. C. T.** and **Mishra, P. N.** 1981. Record of some avian biting lice from Kathmandu Valley. —*J. nat. Hist. Mus.*, **5** (1) : 11-22.

Eight species of biting lice are collected from 5 avians from Kathmandu and examined at different places. These ectoparasites are reported for the first time from Nepal.

(ix) Anoplura (Siphunculata)

544. **Mehrotra, P.** and **Singh, T.** 1981. Studies on the life cycle of *Haematopinus tuberculatus* (Burmeister), a sucking louse. —*Indian J. Anim. Hlth.*, **20** (1) : 55-56.

545. **Mishra, A. C.** 1981. The Hoplopleurid lice of the Indian subcontinent (Anoplura : Hoplopleuridae). —*Rec. zool. Surv. India, Occ. Pap.* No. **21** : 1-128.

A total of 39 species, including 5 new species, found on Insectivora, Lagomorpha and Rodentia have been dealt with.

(x) Hemiptera

546. **Advani, R.** and **Vazirani, T. G.** 1981. Studies on ectoparasites of bats of Rajasthan and Gujarat (India). —*Rec. zool. Surv. India, Occ. Pap.* No. **22** : 1-155.

This paper deals with 36 species of ectoparasitic insects, mites and ticks (1465 examples) spread over 7 families and 20 genera on 18 species of bats (850 examples) of Rajasthan and Gujarat. Dichotomous keys are provided to all the known Indian genera and species of the ectoparasites of bats under the respective families, subfamilies and complexes. Two new genera and twenty species have been described as new to science. Four species are reported from India and remaining 12 species are recorded from Rajasthan and/or Gujarat for the first time.

These studies have resulted in adding 26 parasitic species to the hitherto known 75 species. The literature has been reviewed under each family.

The zoogeographic distribution vis-a-vis the degree of infestation etc., has also been briefly discussed.

547. **Agarwal, R. K., Verma, R.S.** and **Bhunraj, G. S.** 1981. Screening of sorghum lines for resistance against shoot bug *Peregrinus maidis* (Ashmead) (Homoptera—Delphacidae). —*J. N. K. V. V. Res. J.*, **12** (1-4) (1978) : 116.

548. **Agarwala, B.K.** and **Raychaudhuri, D.N.** 1981. Note on some aphids affecting economically important plants in Sikkim. —*Indian J. agric. Sci.*, **51** (9) : 690-692.

549. **Ambekar, J.S.** and **Kalbhor, S. E.** 1981. Note on the plant characters associated with resistance to jassid, *Amrasca biguttula biguttula* Ishida, in different varieties of cotton. —*Indian J. agric. Sci.*, **51** (11) : 816-817.

550. **Balasubramanian, G.** and **Gopalan, M.** 1981. Role of carbohydrates and nitrogen in cotton varieties in relation to resistance to leafhopper. —*Indian J. agric. Sci.*, **51** (11) : 797-798.

551. **Bhalani, P. A.** and **Patel, R. M.** 1981. Effect of different types of food on the development of cotton jassid, *Amrasca biguttula biguttula* (Ishida). —*Gujarat agric. Univ. Res. J.*, 7 (1) : 45-46.

552. **Bhat, M. G., Joshi, A. B.** and **Singh, M.** 1981. Possibility of breaking association between hairiness and jassid (*Amrasca devastans* Distant) resistance in cotton (*Gossypium hirsutum* L.). —*Indian J. agric. Res.*, **15** (4) : 236-240.

An investigation was undertaken to examine the possibility of obtaining genotypes with high jassid resistance and loss of hairiness since hairy cotton genotypes have several drawbacks.

553. **Bhola, R. K.** and **Srivastava, K. P.** 1981. Blood protein concentration during the postembryonic development of the red cotton bug, *Dysdercus koenigii* (Heteroptera : Pyrrhocoridae). —*Bioresearch*, **5** (1) : 85-88.

554. **Bodhade, S. N., Badkhal, B. T., Rajurkar, B. S.** and **Borle, M. N.** 1981. Preliminary observations on the efficacy of different synthetic insecticides against some important pests of 'Bhindi', *Abelmoschus esculentus* (L.) Moench. —*P. K. V. Res. J.*, **5** (2) : 162-166.

555. **Brar, K. S.** and **Sandhu, G. S.** 1981. Effectiveness of some new insecticides for the control of mustard aphid, *Lipaphis erysimi* (Kalt.) on brown sarson. —*Pesticides*, **15** (1) : 11-13.

556. **Butter, N. S.** and **Rataul, H. S.** 1981. Nature and extent of loss in tomatoes due to tomato leafcurl virus (TLCV) transmitted by whitefly, *Bemisia tabaci* Gen. (Aleyrodidae : Hemiptera). —*Indian J. Ecol.*, **8** (2) : 299-300.

557. **Chakrabarti, S.** 1981. Drepanosiphine aphids (Homoptera : Aphididae) and their distribution in India. —*Rec. zool. Surv. India*, **79** (1-2) : 43-53.

This paper presents an analysis of the data so far received on the abundance and pattern of distribution of Drepanosiphine aphids in India and its correlation with altitude, vegetation and other factors.

558. **Chakraborty, S.** 1981. Sensitivity of morphological characters of the last instar nymph of *Pyrrhocoris apterus* to the implantation of corpora allata from different stages. —*Bull. Ent.*, **22** (1-2) : 41-45.

The study is a detailed analysis of the response of many morphological characters to juvenile hormone which enables in recognising most sensitive changes in hormones.

559. **Chopra, N. P.** and **Rustagi, K. B.** 1981. Identity of *Atremidorus pressus* Distant (Hemiptera : Lygaeidae : Heterogastrinae). —*Oriental Ins.*, **14** (4) 1980 : 429-435.

Identity of *A. pressus* is attempted. The species is reported from Assam, Bihar, Haryana, J. & K. and U. P. for the first time.

560. **Chopra, N. P.** and **Singal, S. K.** 1981. Occurrence of *Aphanus* Laporte in India (Hemiptera : Lygaeidae : Rhyparochrominae). —*Oriental Ins.*, **14** (4) (1980) : 437-441.

The genus *Aphanus* and the tribe Gonianotini, to which the genus belongs, are recorded from India for the first time, and the species *A. rolandri* (L.) is illustrated and described.

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Two new species and four hitherto unknown morphs of aphids are described from H. P.

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(xi) Thysanoptera

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The seasonal incidence, feeding behaviour, rate of feeding and extent of parasitism of *T. tabaci* are reported here.

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Relative quantity of reducing sugar, amino nitrogen, phenol and protein present in the thoracic muscle of three species of mosquitoes viz. *C. p. fatigans*, *A. stephensi* and *A. subpictus* were analysed and their role in the development of microfilaria into infective stage larvae has been examined.

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759. **Grover, P.** 1981. Role of host specificity in speciation. —*Cecidologia ind.*, **15** (1) (1980) : 35-38.

760. **Grover, P.** 1981. A catalogue of Indian gall midges. —*Cecidologia ind.*, **15** (2-3) : 63-108.

The present catalogue differs from earlier catalogues in being based on midges directly reared from hosts or on studies of actual specimens at the Z. S. I. or in Y. Ramachandra Rao's collection at the Tamil Nadu Agricultural College, Coimbatore.

761. **Grover, P.** and **Prasad, S. N.** 1981. Taxonomy and morphology of rice gall midge.—*Cecidologia ind.*, **15** (1) (1980) : 13-16.

762. **Guha, D. K.** and **Chaudhuri, P. K.** 1981. *Microchironomus clarilatus* sp. nov. (Diptera : Chironomidae) from West Bengal, India. —*Bull. zool. Surv. India*, **4** (2) : 143-145.

763. **Guha, D. K.** and **Chaudhuri, P. K.** 1981. Records of three genera of Chironominae (Chironomidae : Diptera) from India. —*Bull. zool. Surv. India*, **3** (3) : 159-165.

764. **Gupta, J. P.** and **Singh, O. P.** 1981. Two new and two known species of *Drosophila* from Rimbick, West Bengal, India. —*Entomon*, **6** (1) : 33-39.

Taxonomic account of 4 species of *Drosophila* are given. Two of them are new while other 2 are recorded for the first time in India.

765. **Gupta, M.** and **Ahmad, I.** 1981. The efficiency of a synthetic juvenile hormone kinoprene for the control of *Aedes aegypti*. —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 74-76.

766. **Huda, K. M. N.** and **Banu, Q.** 1981. Toxicity of six types of plant products to mosquito larvae in Chittagong, Bangladesh. —*Proc. zool. Soc. Bangladesh* : 96-101 (Third National Zool. Conference).

767. **Joseph, A. N. T.** 1981. Aspects of population fluctuations of Phlebotomid sandflies (Diptera : Phlebotomidae) in North Bihar. —*Proc. Indian natn. Sci. Acad.*, (B) **46** (6) : 874-883.

768. **Joseph, A. N. T.** and **Parui, P.** 1981. *Astochia* Becker, *Promachus* Loew and *Saropogon* (Loew) (Diptera : Asilidae) from India. —*Oriental Ins.*, **15** (1) : 17-29.

769. **Joseph, A. N. T.** and **Parui, P.** 1981. *Stenopogon* Loew, *Michotamia* Macquart (Diptera : Asilidae) from India.—*Oriental Ins.*, **15** (1) : 103-111.

770. **Joseph, A. N. T.** and **Parui, P.** 1981. New and little known Indian Asilidae (Diptera) V. The genera *Laphria* Maira, and *Orthogonis*, with descriptions of nine new species. —*Ent. scand.—Lund*, **12** : 214-222.

771. **Joseph, A. N. T.** and **Parui, P.** 1981. A new species of *Trigonomima* Enderlein (Diptera : Asilidae) from India. —*Bull. zool. Surv. India*, **4** (2) : 203-204.

772. **Karanjkar, R. R.** and **Chundurwar, R.D.** 1981. Sorghum midge economic injury thresholds. —*Res. Bull. Marathwada agric. Univ.*, **5** (1-12) : 80-81.

773. **Kaur, R.** and **Reuben, R.** 1981. Studies of density and natural survival of immatures of *Anopheles stephensi* Liston in wells of Salem (Tamil Nadu). —*Indian J. med. Res.*, **73** (1) (Suppl.) : 129-135.

A study was undertaken to elucidate the causes for these fluctuations in immature density, an understanding of which is essential for the effective implementation of control measures.

774. **Kawatra, V. K.** 1981. Effects on alkaline phosphatase activity during ovarian development of the tropical house mosquito *Culex pipiens fatigans* Wiedemann. —*Indian J. exp. Biol.*, **19** (3) : 212-215.

775. **Khan, F. U.** 1981. Fertility of chemosterilized houseflies in relation to density. —*Curr. Sci.*, **50** (1) : 43-46.

776. **Kumar, B. V.** and **Sahai, Y. N.** 1981. Effect of eclipsed solar radiation on the salivary gland chromosomes of *Chironomus* larvae. —*J. scient. Res.*, **3** (2) : 109-110.

777. **Kumar, S.** 1981. The distribution, breeding places and adult habits of anopheline mosquitoes in Bharatpur, Rajasthan, India. —*Rajasthan J. Pesticides*, **8** (1) : 58-62.

778. **Mavi, G. S.** and **Sohi, A. S.** 1981. New record of *Melanagromyza provecta* (De Meijere) (Agromyzidae : Diptera) on safflower from Punjab, India. —*J. Bombay nat. Hist. Soc.*, **78** (1) : 182.

779. **Menon, P.K.B.** and **Rajagopalan, P. K.** 1981. Seasonal changes in survival rates of immatures of *Culex pipiens fatigans* in different habitats in Pondicherry. —*Indian J. med. Res.*, **73** (1) (Suppl.) : 136-138.

The seasonal changes in the survival rates of immatures were estimated in five different habitats in Pondicherry town and compared.

780. **Menon, P.K.B.** and **Sharma, V.P.** 1981. Geographic variation in life table attributes of four populations of *Anopheles stephensi* Liston from India. —*Indian J. Malar.*, **18** (2) : 91-97.

781. **Mote, U. N., Shirole, S. M.** and **Bapat, D. R.** 1981. Screening of local kharif varieties of sorghum for resistance to shootfly. —*J. Maharashtra agric. Univ.*, **6** (2) : 165-166.

782. **Mukherjee, T.** and **Lakhotia, S.C.** 1981. Specific induction of the 93D puff in *Drosophila melanogaster* by a homogenate of heat shocked larval salivary glands. —*Indian J. exp. Biol.*, **19** (1) : 1-4.

The effect of a homogenate of heat —shocked (60 min. at 37°C) larval salivary glands (HSGH) of *D. melanogaster* on the activity of the different heat shock puff loci in fresh salivary glands has been examined by 3H-uridine autoradiography.

783. **Muniyappa, M.** and **Reddy, G. S.** 1981. *Drosophila madikerii* sp. nov. from Coorg District (Western Ghats) Karnataka, India (Diptera : Drosophilidae). —*Oriental Ins.*, **14** (4) (1980) : 499-502.

784. **Nanda, U.K.** and **Satapathy, J.M.** 1981. Effect of varying levels of N, P and K on the incidence of gall midge and stem borers.—*Andhra agric. J.*, **26** (1-2) (1979) : 53-55.

785. **Natarajan, K,, Mathur, K. C.** and **Rajamani, S.** 1981. *Mnesithia laevis*—a non -host for rice gall midge. —*Curr. Sci.*, **50** (6) : 290-291.

The rice gall midge is one of the most destructive pests of rice—a non host to this pest has been studied.

786. **Panicker, K. N.** *et. al.* 1981. *Anopheles subpictus*, vector of malaria in coastal villages of South-East India. —*Curr. Sci.*, **50** (15) ; 694.

787. **Panicker, K. N., Bai, M. G.** and **Viswam, K.** 1981. Laboratory studies on the biology of *Culex sitiens* Wiedemann, 1828. —*Indian J. med. Res.*, **73** (1) (Suppl.) : 147-150.

788. **Patil, A. S., Gandhale, D. N., Awate, B. G., Mali, A. R.** and **Naik, L. M.** 1981. Control of mustard saw fly, *Athalia proxima* Klug on *Raphanus sativus* L. —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 118-120.

789. **Raghunathan, M. B.** and **Gunasekaran, T.** 1981. A note on the swarming of *Atrichopogon* sp. (Diptera : Ceratopogonidae) from Sagivala, New Amarambalam. R. F. Kerala. —*Indian J. Zool.*, **20** : 197-198.

790. **Rajagopalan, P. K.** 1981. Prospects for biological control of mosquitoes.— *Indian J. med. Res.*, **73** (1) (Suppl.) : 163-173.

A review is presented here of the biological control agents which are being studied in different parts of the world and some of which are now being advocated as an adjunct to be used in an integrated control system. The different agents are discussed briefly, indicating their potentialities as well as limitations for use in mosquito control.

791. **Rajagopalan, P. K., Bai, M. G.** and **Arunachalam, N.** 1981. Age determination of man-biting population of *Culex pipiens fatigans* with particular reference to transmission of *Wuchereria bancrofti* in Pondicherry. —*Indian J. med. Res.*, **73** (5) : 739-745.

A year long study was undertaken on the man-biting mosquitoes in the same area with particular reference to the age determination of mosquitoes based on the count of ovarian follicular relics and the results are presented here.

792. **Rawat, S.** and **Narayan, A. D.** 1981. Note on the effect of inbreeding on hatchability and viability in *Drosophila*. —*Indian J. Anim. Sci.*, **51** (1) : 129-132.

The effect of different rates of inbreeding on hatchability and viability of *Drosophila ananassae* has been assessed.

793. **Rawat, S.** and **Narayan, A. D.** 1981. Effect of different rates of inbreeding on egg size and wing length of *Drosophila ananassae*. —*Indian J. Anim. Sci.*, **51** (5) : 539-544.

The changes in the length and volume of egg and wing length due to different rates of inbreeding and their correlated response due to selection for egg production have been discussed.

793a. **Reddy, D. N. R.** and **Puttaswamy**, 1981. Record of *Agromyza* sp. (Diptera : Agromyzidae) as a pest of bajra and its parasite *Bracon* sp. (Hymenoptera : Braconidae). —*Curr. Res. mon. Newsl.*, **10** (2) : 23-24.

794. **Reisen, W. K., Siddiqui, T. F., Aslamkhan, M.** and **Malik, G. M.** 1981. Larval interspecific associations and physico-chemical relationships of the ground-water breeding mosquitoes of Lahore. —*Pakist. J. scient. Res.*, **33** (1-4) : 1-23.

The survey of the larval breeding sites in Lahore area was performed to delincate the range of conditions under which ground water mosquitoes breed, thus providing some indication of the oviposition preferences of the females and the physiological tolerances of the larvae.

795. **Roy, S.** and **Lakhotia, S. C.** 1981. Replication in *Drosophila* chromosomes : Part IV—patterns of chromosomal replication in salivary gland polytene nuclei in *Drosophila nasuta*. —*Indian J. exp. Biol.*, **19** (9) : 797-807.

796. **Sadakathulla, S.** 1981. Efficacy of different new insecticidal formulations in different methods of application for controlling sorghum shootfly, *Atherigona soccata* Rond. —*Pesticides*, **15** (3) : 14-16.

797. **Sarkar, P. K., Das, N. G.** and **Rao, K. M.** 1981. Mosquito fauna in certain places of Dibrugarh district in Assam. —*Indian J. med. Res.*, **73** (3) : 331-334.

A mosquito survey in Dibrugarh of Assam was carried out during March-April, 1978. Larval and adult mosquitoes were collected from various habitats. Of the places surveyed, Dinjan had the maximum mosquito infestation. A total of 27 species belonging to eight genera were encountered.

798. **Saxena, A. P.** 1981. Biology of *Periscepsia carbonaria* Panz., a parasite of cutworms. —*J. Indian Potato Ass.*, **8** (1) : 1-8.

799. **Saxena, A.P.** 1981. *Leucopis fumidilarva* Tanas (Diptera : Chamaemyiidae), a new predator of aphids and leaf hoppers on potato crop. —*J. Indian Potato Ass.*, **8** (2) : 96-98.

This is the first record of the predator of aphids and leaf hoppers. Notes on its habits and life-history are reported.

800. **Shivpuje, P. R., Rao, S. N.** and **Mulawekar, S. R.** 1981. New record of a nedo-larval parasite *Endaphis* sp. (Cecidomyiide : Diptera) on safflower aphid, *Dactynotus sonchi* Linn. (Aphididae : Heteroptera). —*Res. Bull. Marathwada agric. Univ.*, **5** (1-12) : 72.

801. **Singh, B. N., Dwivedi, Y. N.** and **Gupta, J. P.** 1981. Sexual isolation among three species of the *Drosophila bipectinata* species complex. —*Indian J. exp. Biol.*, **19** (9) : 898-900.

802. **Singh, D., Sandhu, K. S.** and **Dhillon, G. S.** 1981. Role of high soil temperature and incidence of pea stem fly and stem wilt as plant mortality agents in the cultivation of yearly pea crop.—*Indian J. Ecol.*, **8** (2) : 245-252.

803. **Singh, G.** 1981. Pest management in rabi vegetables. —*Indian Fmr's Dig.*, **14** (11) : 7-11.

804. **Singh, O. P.** and **Gupta, J. P.** 1981. Descriptions of three new species of *Drosophila* (Drosophilidae) from North-east India.—*Oriental Ins.*, **14** (4) (1980) : 503-509.

805. **Singh, R.** 1981. Field evaluation of different larvicides against *Anopheles* and *Culicine* mosquitoes. —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 123-124.

806. **Singh, S. P.** *et. al.* 1981. Control of mosquito *Culex pipiens fatigans* by releasing radiation sterile males—a field study. —*J. envir. Biol.*, **2** (3) : 9-18.

807. **Sivaramakrishnan, K. G.** and **Job, S.V.** 1981. Studies on mayfly populations of Courtallam Streams. —*Proc. Symp. Ecol. Anim. Popul., zool. Surv. India*, (2) (1978) : 105-116.

808. **Subbarao, S. K.** and **Adak, T.** 1981. Linkage relationship between three autosomal mutants and functional relationship between two eye colour mutants in *Anopheles stephensi*.—*Indian J. Malar.*, **18** (2) : 98-102.

809. **Suguna, S. G.** 1981. The genetics of three larval mutants in *Anopheles stephensi*. —*Indian J. med. Res.*, **73** (1) (Suppl.) : 120-123.

Three larval mutants viz. spot (sp), black (Bl) and green (gr) larvae have been identified from Pondicherry strain of *A. stephensi* and their mode of inheritance are summarised.

810. **Suguna, S. G.** 1981. Inversion (2) R_1 in *Anopheles stephensi*, its distribution and relation to egg size. —*Indian J. med. Res.*, **73** (Suppl. 1) ; 124-128.

The object of the study was to determine the distribution and frequency of In (2) R_1 in south Indian populations of *A. stephensi* collected as larvae from natural breeding habitats, as no detailed study has been carried with natural populations. In addition, the relation of In (2) R_1 to egg size was studied.

811. **Sukhani, T.R.** and **Jotwani, M. G.** 1981. Control of sorghum shootfly with insecticides applied as seed treatment or in furrows. —*Indian J. agric. Sci.*, **51** (11) : 799-802.

812. **Swaminathan, S.** and **Raman, A.** 1981. On the morphology of the stem galls of *Eupatorium adenophorum* Spreng. (Compositae) and the natural enemies of the Cecidozoan, *Procecidochares utilis* Stone (Tephritidae : Diptera). —*Curr. Sci.*, **50** (6) : 294-295.

813. **Taley, Y. M., Rajurkar, B. S.** and **Thakare, K. R.** 1981. Bionomics of *Atherigona soccata* (Rondani) (Diptera : Anthomyiidae). —*P. K. V. Res. J.*, **5** (1) : 62-68.

814. **Tandon, N., Mukhopadhyay, A. K.** and **Hati, A. K.** 1981. On taxonomy of malarial vectors of India. —*Rec. zool. Surv. India*, **99** (1 & 2) : 187-192.

815. **Thukral, D.** and **Sareen, M. L.** 1981. RNA activity and protein synthesis in the egg follicles of dipterans. —*Res. Bull. Panjab Univ.*, **29** (1-4) (1978) : 95-97.

816. **Tiwari, K. K.** and **Sharma, H. S.** 1981. Phalo ko hani pahuchane wali makkhia aur unaki roaktham. (In Hindi). — *Prani Jagat, zool. Surv. India*, (1) (1980) : 13-17.

817. **Varma, T. K.** and **Sharma, V. P.** 1981. Salivary gland chromosomes of *Anopheles annularis*. —*Indian J. Malar.*, **18** (2) : 103-108.

818. **Vittal, M.** and **Bhate, M. R.** 1981. Bioassay tests on the effectiveness of malathion spraying on *Anopheles culicifacies* resting on different wall surfaces in Aurangabad town, Maharashtra. — *Indian J. Malar.*, **18** (2) : 124-125.

819. **Vittal, M.** and **Deshpande, L. B.** 1981. Experiments to test Paris green emulsion to control mosquito breeding.— *Indian J. Malar.*, **18** (2) : 117-118.

(xv) Lepidoptera

820. **Agarwal, R. A.** 1981. Problems and usage of insecticides in the control of insect pests of sugarcane. —*Indian Sug.*, **31** (3) : 175-185.

821. **Agnihothrudu, V.** and **Gour, T. B.** 1981. Sumicidin (R) in the control of cotton pests.—*Andhra agric. J.*, **27** (1-2) (1980) : 70-71.

822. **Ambika, B., Abraham, C. C.** and **Dale, D.** 1981. Food preference of the rice meal moth *Corcyra cephalonica* Stainton (Lepidoptera : Pyralidae). —*Agric. Res. J. Kerala*, **19** (2) : 117-118.

823. **Arora, G. S.** and **Mondal, D. K.** 1981. On the Papilionianae (Papilionidae : Lepidoptera) from Arunachal Pradesh and adjoining areas of Assam in North-Eastern India. —*Rec. zool. Surv. India, Occ. Pap.* No. 29 : 1-65.

The present paper incorporates 32 species distributed over 18 species—groups in six genera and subgenera under three tribes of the subfamily Papilioninae alone together with certain variations being correlated with geographical and other forms.

824. **Azam, K.M.** 1981. Incidence of *Spodoptera litura* on groundnut and blackgram in Guntur and Prakasam districts. —*Andhra agric. J.*, **26** (5 & 6) (1979) : 247-248.

825. **Bakwad, D. G.** and **Pawar, V. M.** 1981. A new record of nuclear polyhedrosis virus (NPV) of Jute semilooper, *Anomis sabulifera* (Guenee). —*Indian J. Ent.*, **43** (1) : 39-43.

826. **Balasubramanian, M.** and **Karuppuchamy, P.** 1981. Water-pan trap with synthetic gossyplure to monitor pink bollworm of cotton. —*Andhra agric. J.*, **27** (1-2) (1980) : 83-85.

827. **Balasubramanian, M., Natesan, R.** and **Mohanvel, K.** 1981. The effect of diflubenzuron—a chitin inhibitor on *Spodoptera litura* and *Heliothis armigera*. —*Andhra agric. J.*, **27** (1-2) (1980) : 74-79.

828. **Batra, R. C.** and **Sandhu, G. S.** 1981. Comparison of different insecticides for the control of citrus leaf-miner in the nursery. —*Pesticides*, **15** (2) : 5-6.

828a. **Batra, R. C.** and **Sandhu, G. S.** 1981. Foliar spraying and soil drench treatments of insecticides for the control of citrus leaf miner. —*Indian J. Ent.*, **43** (1) : 83-86.

829. **Beohar, A. B. L., Mehta, S. K.** and **Singh, O. P.** 1981. Soybean, JS 72-44 less susceptible to lepidopterous pests. —*J.N.K.V.V. Res. J.*, **14** (3-4) (1980) : 98.

829a. **Betala, S. R.** and **Kushwaha, K. S.** 1981. Biology and external morphology of forage pests IV. Cabbage semilooper, *Plusia nigrisigna* Walker on lucerne and cowpea. —*Bull. ent. Soc. India*, **13** : 95-100.

830. **Bhardwaj, S. C.** *et. al.* 1980. Comparative incidence of stalk borer, *Chilo auricilius* Ddgn. in autumn and spring planted and ratoon crops of sugarcane. —*Indian J. agric. Res.*, **15** (3) : 135-140.

The incidence of *C. auricilius* was recorded in the three types of sugarcane crop i. e. autumn—planted, spring —planted and ratoon crops at the Saraswati Sugar Mills Farm, Shahzadpur, Jagadhari (Haryana) during 1976-77 and 1977-78.

831. **Bhattacharya, D. P.** 1981. On the little known species of the genus *Dudusa* Walker (Lepidoptera : Notodontidae) from India. —*Rec. zool. Surv. India*, **79** (1-2) : 259-266.

832. **Bhuiyan, Md. S. I.** 1981. Effectiveness of some insecticides for the control of hairycaterpillar. —*Proc. zool. Soc. Bangladesh* : 49-52 (Third National Zool. Conference).

833. **Bilapatc, G. G.** 1981. Investigations on *Heliothis armigera* (Hubner) in Marathwada—XIX. Field studies on larval and pupal parasites. —*J. Maharashtra agric. Univ.*, **6** (3) : 199-202.
Seasonal fluctuations from July, 1978 to February, 1980 in parasitism of *H. armigera* was studied.

834. **Bilapate, G. G., Raodeo, A. K.** and **Pawar, V. M.** 1981. Investigations on *Heliothis armigera* Hubner in Marathwada—IX. Some observations on the larval instar of American cotton bollworm on chickpea. —*J. Maharashtra agric. Univ.*, **6** (1) : 54-57.

835. Deleted.

836. **Channegowda, M.B.** and **Rajashekaraiah, S.** 1981. A study on the knowledge about selected recommended practices of silkworm rearing by small and big farmers of Kanakapura Taluk in Karnataka. —*Mysore J. agric. Sci.*, **15** (1) : 157-161.

837. **Chaterjee, P. B.** and **Choudhuri, D. K.** 1981. On the biology of *Latoia bicolor* Walker (Lepidoptera : Limacodidae). —*Proc. zool. Soc. Calcutta*, **32** (1-2) (1979) : 127-136.
The complete life history of *Latoia (Parasa) bicolor* Walker, a serious pest of rice in West Bengal, has been studied and its various stages illustrated.

838. **Chaturvedi, D. P.** and **Mathur, K. C.** 1981. Studies on insecticidal control of the rice leaf folders : foliar spray. —*Indian J. agric. Res.*, **15** (4) : 241-250.
With an objective to identify effective insecticides, their economic dosages and the frequency of application, a field experiment with four insecticides at 3 different dosages, i.e. 0.25, 0.5 and 0.75 kg a.i./ha applied as foliar spray at the intervals of 10 and 20 days was conducted during rabi in 1978.

839. **Chaturvedi, D. P.** and **Mathur, K. C.** 1981. Control of rice leaf-folder by granular insecticides. —*Indian J. agric. Sci.*, **51** (4) : 256-258.

840. **Chaturvedi, N.** and **Satheesan, S. M.** 1981. Butterflies of Bombay-5. —*Hornbill*, (1) : 28.

841. **Chaturvedi, N.** and **Satheesan, S. M.** 1981. Butterflies of Bombay-6. —*Hornbill*, (2) : 28.

842. **Chaturvedi, N.** and **Satheesan, S. M.** 1981. Butterflies of Bombay-7. —*Hornbill*, (3) : 34-36.

843. **Chaturvedi, N.** and **Satheesan, S. M.** 1981. Butterflies of Bombay-8. —*Hornbill*, (4) : 34.

844. **Chaudhary, J. P.** and **Sharma, S. K.** 1981. Biology of gram pod borer, *Heliothis armigera* (Hubner) in the Haryana State. —*Bull. Ent.*, **22** (1-2) : 101-112.
Studies on the biology of *H. armigera* were made under environmental conditions prevailing at Hissar and the results were discussed.

845. **Datar, V. V.** and **Pawar, V. M.** 1981. Seasonal incidence of tomato fruit borer *Heliothis armigera* (Hubner) as affected by weather parameters. —*S. Indian Hort.*, **29** (4) : 196-198.

846. **Daware, D. G.** and **Dhanorkar, B. K.** 1981. Chemical control of podborers in redgram. —*Pesticides*, **15** (1) : 35.

847. **Deb, D. C.** and **Chakraborty, S.** 1981. Morphogenetic changes induced by additional corpora allata in ovary of the rice moth *Corcyra cephalonica* Stainton. —*Indian J. exp. Biol.*, **19** (10) : 923-925.

848. **Deb, D. C.** and **Chakraborty, S.** 1981. Effect of a juvenoid on the growth and differentiation of the ovary of *Corcyra cephalonica* (Lepidoptera). —*J. Insect Physiol.*, **27** (2) : 103-111.

The juvenoid hydoprene results in various developmental aberrations of the ovary when administered to early last instar larvae of *C. cephalonica* (Stainton).

849. **Dhandapani, N.** and **Balasubramanian, M.** 1981. Growth of population of *Heliothis armigera* Hbn. on maize and sorghum. —*Indian J. Ecol.*, **8** (1) : 60-64.

850. **Dhandapani, N.** and **Balasubramanian, M.** 1981. Population growth of *Heliothis armigera* Hbn. on sunflower. —*Madras agric. J.*, **68** (5) : 339-342.

851. **Dhooria, M. S.** and **Chadha, M. L.** 1981. A note on the incidence of shoot borer on different varieties of Brinjal. —*Punjab hort. J.*, **21** (3 & 4) : 222-225.

852. **Dilawari, V. K., Mahal, M. S.** and **Bains, S. S.** 1981. Role of a braconid parasite and a viral disease in the population decline of armyworm, *Mythimna separata* Walker (Noctuidae : Lepidoptera) during an outbreak. —*Indian J. Ecol.*, **8** (1) : 65-73.

853. **Gajendran, G.** and **Gopalan, M.** 1981. Note on the ovicidal activity of *Parthenium hysterophorus* Linn. on the eggs of *Spodoptera litura* Fabricius. —*Indian J. agric. Sci.*, **51** (11) : 821-822.

854. **Ghuguskur, H. T., Radke, S. G.** and **Borle, M. N.** 1981. Unusual heavy incidence of citrus leaf miner, *Phyllocnistis citrella* Stainton (Lepidoptera : Phyllocnistidae) on Nagpuri santra in Amravati and Nagpur district. —*P. K. V. Res. J.*, **5** (2) : 143-147.

The extent of damage caused on bearing trees during April and May, 1981 by this pest with its habits of feeding and probable reasons for such a heavy incidence were investigated.

855. **Godse, D. B.** and **Patil, R. B.** 1981. New nuclear polyhedroses of lepidopteran insects in Karnataka, (India). —*Proc. Indian Acad. Sci.* (*Anim. Sci.*), **90** (1) : 93-97.

A survey to determine the occurrence of nuclear polyhedroses was taken up with the object of using them later as biological agents for control of insect pests.

856. **Goel, S. C.** and **Kumar, A.** 1981. Cephalic demarcations and chaetotaxy of larval *Diacrisia obliqua* (Wlk.) (Arctiidae). —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 6-15.

Being another polyphagous lepidopteran pest, and India wide in distribution, *D. obliqua* feeds over the summer and monsoon crops of the sunflower.

857. **Gupta, S. L., Farooqi, S. I.** and **Chaudhry, H. S.** 1981. Taxonomic studies on some of the syntypes of Indian Lymantriidae in British Museum (Natural History), London (Noctuoidea : Lepidoptera) II. *Dasychira* spp. —*Bull. Ent.*, **22** (1-2) : 15-24.

This genus is known by nearly 600 species from the world including 29 of Indian origin, out of which the present study includes only 12 species.

858. **Gupta, S. L., Farooqi, S. I.** and **Chaudhry, H. S.** 1981. Taxonomic studies on some of the syntypes of Indian Lymantriidae in British Museum (Natural History), London (Noctuoidea : Lepidoptera) II. *Euproctis* spp. —*Bull. Ent.*, **22** (1-2) : 46-60.

This genus is known by more than 500 species from the world including about 70 species from India. The present study includes only 22 species and 2 sub-species.

859. **Hardas, M.G., Gorantiwar, A. M., Sharnagat, B. K.** and **More, G. D.** 1981. Performance of synthetic pyrethroids against *Earias fabia* Stoll on cotton H-4. —*P. K. V. Res. J.*, **5** (2) : 197-200.

860. **Heppner, J. B.** 1981. The dates of E.J.C. Esper's Die Schmetterlinge in Abbildungen...1776—(1830). —*Archiv. nat. Hist.*, **10** (2) : 251-154.

861. **Heppner, J. B.** and **Duckworth, W. D.** 1981. Classification of the superfamily Sesioidea (Lepidoptera : Ditrysia).—*Smithson. Contr. Zool.*, No. **314** : 1-144.

862. **Jacob, S. A.** 1981. Biology of *Dichocrocis punctiferalis* Guen. on turmeric.—*J. Plant. Crops*, **9** (2) : 119-123.

The biology of *D. punctiferalis* Guen. and some of the biotic factors on turmeric were studied.

863. **Jain, U.** and **Saxena, Y.** 1981. Effect of carbohydrate utilization on longevity and fecundity of *Prodenia litura* Fabricius (Lepidoptera : Noctuidae).—*Geobios*, **8** (1) : 42-43.

864. **Jayaraj, S., Santharam, S., Narayana, K., Soundararajan, K.** and **Balagurunathan, R.** 1981. Effectiveness of the nuclear polyhedral virus against field populations of the tobacco caterpillar *Spodoptera litura* on cotton. —*Andhra agric. J.*, **27** (1-2) (1980) : 26-29.

865. **Jayaswal, A. P.** and **Saini, R. K.** 1981. Sheep grazing as a method to reduce the population of diapausing larvae of pink bollworm (*Pectinophora gossypiella* Saunders) in cotton. —*Cott. Dev.*, **11** (1) : 18.

866. **Jayaswal, A. P.** and **Saini, R. K.** 1981. Effect of some synthetic pyrethroids on pink bollworm incidence and yield of cotton. —*Pesticides*, **15** (1) : 33-35.

867. **Jayaswal, A. P., Saini, R. K.** and **Kairon, M. S.** 1981. Incidence of pink bollworm in some promising varieties of upland cotton in Haryana. —*Indian J. agric. Sci.*, **51** (8) : 577-578.

868. **Joshi, K. C.** and **Aggarwal, S. B.** 1981. A note on the ovicidal efficacy of some insecticides for the control of *Malacosoma indica* Wlk. —*Punjab hort. J.*, **21** (3 & 4) : 218-221.

869. **Joshi, K. C.** and **Agarwal, S. B.** 1981. Efficacy of some insecticides against the larvae of tent caterpillar *Malacosoma indica* Wlk. —*Indian J. agric. Res.*, **15** (4) : 251-257.

For determining the comparative efficacy of different insecticides, eight field trials were conducted during the years 1975-77, against the first and fourth instar larvae of *M. indica* at Ramgarh, in Nainital district.

870. **Joshi, R. C., Rao, P. K.** and **Ali, M. H.** 1981. Preliminary studies on jamun leaf miner (*Antispila anna* Meyr.) with two new parasite records. —*Curr. Sci.*, **50** (8) : 373-374.

Leaf miners were detected from Jamun trees at Hyderabad and was identified as *A. anna* and the two parasites were identified as *Elasmus hyblaeae* and *Pediobius anomalus* both Hymenopteran.

871. **Kanaujia, K. R., Chaudhary, R. N.** and **Sharma, V. K.** 1981. Influence of time of the day on the emergence of *Chilo partellus* (Swinhoe). —*Indian J. Ecol.*, **8** (1) : 116-118.

872. **Kanaujia, K. R.** and **Sidhu, M. S.** 1981. Influence of trap design pheromone source and release on moth trapping of angoumois grain moth, *Sitotroga cercalella* (Olivier). —*Curr. Sci.*, **50** (20) : 512-514.

The observations on moth captures were recorded, traps cleaned and pheromone extracts, females, micro-cages renewed every 24 hour. The data were analysed in a split plot design.

873. **Kareem, A. A.** and **Viswanathan, T.** 1981. A general account of the integrated approach for the control of bollworms on cotton. —*Andhra agric. J.*, **27** (1 & 2) (1980) : 123-124.

874. **Kawthekar, B. R.** and **Hedgire, D. N.** 1981. Determination of economic threshold levels for bollworms on L-147 and H-4 cotton. —*Res. Bull. Marathwada agric. Univ.*, **5** (1-12) : 56-59.

875. **Kawthekar, B. R., Hedgire, D. N.** and **Vyahalkar, G. R.** 1981. Control of cotton bollworms by synthetic pyrethroids. —*Res. Bull. Marathwada agric. Univ.*, **5** (1-12) : 53-55.

876. **Krishnaswami, S.** *et. al.* 1981. Further studies on weathering of thuricides for different durations on survival and the effect of sublethal doses of thuricides on fecundity of *Bombyx mori* L.— —*Indian J. Seric.*, **20** : 11-16.

The work was carried out in order to study the toxicity of these thuricides to silkworm after prolonged periods of weathering in the field.

877. **Kulkarni, S. N.** 1981. Comparative efficacy of two synthetic pyrethroids in control of cotton bollworms. —*Cott. Dev.*, **10** (3 & 4) (1980) : 15-16.

878. **Kulkarni, S. N., Raodeo, A. K.** and **Sarkate, M. B.** 1981. Impact of integrated method of pest control in cotton. —*Andhra agric. J.*, **27** (1-2) (1980) : 68-69.

879. **Kumata, T.** 1981. Notes on *Caloptilia* (*Sphyrophora*) *octopunctata* (Turner, 1894) of India, with description of its larva (Lepidoptera : Gracillariidae). — *Insecta matsum.*, (*Ent.*) (*N. S.*), **24** : 1-16.

C. tetratypha (Meyrich, 1928) is newly synonymised to *C. octopunctata*. The male and female genitalia are described and figured for the first time, with description of larvae.

880. **Limaye, P. A.** 1981. Improving cocoon colour of silkworm I. Effect on addition of Canthaxanthin, vitamin A and charcoal to the feeding of *Bombyx mori*. —*Biovigyanam*, **7** (1) : 89-90.

881. **Lingappa, S.** and **Siddappaji, C.** 1981. Note on the biology of tamarind fruit borer, *Cryptophlebia ombrodelta* (Lower) (Lepidoptera : Olethreutidae). —*Indian J. agric. Sci.*, **51** (6) : 467-470.

882. **Mall, S. B.** 1981. Histomorphology of the malpighian tubules of *Atteva fabriciella* (Swed.) larva. —*Bull. Ent.*, **22** (1-2) : 25-31.

883. **Mandal, D. K.** and **Ghosh, S. K.** 1981. Teratological observation on the venation of the genus *Cispia* Walker (Lepidoptera : Lymantriidae) from India. —*Sci. Cult.*, **47** (2) : 66-67.

884. **Manjunath, D.** and **Mathad, S. B.** 1981. Effect of sunlight on the infectivity of purified and non-purified NPV of the army worm, *Mythimna separata* Walker. —*Indian J. agric. Sci.*, **51** (10) : 750-756.

A laboratory study was conducted to know the sensitivity of *M. separata* NPV exposed to sunlight.

885. **Manjunath, D.** and **Mathad, S. B.** 1981. Stability of nuclear polyhedrosis virus of the armyworm *Mythimna separata* (Lepidoptera : Noctuidae) in soil. —*Entomon*, **6** (1) : 1-5.
Stability of polyhedrosis virus of army worm in a black soil maintained dry or moist and kept outdoors or in darkness for 1,4,12,28 or 64 weeks is investigated.

886. **Mann, G. S.** 1981. Chemical control of *Synclera univocalis* Walker on jujube at Ludhiana. —*Indian J. agric. Sci.*, **51** (7) : 517-520.

887. **Mann, G. S.** and **Singh, D.** 1981. Comparative efficacy of some newer insecticides against the bark eating caterpillar. —*Punjab hort. J.*, **21** (1 & 2) : 103-104.

888. **Mathur, L.M.L.** and **Rawat, H.S.** 1981. Studies on maize pests with certain observations on the survival of the hibernating larvae of *Chilo partellus* (Swinhoe) and its incidence in relation to sowing date. —*Rajasthan J. Pesticides*, **8** (1) : 17-31.

889. **Mathur, L.M.L.** and **Singh, S. D.** 1981. Studies on the behaviour and control of maize stalk borer, *Chilo partellus* (Swinhoe). —*Rajasthan J. Pesticides*, **8** (1) : 44-57.

890. **Mehta, D. N.** and **Lall, B. S.** 1981. Comparative susceptibility of different brinjal cultivars against brinjal fruit and shoot borer. —*Indian J. Ent.*, **43** (1) : 103-109.

891. **Mehta, D. N.** and **Lall, B. S.** 1981. Chemical control of brinjal fruit and shoot borer. —*Indian J. Ent.*, **43** (1) : 105-106.

892. **Mehta, D. N.** and **Lall, B. S.** 1981. A note on fertilization response against brinjal fruit and shoot borer. —*Indian J. Ent.*, **43** (1) : 106-107.

893. **Mishra, S. C.** and **Singh, R.** 1981. Chemical composition of food and faecal matter of bark feeding lepidopterous larvae *Indarbela quadrinotata* Walk. (Lepidoptera : Indarbelidae) in relation to digestion. —*Indian J. For.*, **4** (2) : 107-109.

894. **Mitra, K.** and **Verma, A.** 1981. Effect of temperature and relative humidity on the development of sugarcane stalk borer *Chilo auricilius* Dudg. —*Indian J. Ecol.*, **8** (2) : 217-222.

895. **Mohite, P. B.** and **Dumbre, R. B.** 1981. Laboratory studies on bionomics of mango shoot borer *Chlumetia transversa* Walk. (Lepidoptera : Noctuidae). —*J. Maharashtra agric. Univ.*, **6** (2) : 153-155.

896. **Mote, U. N.** 1981. Varietal resistance in egg plant to *Leucinodes orbonalis* Guen. I. Screening under field conditions. —*Indian J. Ent.*, **43** (1) : 112-115.

897. **Muttalib, S. A.** and **Rahman, M.** 1981. Survey of the natural enemies of wheat stem borer *Sesamia inferens* Wlk. (Noctuidae : Lepidoptera). —*Proc. zool. Soc. Bangladesh* : 90-95 (Third National Zool. Conference).

898. **Nair, V.S.K.** 1981. Hormonal control on the mating behaviour in the females of *Spodoptera mauritia* (Lepidoptera : Noctuidae). —*Curr. Sci.*, **50** (15) : 690-691.

899. **Narasimhanna, M. N.** *et. al.* 1981. Performance of pure lines and hybrid of tasar silkworm *Antheraea mylitta* Drury (Lep. Saturnidae). —*Indian J. Seric.*, **20** : 1-6.

The hybrid vigour of some crosses between a few inbred lines of the commonly reared eco-race Daba, has been evaluated here.

900. **Nath, G.** and **Srivastava, C.** 1981. Changes in Aminoacidemia during late larval development of *Achoea janata* Linn. (Lepidoptera : Noctuidae).— *Indian J. exp. Biol.*, **19** (8) : 754-756.

901. **Nema, K. K., Gangrade, G. A.** and **Singh, O.P.** 1981. Contribution to the morphology and histology of larval alimentary canal of *Spodoptera exigua* (Hubner) (Lepidoptera : Noctuidae).— *J. N. K. V. V. Res. J.*, **14** (3-4) (1980) : 60-64.

In view of the importance of the larvae of *S. exigua* as one of the important pests of soybean this study was undertaken.

902. **Neupane, F. P.** 1981. Bionomics of the hairy caterpillar, *Spilarctia casignata* Koll. —*J. nat. Hist. Mus.*, **5** (1) : 1-9.

The bionomics of the hairy caterpillar, *S. casignata* Koll was studied in Rampur, Chitwan, Nepal from 1977-1979.

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904. **Patel, B. S., Patel, R. C.** and **Patel, M. S.** 1981. A note on effectiveness of light traps for the control of Gujarat hairy caterpillar *Amsacta* spp. —*Gujarat agric. Univ. Res. J.*, **7** (1) : 47-48.

905. **Patel, R. C.** 1981. Role and feasibility of natural enemies in integrated pest management of cotton. —*Andhra agric. J.*, **27** (1-2) (1980) : 35-40.

906. **Patel, R. K.** 1981. Note on field assessment of carbaryl formulations for the control of chickpea pod-borer. — *Indian J. agric. Sci.*, **51** (11) : 827.

907. **Patel, R. K.** and **Bhagat, N. K.** 1981. Severe infestation of web worm, *Cryptoblabes gnidiella* (Mill.) on ragi *Eleusine corecana* G.) in Madhya Pradesh. —*J. N. K. V. V. Res. J.*, **15** (3) : 135.

908. **Patil, B. V., Devaiah, M. C.** and **Thontadarya, T. S.** 1981. Nocturnal activity of some important lepidopterous pests at light-traps. —*Indian J. Ecol.*, **8** (2) : 253-258.

909. **Patil, B. V.** and **Thontadarya, T. S.** 1981. Record of *Beauveria bassiana* (Balsamo) Vuillemin on teak skeletonizer, *Pyrausta machaeralis* (Walker). — *Indian Forester*, **107** (11) : 698-699.

910. **Patil, B. D.** and **Pokharkar, R. N.** 1981. Residual toxicity of some commonly used insecticides to the adult of spotted bollworm (*Earias vitella* Stoll.). —*J. Maharashtra agric. Univ.*, **6** (1) : 73.

911. **Patil, B. V.** and **Thontadarya, T. S.** 1981. Variation of adult colour in teak skeletonizer, *Pyrausta machaeralis* Walker (Lepidoptera : Pyralidae). — *Res. Bnll. Marathwada agric. Univ.*, **5** (1-12) : 75-76.

912 **Pawar, A. D., Prasad, J.** and **Gupta, M.** 1981. Biological control of cotton pink bollworm *Pectinophora gossypiella*. —*Andhra agric. J.*, **27** (1-2) (1980) : 33-34.

913. **Pawar, A. D.** *et. al.* 1981. Introduction and establishment of an ecto-parasite, *Epipyrops melanoleuca* Fletcher (Epipyropidae : Lepidoptera) in Bundi dist. (Rajasthan) for the bio-control of sugarcane pyrilla, *Pyrilla perpusilla* (Walker). —*Indian Sug.*, **31** (2) : 103-107.

914. **Perera, P. A. C. R.** 1981. Predation studies on *Pareuchaetes pseudoinsulata* (Lep. : Arctiidae) using 32 p. labelled immatures. —*Ceylon Cocon. Q.*, **32** (3/4) : 105-110.

P. pseudoinsulata is used for the control of *Chromolaena odorata*, a pernicious weed growing on coconut estates in Sri Lanka. The rate of consumption of *C. odorata* leaves by *P. pseudoinsulata* has been estimated and based on these results the requirement of *P. pseudoinsulata* per ha of weed for complete defoliation is discussed.

915. **Pillai, G. B.** and **Nair, K. R.** 1981. Role of pupal parasitoids in the natural suppression of the coconut caterpillar *Nephantis serinopa* Meyrick. —*J. Plant. Crops*, **9** (2) : 84-87.

During a survey for the indigenous parasitoids infesting pupae of *N. serinopa* in coconut gardens in Kerala State during 1979 and 1980, four species of *Brachymeria*, a larval pupan dipteran and a secondary parasitoid of *Brachymeria* were reared and their relative intensity of parasitisation during different seasons were studied.

916. **Poonia, F. S., Yadav, L. S.** and **Singh, Z.** 1981. Effect of food plants on the larval and post-larval development of Bihar hairy caterpillar, *Diacrisia obliqua* Walker (Lepidoptera : Arctiidae). — *Haryana agric. Univ. J. Res.*, **11** (1) : 12-17.

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918. **Prasad, D.** and **Premchand,** 1981. Insecticidal control of Bihar hairy caterpillar *Diacrisia obliqua* Walker. — *Indian J. Ent.*, **43** (1) : 100-104.

919. **Pugalamperumal, L.** 1981. Wax moth menace. —*Indian Bee J.*, **43** (1 : 16.

920. **Puttaswamy** and **Reddy, D. N. R.** 1981. *Spodoptera litura* F. (Lepidoptera : Noctuidae) a pest of leafy vegetables. —*Curr. Res. mon. Newsl.*, **10** (4) : 62.

921. **Rabindra, R. J.** and **Balasubramanian, M.** 1981. The effect of diflubenzuron on the castor semilooper *Achoea janata* Linn. (Lepidoptera : Noctuidae).—*Entomon*, **6** (1) : 15-18.

Diflubenzuron disrupted growth and metamorphosis in larvae of *A. janata* was studied.

922. **Rai, P. S.** 1981. Bionomics of the rice leaf-feeding hairy caterpillar *Nisaga simplex* Walk. (Lepidoptera : Eupterotidae). —*J. Maharashtra agric. Univ.*, **6** (3) : 213-215.

923. **Rai, P. S.** 1981. A pyralid caterpillar damaging the ornamental plant *Tabernemontana* sp. —*Lal Baugh J. Mysore hort. Soc.*, **26** (4) : 30-32.

924. **Rai, P. S., Chandrashekar, H. T.** and **Vidyachandra, B.** 1981. Evaluation of some insecticidal sprays for the control of rice insect pests. —*Curr. Res. mon. Newsl.*, **10** (2) : 24-26.

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926. **Raikumar, P.** 1981. Effect of feeding different food plants on larval growth and adult survival of *Antheraea proylei* (Saturniidae) in Manipur. —*Indian J. Zootomy*, **22** (3) : 151-162.

927. **Rajagopal, D., Veeresh, G.K.** and **Rajanna, C.** 1981. Bagworm, *Acanthasyche* (*Pteroma*) *plagiophleps* Hampson (Lepidoptera : Psychidae), a pest of Pomegranate in Karnataka. —*Lal Baugh, J. Mysore hort. Soc.*, **26** (4) : 51-55.

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929. **Rajurkar, B. S., Bodhade, S. N.** and **Thakara, K. R.** 1981. Screening of sorghum varieties against armyworm, *Pseudaletia* (=*Cirphis*) *impunctata* Haw. —*P. K. V. Res. J.*, **5** (2) : 201-203.

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932. **Rao, K. V. K., Rao, M. D., Adiseshaiah, J.** and **Rao, P. A.** 1981. Development of cotton hybrids resistant to *Spodoptera litura*. —*Andhra agric. J.*, **27** (1-2) (1980) : 17-18.

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937. **Reddy, A. S., Rosaiah, B., Rao, B. H. K., Lakshminarayana, K.** and **Appa Rao, P.** 1981. Comparative efficacy of synthetic and natural pyrethroids and conventional insecticides in controlling cotton bollworms. —*Andhra agric. J.*, **27** (1-2) (1980) : 91-94.

938. **Rote, N. B., Patel, B. K.** and **Mehta, N. P.** 1981. Impact of mechanical control measures in integrated pest management of cotton leaf worm (*Spodoptera litura* F.). —*Andhra agric. J.*, **27** (1-2) (1980) : 104-106.

939. **Sachan, G. C.** 1981. Growth and development of *Diacrisia obliqua* (Walker) on some vegetables. —*Indian J. agric. Sci.*, **51** (8) ; 579-582.

940. **Samson, M. V.** *et. al.* 1981. Starvation of *Bombyx mori* L. on cocoon crop and incidence of loss due to diseases. —*Indian J. Seric.*, **20** : 42-47.

The effect of starvation for different durations in different instars and also the repeated starvation on the cocoon crop and loss due to diseases viz. Grasseric and Flacherie has been studied.

941. **Sarkate, M. B.** and **Raodeo, A. K.** 1981. Preliminary studies on control of cotton bollworms with exotic parasites. —*Andhra agric. J.*, **27** (1-2) (1980) : 30-32.

942. **Sehgal, S. S.** and **Chand, A. T.** 1981. Fertility of rice moth, *Corcyra cephalonica* Staint, reared from gamma irradiated eggs. —*Ann. agric. Res.*, **2** (1-2) : 53-56.

The effects of treatment on development time, sex-ratio and fertility of the rice moth reared from irradiated eggs have been investigated.

943. **Shah, A. H., Patel, K. R.** and **Purohit, M. S.** 1981. Studies on the population abundance of sugarcane top shoot borer, *Scirpophaga nivella* F. —*Gujarat agric. Univ. Res. J.*, **7** (1) : 11-18.

944. **Sharma, H. C.** and **Agarwal, R. A.** 1981. Behavioural responses of larvae of spotted bollworm *Earias vittella* Fabr. towards cotton genotypes. — *Indian J. Ecol.*, **8** (2) : 223-228.

945. **Shukla, G. S.** and **Tripathi, N.** 1981. Control pests for a sweeter cane crop. —*Fmrs' J.*, **1** (8) : 12-13.

946. **Sidhu, A. S.** and **Dhawan, A. K.** 1981. Testing of azinphos-methyl for the control of pink bollworm. —*Pesticides*, **15** (2) : 7-9.

947. **Singh, D.** 1981. Influence of the time of application of insecticides on the mortality of the rice ear-cutting caterpillar. —*Indian J. agric. Sci.*, **51** (2) : 114-115.

The results of a field study conducted to evolve a suitable insecticide and find out the best time of application to control the caterpillars, which hide during day time in the clumps and foliage of rice and become active after dusk cutting the panicle from peduncle of the ear, are reported here.

948. **Singh, G.** and **Sandhu, G. S.** 1981. Oviposition behaviour of *Chilo partellus* (Swinhoe) in the early growing phase of maize in the field. —*Indian J. Ent.*. **43** (1) : 44-48.

949. **Singh, J., Butter, N. S.** and **Sukhija, H. S.** 1981. Synthetic pyrethroids—new insecticides for bollworms control on cotton. —*Pesticides*, **15** (2) : 33-35.

950. **Singh, O. P.** 1981. Record of azimuthal effect on cotton bollworms. —*Curr. Sci.*, **50** (5) : 239.

951. **Singh, O. P.** and **Ali, S. I.** 1981. Sorghum stem borer and its control.— *Kisan Wld.*, **8** (7) : 46-48.

The note deals with the distribution, host plants, biology and effective pest control of sorhgum shoot borer, *Chilo partellus* Swin. which is the most important pest of hybrid sorghum.

952. **Singh, O. P.** and **Gangrade, G. A.** 1981. Morphological changes in alimentary canal of *Syntomis fortunei* Orza (Lepidoptera : Syntomidae) during metamorphosis. —*J.N.K.V.V. Res., J.*, **12** (1-4) (1978) : 95-100.

953. **Singh, O. P.** and **Rawat, R. R.** 1981. Field efficacy of some foliar insecticides against some major insect pests of groundnut in M. P. —*J. N. K. V. V. Res. J.*, **15** (1-2) : 41-42.

954. **Singh, P., Misra, R. M.** and **Prasad, G.** 1981. Control of semul shoot borer *Torica niviferana* (Lepidoptera : Oecophoridae) in plantations. —*Indian Forester*, **107** (4) : 249-251.

Semul shoot borer is a serious pest of semul plantation. An effort was made to control the pest by using two granular insecticides viz. furadan and sevidal.

955. **Singh, S. V.** and **Singh, Y. P.** 1981. Evaluation of effective and economical control of gram pod borer *Helicoverpa armigera* Hubner. —*Rajasthan J. Pesticides*, **8** (1) : 1-6.

956. **Sorathia, B. K.** and **Chari, M. S.** 1981. Evaluation of synthetic pyrethroid fenvalerate for the control of bollworms on hybrid 4 cotton.—*Pesticides*, **15** (1) : 14-17.

957. **Srivastava, S. C.** and **Pandey, P. M.** 1981. The effect of crucifers on growth, development, nutrition and reproduction of *Diacrisia obliqua* Walker (Lepidoptera : Arctiidae). —*Indian J. Zootomy*, **22** (1) : 35-46.

Seven cruciferous plants' suitability for growth, development, nutrition and reproduction of *Diacrisia obliqua* Walker were investigated.

958. **Thakre, S. M., Khan, K. M.** and **Borle, M. N.** 1981. Efficacy of some insecticides in the control of pod borer complex on 'Arhar' (*Cajanus cajan*).—*P. K. V. Res. J.*, **5** (2) : 193-196.

959. **Thimmaiah, G., Kumar, N. G.** and **Thippeswamy, C.** 1981. Ovipositional preference of *Earias vittella* (Fabricius) and *Heliothis armigera* (Hubner) on okra *Abelmoschus esculentus* L. (Moench). —*Curr. Res. mon. Newsl.*, **10** (4) : 65.

960. **Thombre, M. V.** 1981. Association of some morphological characters to confer resistance to bollworm in *Gossypium hirsutum* cotton. —*Andhra agric. J.*, **27** (1-2) (1980) : 19-20.

961. **Thontadarya, T. S., Hanumanna, M.** and **Patil, B. V.** 1981. Virgin female trap-a useful tool in surveillance forecasting and control of cotton spotted bollworm *Earias vittella* (Fabricius).—*Andhra agric. J.*, **27** (1-2) (1980) : 113-114.

962. **Thontadarya, T.S.** and **Rao, K.J.** 1981. Hopeful role of egg and larval parasites of cotton bollworms. —*Andhra agric. J.*, **27** (1-2) (1980) : 24-25.

963. **Thontadarya, T.S.** and **Rao, K.J.** 1981. Bhendi as trap crop in the integrated cotrol of cotton bollworms. —*Andhra agric. J.*, **27** (1-2) (1980) : 100-101.

964. **Vaishampayan, S. M.** and **Veda, O. P.** 1981. Chemical control of black cutworm, *Agrotis ipsilon* (Hfn.)—a pest of wheat and gram at Jabalpur. —*Indian J. Ent.*, **43** (1) : 29-34.

965. Deleted.

966. **Varshney, R. K., Nandi, B.** and **Nahar, S. C.** 1981. Butterflies from Hazaribagh National Park (South Bihar) (Lepidoptera : Rhopalocera). —*Rec. zool. Surv. India, Occ. Pap.*, No. **31** : 1-38.

The paper deals with 34 species in 25 genera in 9 families of which 8 species and subspecies are being recorded from the area for the first time.

967. **Verma, T. S., Bhagchandani, P. M., Singh, N.** and **Lal, O. P.** 1981. Screening of cabbage germplasm collections for resistance to *Brevicoryne brassicae* and *Pieris brassicae*. —*Indian J. agric. Sci.*, **51** (5) : 302-305.

The attack by cabbage caterpillar (*P. brassicae* Linn.) and aphid (*B. brassicae* Linn.) on open-pollinated collections of cabbage (*Brassicae oleracea* Linn. var. *capitata* Linn.) was recorded from 1975 to 1978 before and after bolting.

968. **Viswanath, B. N., Reddy, D. N. R.** and **Belavadi, V. V.** 1981. *Celama* sp. (Lepidoptera : Nolidae) a new pest on *Clerodendron inermae* Gaetru. —*Lal Baugh, J. Mysore hort. Soc.*, **26** (2) : 31-32.

969. **Vyas, A. M., Shah, A. H.** and **Patel, C. B.** 1981. Biology of rice leaf roller, *Cnaphalocrocis medinalis* Gn. (Pyralidae : Lepidoptera). —*Gujarat agric. Univ. Res. J.*, **6** (2) : 75-79.

970. **Yadav, D. N.** and **Patel, R. C.** 1981. Egg parasitism of *Heliothis armigera* (Hb.) (Lepidoptera : Noctuidae) in Gujarat. —*Gujarat agric. Univ. Res. J.*, **7** (1) : 19-22.

(xvi) Hymenoptera

970a. **Agrawal, B. D.** and **Jain, M. K.** 1981. Studies on the leaf and shoot galls of *Emblica officinalis* Gaertu formed by Chalcidoidea (Hymenoptera). —*Cecidologia ind.*, **15** (1) (1980) : 39-43.

971. **Attri, B. S.** 1981. Pesticides and apiculture. —*Indian Bee J.*, **42** (3) (1980) : 69-71.

972. **Bhagat, R.** 1981. *Areopraon lepelleyi* (Hymenoptera : Aphidiidae) —a new record for India. —*Geobios*, **8** (4) : 177-178.

973. **Bhat, B. P. J.** 1981. Cross breeding of bees. —*Indian Bee J.*, **43** (1) : 15.

974. **Bhat, B. P. J.** 1981. Rearing queens and breeding bees. —*Indian Bee J.*, **43** (1) : 16.

975. **Chahal, B. S., Goyal, N. P.** and **Singh, H.** 1981. Establishment of exotic honey bee (*Apis mellifera*) in Punjab. —*Indian Bee J.*, **43** (2) : 40-43.

976. **Chaturvedi, H.K.** 1981. Larval alimentary canal of *Ropalidia marginata* L. (Hymenoptera—Verspidae) having discontinuous midgut.—*Bioresearch*, **5** (1) : 63-65.

977. **Chaubal, P.D.** and **Kotmire, S.Y.** 1981. Floral calender of bee forage plants at Sagarmal (India). —*Indian Bee J.*, **42** (3) (1980) : 65-68.

978. **Dan, D. K.** 1981. State level conference on beekeeping. —*Indian Bee J.*, **42** (3) (1980) : 85.

979. **Dandekar, G. S.** 1981. Beekeeping in the integrated rural development programme.—*Indian Bee J.*, **43** (3) : 73-74.

980. **Diwan, V. V.** 1981. Honey bee behaviour during total solar eclipse. —*Indian Bee J.*, **42** (4) (1980) : 97-99.

981. **Hayat, M.** 1981. Taxonomic notes on some Oriental Aphelinidae with some new records (Hym. : Chalcidoidea).—*Oriental Ins.*, **14** (4) (1980) : 461-472.

Encarsia inaron (Walker), *E. lutea* (Masi) and *Marietta picta* (Andre) are recorded for the first time from India. Several new synonyms and a new combination are proposed. Types of six spp. and determined material of three spp. were examined. The earlier records of *Eretmocerus corni* (Haldeman) and *E. haldemani* Howard are considered as based upon misidentifications.

982. **Jadhav, L. D.** 1981. Role of insects in the pollination of Onion (*Allium cepa* L.) in the Maharashtra State, India.—*Indian Bee J.*, **43** (3) : 61-63.

983. **Jain, K. L.** and **Kapil, R. P.** 1981. Foraging rhythm of Megachilid bees in relation to the flowering of *Medicago sativa* L. and *Parkinsonia aculeata* L. —*Indian Bee J.*, **42** (2) (1980) : 35-38.

Foraging rhythm of *Megachile nana* Biugh., *M. flavipes*, Spinola, *M. femorata* Smith, *M. cephalotes* Smith and *M. lamata* Lepel as also of *Apis florea* F. was studied in relation to the blooming pattern of *Medicago sativa* L. and *Parkinsonia aculeata* L., during March-June and October-November.

934. **Jonathan, J. K.** 1981. A new Mesostenine genus *Anupama* (Hymenoptera : Ichneumonidae) from India. —*Oriental* Ins., **15** (3) : 281-285.

985. **Joshi, P. V.** 1981. Some aspects of nest building, its repair and post embryonic stages of a red potter wasp *Eumenes conica* Fabr. —*Biovigyanam*, **7** (2) : 149-153.

986. **Kapil, R. P.** and **Sihag, R. C.** 1981. Environmental interaction with endocrine functions in relation to the social activities of bees. —*Indian Bee J.*, **43** (3) : 64-66.

987. **Khandage, V. S., Pokharkar, K. M.** and **Naik, L. M.** 1981. Studies on the efficacy of *Trichogramma braciliensis* A. egg parasite and *Apanteles angaleti* M. larval parasite in controlling cotton bollworms. —*Andhra agric. J.*, **27** (1-2) (1980) : 41-42.

988. **Krishnaswamy, S. V.** 1981. Introduction and propagation of bee plants in Chikmagalur district (Karnataka). — *Indian Bee J.*, **42** (3) (1980) : 72-73.

989. **Kshirsagar, K. K.** 1981. Introduction of exotic bees into India. —*Indian Bee J.*, **42** (4) (1980) : 108-109.

990. **Kshirsagar, K. K.** 1981. Morphometric studies on *Apis cerana indica* F. worker. III. Effect of geographical position on morphometric characters. —*Indian Bee J.*, **43** (1) : 1-5.

991. **Kshirsagar, K. K., Diwan, V. V.** and **Chauhan, R. M.** 1981. Occurrence of 'Sac Brood' disease in *Apis cerana indica* Fab. —*Indian Bee J.*, **43** (2) : 44.

992. **Kshirsagar, K. K., Suryanarayana, M. C.** and **Thakur, C. V.** 1981. Import of exotic bees and quarantine facilities. —*Indian Bee J.*, **43** (2) : 31-36.

993. **Mani, M. S.** and **Sharma, S. K.** 1981. On a new species of *Sparasion* Latreilla (Hymenoptera : Proctotrupoidea : Scelionidae). —*Oriental Ins.*, **14** (4) (1980) : 443-445.

The genus is recorded, with a new species *S. travancoricus* (from Kerala), from India for the first time.

994. **Mathew, R.** 1981. Description of new species of ant (Hymenoptera : Formicidae) from the Khasi Hills, Meghalaya. —*Oriental Ins.*, **14** (4) (1980) : 425-427.

995. **Mukherjee, M. K.** 1981. On a collection of Eurytomidae (Chalcidoidea : Hymenoptera) from India. —*Rec. zool. Surv. India, Occ. Pap.*, No. **25** : 1-87.

The paper contains description of 31 new spp., in nine genera, of which three, *Bephrata*, *Eurytomocharis* and *Phylloxeroxenus* are being recorded from India for the first time and one genus as new to science.

996. **Mukherjee, M. K.** 1981. On a collection of Scelionidae and Platygastridae (Hymenoptera : Proctotrupoidea) from India. —*Rec. zool. Surv. India, Occ. Pap.* No. **27** : 1-78.

997. **Muthappa, B. M.** and **Ramaiah, B. S.** 1981. Apiculture (Bee keeping) in evergreen forests. —*Myforest*, **17** (1) : 57-59.

998. **Nagpal, N.** and **Kanwar, U.** 1981. The poison gland of *Polistes hebraeus* (Polistinae : Vespidae) : Morphology and cytochemistry. —*Entomon*, **6** (1) : 27-32.

999. **Nair, K. S.** 1981. Beekeepers of Muzaffarpur (Bihar). —*Indian Bee J.*, **43** (2) : 47-49.

1000. **Nessa, Z., Muttalib, M.A.** and **Begum, R.** 1981. Management of queenless hives-egg laying of worker honey bee. —*Proc. zool. Soc. Bangladesh*, : 102-105 (Third National Zool. Conference).

1001. **Nikam, P.K.** and **Bararkar, C.D.** 1981. Influence of host density on the reproductive potential of *Campoletis chlorideae* (Hymenoptera : Ichneumonidae), an internal parasite of *Heliothis armigera* (Hubn.). —*Bioresearch*, **5** (1) : 101-104.

1002. **Pajni, H. R.** and **Suri, R. K.** 1981. First report on the formicid fauna (Hymenoptera) of Chandigarh. —*Res. Bull. Panjab Univ.* (Sci.), **29** (1-4) (1978) : 5-12.

The present report deals with 63 species of ants collected from Chandigarh and adjoining hilly areas. Eight species reported as new species are being described in detail separately.

1003. **Patel, B. K.** and **Patel, R. C.** 1981. Biology of *Rogas aligarhensis* Quadri (Hym. Braconidae). A larval parasite of *Earias* spp. —*Gujarat agric. Univ. Res. J.*, **6** (2) : 80-86.

1004. **Ramesh, B.** 1981. Beekeeping activities at Mahabaleshwar, Maharashtra. —*Indian Bee J.*, **42** (4) (1980) ; 110-112.

1005. **Saini, M. S., Kaur, S.** and **Dhillon, S. S.** 1981. On the histology of the poison apparatus of certain apocritan hymenoptera. —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 77-81.

Four families of Hymenoptera : Apocrita are comparative in nature and try to highlight the variations which could provide information on their taxonomic importance.

1006. **Shah, F. A.** and **Shah, T. A.** 1981. Flight range of *Apis cerana* from Kashmir. —*Indian Bee J.*, **42** (2) (1980) : 48.

1007. **Sharma, S. K.** 1981. First record of *Tritebia* Kieffer (Hymenoptera : Proctotrupoidea : Scelionidae) from India with descriptions of two new species. —*Oriental Ins.*, **14** (4) (1980) : 447-451.

1008. **Siddiqui, J. I.** 1981. Record of *Apanteles obliquae* Wlk. and *Meteorus* sp. (Hymenoptera : Braconidae) as parasites of the hairy caterpillar *Amsacta moorei* Butl. (Lepidoptera : Arctiidae). —*J. Bombay nat. Hist. Soc.*, **78** (1) : 181-182.

1009. **Singh, O. P.** and **Rawat, R. R.** 1981. Note on the safety of some insecticides for *Diaeretus rapae* M'Intosh, a parasite of the mustard aphid. —*Indian J. agric. Sci.*, **51** (3) : 204-205.

1010. **Singh, Y.** and **Verma, S. K.** 1981. Occurrence of acarine disease in *Apis cerana indica* in Uttar Pradesh (India). —*Indian Bee J.*, **43** (2) : 37-39.

1011. **Subba Rao, A.** 1981. Physical factors affecting the fecundity of *Bracon hebetor* Say ; a larval parasite of the coconut leaf caterpillar *Nephantis serinopa* Meyrick. —*Andhra agric. J.*, **26** (5 & 6) (197?) : 241-242.

1012. **Swaminathan, S.** and **Ananthakrishnan, T. N.** 1981. Oviposition behaviour in two species of dryinid parasites (Dryinidae, Hymenoptera). —*Proc. Indian Acad. Sci.* (*Anim. Sci.*), **90** (1) : 113-116.

The ovipositional behaviour of two species of *Dryinus* spp. parasitic on the nymphs of the planthoppers, *Dichoptera hyalinata* (Dictyopharidae) and *Eurybrachys tomentosa* (Eurybrachidae), influenced by such factors as host specificity, mobility, and size of the host is discussed with the aid of a flow chart indicating the behavioural sequences involved in oviposi tion.

1013. **Tewari, R. N.** 1981. Bharatiya madhuuddyog aom madhumakkhian. (In Hindi). —*Prani Jagat, zool. Surv. India*, (1) (1980) : 63-67.

1014. **Tonapi, G. T.** 1981. Poona University encourages bee keeping study.— *Indian Bee J.*, **43** (2) : 55.

1015. **Wakhle, D. M., Nair, K. S.** and **Ramesh, B.** 1981. Sugar composition in nectars of certain plants. —*Indian Bee J.*, **43** (1) : 6-7.

1016. **Yadav, S. S.** and **Ajri, D. S.** 1981. A new record of *Scutellista motschulsky* (Pteromalidae : Hymenoptera) as an external egg parasite of *Parasaissetia nigra* (Nietner) on pomegranate in Maharashtra State. —*Indian J. Ent.*, **43** (1) : 112.

12. BRYOZOA (ECTOPROCTA)

1017. **Agrawal, V.** and **Rao, K. S.** 1981. Studies on the body wall of some phylactolaematous Ectoprocta. 1. *Plumatella casmiana* Oka. —*Bioresearch*, **5** (1) : 41-46.

1018. **Shrivastava, P.** 1981. *Swarupella* Gen. novo. (Ectoprocta : Phylactolaemata) from India.—*Bioresearch*, **5** (1) : 53-55.

13. BRACHIOPODA

1019. **Suneja, I. J.** 1981. Ordovician brachiopods from Baramula District, Kashmir, India. —*Res. Bull. Panjab Univ.*, **30** (1-4) (1979) : 37-43.

Six articulate brachiopods from Lower to Middle Ordovician strata of parts of north western Kashmir are described.

1020. **Suneja, I. J.** 1981. Middle Cambrian brachiopods from Baramula District, Kashmir, India. —*Res. Bull. Panjab Univ.*, **30** (1-4) (1979) : 49-56.

The paper places on record the occurrence of 9 inarticulate brachiopods recovered from the Middle Cambrian horizons of Baramula Dist.

14. ECHINODERMATA

1021. **Sastry, D. R. K.** 1981. On the occurrence of the brittlestar *Ophiophrixus confinis* Koehler (Echinodermta : Ophiuroidea) in the Indian Ocean. —*Curr. Sci.*, **50** (12) : 554-555.

1022. **Sastry, D. R. K.** 1981. Emendation of the name *Peronella ruliandi* (Koehler) (Echinodermata : Echinoidea). —*Bull. zool. Surv. India*, **4** (2) : 239.

1023. **Singh, S. N.** *et. al.* 1981. Preliminary note on the presence of Jurassic holothuroids from Jaisalmer, Rajasthan.— *Curr. Sci.*, **50** (13) : 589-591.

The present note records for the first time the occurrence of well preserved sclerite assemblages from the Jurassic rocks exposed in the Jaisalmer area, Rajasthan.

15. CHAETOGNATHA

1024. **Nair, V.R., Achuthankutty, C.T., Nair, S. R. S.** and **Madhupratap, M.** 1981. Chaetognatha of the Andaman Sea.—*Indian J. mar. Sci.*, **10** (3) : 270-273.

16. CHORDATA

(a) Pisces

1025. **Afser, M. R.** and **Ali, F.** 1981. Comparative study of body composition and caloric value of some air-breathing fishes. —*Indian J. Zootomy*, **22** (2) : 81-85.

1026. **Agarwal, H. P., Mathur, D. S.** and **Kankane, P. L.** 1981. Pollution and its bearing on wild life. —*Proc. Wildl. Ecol., zool. Surv. India*, (1978) : 21-26.

1027. **Agrawal, M.C., Shah, H.L.** and **Joshi, S. C.** 1981. Fish as potential agent for biological control of schistosomiasis. —*J.N.K.V.V. Res. J.*, **15** (3) : 131-132.

1028. **Ahmad, I.** 1981. Concentrations of glycogen and lactic acid in the muscle of *Clarias batrachus* (Linn.) during storage at—4°C.—*J. scient. Res.*, **3** (1) : 37-39.

1029. **Ahmad, I.** 1981. Postmortem biochemical changes in muscle of *Channa punctatus* Bloch. stored at—4°C.—*Bioresearch*, **5** (1) : 19-23.

The work is based on the changes in glycogen and lactic acid and in the rate of protein denaturation in *C. punctatus* Bloch., during storage at—4°C for 16 days.

1030. **Ahmad, N.** 1981. Progress in fishery development and research in Pakistan. —*Pakist. J. Sci.*, **33** (1-4) : 1-9.

1031. **Ahmed, A. T. A.** *et. al.* 1981. Investigations on solar tent drying of Rupchanda (Pomfret) *Stromateus sinensis* (Bloch.) and shrimp *Macrobrachium dayanus* (Henderson). —*Proc. zool. Soc. Bangladesh*, : 136-144 (Third National Zool. Conference).

1032. **Ahmed, A. T. A., Mustafa, G., Rahman, M., Rubbi, S. F.** and **Muslemuddin, M.** 1981. Studies on handling and preservation of *Cyprinus carpio* (L.) : The effect of storage temperature and quality changes during storage. —*Proc. zool. Soc. Bangladesh*, : 126-135 (Third National Zool. Conference.

1033. **Ahmed, I.** 1981. Qualitative changes in the free amino acid pool of the muscle of *Ophiocephalus punctatus* Bloch. during storage at different temperature. —*Proc. zool. Soc. Calcutta*, **32** (1-2) (1979) : 23-27.

1034. **Akolkar, A. B.** and **Belsara, D. K.** 1981. Field and laboratory investigations on fingerlings of *Labeo rohita* cultured in sewage effluent. —*J. envir. Biol.*, **2** (4) : 41-44.

1035. **Ali, Md. M.** and **Islam, A.** 1981. Studies on the food of *Labeo rohita* (Ham.), *Catla catla* (Ham.) and *Cirrhina mrigala* (Ham.) in a pond of Bangladesh Agricultural University Fish Farm. —*Proc. zool. Soc. Bangladesh*, : 152-158 (Third National Zool. Conference).

1036. **Anand, C. P.** and **Setty, T. M. R.** 1981. Studies on the chemical control of psychrophilic bacterial spoilage of fish. II—The effect of antibiotics on the growth of psychrophilic bacteria isolated from marine fish. —*Fishery Technol.*, **18** (1) : 41-45.

1037. **Anand, C. P.** and **Setty, T.M.R.** 1981. Studies on the chemical control of psychrophilic bacterial spoilage of fish. III. The effect of chemical preservatives on the growth of psychrophilic bacteria isolated from marine fish.—*Fishery Technol.*, **18** (1) : 47-53.

1038. **Anand, C. P.** and **Setty, T.M.R.** 1981. Studies on the chemical control of psychrophilic bacterial spoilage of fish. IV. The effect of chemical preservatives on the growth of psychrophilic bacteria isolated from marine fish. —*Fishery Technol.*, **18** (1) : 55-57.

1039. **Annigeri, G. G.** 1981. Studies on variations in the vertebral counts of oil-sardine along the north Kanara coast. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 14-22.

1040. **Appa Rao, T.** 1981. Sodium and potassium content of some clupeoids of Waltair coast. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 262-265.

1041. **Appukuttan, K. K.** 1981. Studies on the developmental stages of hammerhead shark *Sphyrna* (*Eusphyrna*) *blochii* from the Gulf of Mannar. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 41-51.

1042. **Appukuttan, K.K., Radhakrishnan Nair, P. N.** and **Kunhikoya, K. K.** 1980. Studies on the fishery and growth rate of oceanic skipjack *Katsuwonus pelamis* (Linnaeus) at Minicoy Island from 1966-1969. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 33-47.

Although the skipjack fishery at Minicoy extends all through the year the peak fishery is during November to April. The size in the commercial catches ranges between 350 and 695 mm. The catch composition and the catch rate in different months are presented.

1043. **Arora, B. K.** 1981. Fish farming : the challenge ahead. —*Fmr's J.*, **1** (4) : 39-41.

1044. **Arora, B.K.** 1981. Methods of inland fishing. —*Fmrs' J.*, **1** (8) : 32-34.

1045. **Babbar, K. K.** and **Sareen, M. L.** 1981. Size relationship of oocytes, their nuclei and nucleolus in *Labeo pangusia* (Hamilton). —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 125-127.

1046. **Bachhil, V. N.** 1981. Microbiological evaluation and keeping quality of fishes reared in livestock sewage fed ponds without artificial feed.—*Fishery Technol.*, **18** (2) : 105-108.

1047. **Balan, V.** 1981. The sailfish fishery off Calicut during 1974-75 and 1975-76. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 67-76.

1048. **Banerjee, S.** and **Joshi, S. C.** 1981. Effect of adrenaline on standard oxygen consumption of the fish *Tilapia mossambica* (Peters). —*Indian J. exp. Biol.*, **19** (10) : 982-983.

1049. **Banerjee, V.** 1981. Variations in blood parameters in a common Indian carp *Labeo rohita* during different reproductive periods. —*Indian J. Zootomy*, **22** (2) : 87-90.

1050. **Banerjee, V.** and **Prasad, R.** 1981. Haematological studies in three major carps of India : Erythrocytes. —*Indian J. Zootomy*, **22** (3) : 139-146.

1051. **Banerji, S. R.** and **Thakur, N. K.** 1981. Observations on the spawning behaviour of *Anabas testudineus* (Bloch.)—*—Indian J. Anim. Sci.*, **51** (6) : 651-654.

The spawning behaviour of *A. testudineus* observed while breeding fish through hypophysation is described.

1052. **Bano, Y., Ali, S. A.** and **Hameed, T.** 1981. Effects of sublethal concentrations of DDT on muscle constituents of an air breathing catfish, *Clarias batrachus* L. —*Proc. Indian Acad. Sci. (Anim. Sci.)*, **90** (1) : 33-37.

A single oral dose of DDT to *Clarias batrachus* L. was administered and the effect on various chemical constituents of muscle was examined.

1053. **Basak, P. K.** and **Konar, S. K.** 1981. A simple bioassay method for estimation of safe disposal rates of insecticides to protect fish : Dimethoate.— *Indian J. Fish.*, **25** (1 & 2) (1978) : 141-155.

1054. **Bhangrot, B. S.** 1981. Effect of zinc on Adenosine Triphosphatase activity in the gills of *Channa punctatus* (Bloch.). —*Curr. Sci.*, **50** (2) : 151-152.

1055. **Bhowmick, R. M.** 1981. Glassjar hatchery for Indian major carps and chinese carps. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 171-179.

1056. **Biswas, N., Ojha, J.** and **Datta Munshi, J. S.** 1981. Morphometrics of the respiratory organs of an estuarine goby, *Boleophthalmus boddaerti*. —*Jap. J. Ichthyol.*, **27** (4) : 316-326.

The functional relationships between the body weight and various dimensions of the gills and accessory respiratory organs of *Boleophthalmus boddaerti* were investigated.

1057. **Chatterjee, T. K.** 1981. On a record of the rare fish *Oxudercus dentatus* (Pisces ; Gobiidae) from Jambu Island, West Bengal. —*Bull. zool. Surv. India*, **3** (3) : 275-276.

1058. **Chaturvedi, L. D.** and **Sharma, B. B.** 1981. On diencephalic commissures of three freshwater teleosts. —*Proc. Indian Acad. Sci. (Anim. Sci.)*, **90** (1) : 11-15.

Detailed account of the diencephalic commissures in the brain of three freshwater teleosts of different feeding habits (*Heteropneustes fossilis* Bloch., *Channa punctatus* Bloch. and *Labeo rohita* Hamilton) is presented here.

1059. **Choudhary, B. P., Pandey, P. K.** and **Dubey, N. K.** 1981. Effect of malathion on the behaviour and body composition of *Heteropneustes fossilis*. —*J. envir. Biol.*, **2** (1) : 21-36.

The effect of malathion, an organophosphorus insecticide, on behaviour, growth and body composition of an air-breathing fish *H. fossilis* is determined and evaluated here.

1060. **Dan, S. S.** and **Mojumder, P.** 1981. Length-weight relationship in catfish *Tachysurus tenuispinis* (Day). —*Indian J. Fish.*, **25** (1 & 2) (1978) : 23-28.

1061. **Das, M. K.** and **Jairam, K. C.** 1981. A comparative analysis of the western and eastern Himalayan populations of *Labeo dyocheilus* (Mcclelland) (Pisces : Cypriniformes) with discussion on its specific composition. — *Bull. zool. Surv. India*, **4** (1) : 85-93.

1062. **Dasgupta, A. K., Dey, C. D., Ray, A. K.** and **Medda, A. K.** 1981. Effects of thyroxine and thiourea on the electrical activity of heart of Magur

fish (*Clarias batrachus*). —*Indian J. Physiol. all. Sci.*, **35** (1) : 6-16.

1063. **Dass, S. S.** 1980. Intraovarian studies and fecundity in *Nemipterus japonicus* (Bloch.). —*Indian J. Fish.*, **24** (1 & 2) (1977) : 48-55.

Fecundity in *Nemipterus japonicus* (Bloch.) varied from 10.5 to 80.8 thou size. Among the four equations tested, the linear relationship between length and sands in fish ranging in size from 13.0 to 20.9 cm. and increasing with increasing fecundity was closer than the rest. It was also found that the fish bred twice a year. The spawning was short and sharp.

1064. **Dass, S. S.** 1980. Maturity, spawning and fecundity of catfish *Tachysurus tenuispinis* (Day). —*Indian J. Fish.*, **24** (1 & 2) (1977) : 96-106.

Fecundity in *Tachysurus tenuispinis* of size range 28.5—42.4 cm varied from 29 to 82. It increased with increasing size. The linear relationship between weight and fecundity was more valid than that of length fecundity. The fish bred once a year during May—Sept. The maximum size at 1st maturitity was 27.5 cm in length. The females dominated the commercial catch and the male : female ratio was 1 : 79. Parental care noticed in males is described.

1065. **Datta, A.K.** and **Karmakar, A.K.** 1981. On a new species of *Puntius* (Family : Cyprinidae) from Bastar district, Madhya Pradesh. —*Bull. zool. Surv. India*, 3 (3) : 179-183.

1066. **Dawson, P., Rao, J.S.** and **Sreekrishna, Y.** 1981. On the vertical distribution of seers and other commercially important fishes in the surface drift nets. —*Fishery Technol.*, **18** (2) : 143-144.

1067. **Devadasan, K.** 1981. Oxidation of residual lipids in fish protein concentrates and its effect on the nutritional quality of protein. —*Fishery Technol.*, **18** (2) : 71-77.

1068. **Devadoss, P.** 1981. On the food of rays, *Dasyatis warnak* (Forskal), *D. alcockii* (Annandale) and *D. sephen* (Forskal).—*Indian J. Fish.*, **25** (1 & 2) (1978) : 9-13.

1069. **Devadoss, P.** 1981. Maturation and breeding habit of *Dasyatis* (*Amphotistius*) *imbricatus* (Schneider) at Porto Novo. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 29-34.

1070. **Devadoss, P.** 1981. A preliminary study on the batoid fishery of Cuddalore with a note on the biology.—*Indian J. Fish.*, **25** (1 & 2) (1978) : 180-181.

1071. **Devadoss, P., Pillai, P. K. M., Natarajan, P.** and **Muniyandi, K.** 1980. Observations on some aspects of the biology and fishery of *Psettodes erumei* (Bloch.) at Porto Novo. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 62-68.

Psettodes erumei is a carnivorous fish subsisting mainly on fishes (81.73%). Crustaceans (11.93%) and molluscs (6.34%) are also found in the stomach. The spawning season is observed to be prolonged one extending over a period of 7 months from Nov. to May against the short and restricted spawning of this species in West coast of India.

1072. **Devaraj, K. V., Manissery, J. K.** and **Venugopal** 1981. Role of extension in the development of inland fisheries with special reference to a few tanks surveyed in Bangalore district. —*Curr. Res. mon. Newsl.*, **10** (3) : 37-39.

1073. **Dhage, K.P.** and **Mohamed, O.M.M.J.** 1980. Study of amylase activity in Mudskipper *Periopthalmus koelreuteri* (Pallas). —*Indian J. Fish.*, **24** (1 & 2) (1977) : 129-134.

Morphology of alimentary canal and amylase activity of the different parts of the alimentary canal of *Periopthalmus koelreuteri* are discussed. The amylase activity was studied with reference to pH, temperature and substrate concentration. The study reveals that the fish has no stomach and organised pancreas.

1074. **Dhulkhed, M. M.** and **Ramamurthy, S.** 1980. A note on a preliminary experiment on the culture of *Sillago sihama* (Forskal) at Mangalore. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 229-231.

1075. **Dixit, R. S., Sachdeva, N. L.** and **Varma, B. D.** 1981. Larvivorous efficiency of *Gambusia affinis* Baird and Girard. —*Indian J. med. Res.*, **73** (1) (Suppl.) : 155-159.

1076. **Dobriyal, A. K.** and **Singh, H. R.** 1981. Diurnal variation in some aspects of limnology of the river Mandakini from the Garhwal Himalaya. —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 16-18.

The diurnal variation of some physico-chemical parameters of the Mandakini, a snow-fed river that originates from the South-eastern glacial peaks of the Kedarnath at an elevation of 4000 m, has been studied.

1077. **George, M. K.** 1981. Regeneration of tail in the eel *Muraenesox talabonoides* (Bleeker). —*Indian J. Fish.*, **25** (1 & 2) (1978) : 273-276.

1078. **Gill, T. S.** and **Pant, J. C.** 1981. Effects of sublethal concentrations of mercury in a teleost *Puntius conchonius* : Biochemical and haematological responses. —*Indian J. exp. Biol.*, **19** (6) : 571-575.

1079. **Goel, H. R., Saxena, O. P.** and **Tandon, K. K.** 1981. Occurrence of eurydendroid cells in the corpus and valvula cerebelli of *Notopterus notopterus* (Ham.). —*Curr. Sci.*, **50** (12) : 556-557.

1080. **Goswami, A. K.** 1980. Amino acid composition of eye lens of the fish *Labeo rohita* at different stages of growth. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 227-229.

1081. **Goswami, U. C.** and **Barua, A. B.** 1981. Origin of retinal in freshwater fish. —*Curr. Sci.*, **50** (2) : 150-151.

1082. **Guha, S. Khanna, A.** and **Arora, S.** 1981. LDH activity in the serum of a siluroid fish, *Clarias magur* and the effect of storage at freezing temperature. —*Bioresearch*, **5** (1) : 37-39.

1083. **Gupta, V. J.** and **Kachroo, R. K.** 1981. Triassic conodonts from the Kumaun Himalayas. —*Res. Bull. Panjab Univ.*, **29** (1-4) (1978) : 71-78.

The occurrence of conodonts from the Kalapai Limestone of the type area is described here.

1084. **Haq, S., Abbas, M.** and **Siddiqui, M. S.** 1981. On the population density and food of *Esomus danricus* Ham. (Pisces : Cyprinidae) of a derelict water ecosystem in North India. —*Indian J. Ecol.*, **8** (1) 96-101.

1085. **Hasnain, A., Amjed Ali, S.** and **Khan, I. A.** 1981. Transferrin polymorphism in *Channa punctatus*. —*Curr. Sci.*, **50** (20) : 511-512.

Using transferrins as the marker, population studies have been made on several fish species, including cod, eel and tunas. Transferrin polymorphism have also been reported to occur in sera of several freshwater fishes.

1086. **Ilango, K.** 1981. On a collection of fishes from Nasik district, Maharashtra, India. —*Indian J. Zootomy*, **22** (1) : 53-57.

1087. **Indra, T. J.** and **Remadevi, K.** 1981. A new species of the genus *Homaloptera* from Silent Valley, Kerala, S. India. —*Bull. zool. Surv. India*, **4** (1) : 67-70.

1088. **Islam, M. S.** and **Yusuf, H. K. M.** 1981. Cellular growth and development of the brain of the catfish *Heteropneustes fossilis*. —*Proc. zool. Soc. Bangladesh* : 244-250 (Third National Zool. Conference).

1089. **Iyer, H. K.** *et. al.* 1981. Survey of the idle capacity of fish processing (freezing) plants in India. —*Fishery Teehnol.*, **18** (2) ; 109-115.

1090. **Jacob, S. S.** and **Nair, N. B.** 1981. Satiation time and maximum food intake of the larvicidal fishes *Aplocheilus lineatus* (Cuv. & Val.) and *Macropodus cupanus* (Cuv. & Val.). —*Proc. Indian Acad. Sci.* (*Anim. Sci.*), **90** (1) : 53-60.

In the larvicidal fishes *A. lineatus* and *Macropodus cupanus* investigations on satiation time and maximum food intake indicate that the time taken to achieve satiation, although differing markedly according to the species studied, is directly related to size ; smaller fishes achieve satiation in fewer feeding periods than layer fishes.

1091. **Jain, V. K.** and **Sahai, S.** 1981. Involvement of pheromones in the parental behavlour of *Puntius ticto* (Ham.). —*J. scient. Res.*, **3** (3) : 199-200.

1092. **Jayaram, K. C.** 1981. *The freshwater fishes of India, Pakistan, Bangladesh, Burma and Sri Lanka*, (A handbook). —Zoological Survey of India, Calcutta : i-xxii, : 1-475, pls. 1-13.

This handbook deals with 233 genera with 742 species falling under 64 families and 16 orders. It deals only with the bony fishes or teleostomi of the Indian subcontinent including Nepal and Bhutan also.

1093. **Jayaram, K.C,** and **Dhanze, J.R.** 1981. Siluroid fishes of India, Burma and Ceylon. 23. The specific status of *Tachysurus malabaricus* (Day) (Ariidae ; Siluriformes). —*Bull. zool. Surv. India*, **4** (1) : 121-123.

1094. **Jayaram, K. C.** and **Das, M. K,** 1981. A comparative analysis of the Western and Eastern Himalayan population of *Labeo dyocheilus* (McClelland) (Pisces ;

Cypriniformes) with a discussion of its specific composition. —*Bull. zool. Surv. India*, **4** (1) : 85-93.

1095. **Jayaram, K. C.** and **Singh, R.** 1981. Utility of caudal fin ray counts in classification of suprageneric categories of Indian siluroid fishes. —*Bull. zool. Surv. India*, **4** (2) : 221-230.

1096. **Jonklass, R.** 1981. A probable new species of goby (*Sicyopterus*) from Sri Lanka. —*Loris*, **15** (6) : 333.

The author has observed the specimen in various places of Sri Lanka. Those fishes (10 nos) were also collected by another scientist but unfortunately due to accident they were lost so it was not possible to identify the species finally.

1097. **Joshi, A. G., Amminikutty, J.** and **Rege, M. S.** 1981. Chronic toxicity study of some pesticides for estimating MATC for two fresh water fishes. —*J. envir. Biol.*, **2** (1) : 43-57.

The longterm toxicity of three most widely used pesticides in India has been determined on mosquito fish (*Gambusia affinis*) and widow tetra (*Gymnocormbus ternetzi*), with a view to establish their MATC based on their effects on survival, feeding, growth, oxygen consumption and swimming performance. Observations on breeding have also been considered in mosquito fish.

1098. **Joshi, B. D.** 1981. On some haematologic changes in *Heteropneustes fossilis*, following its sudden transfer to different temperatures. —*Indian J. Zootomy*, **22** (2) : 117-122.

1099. **Joshi, C.B., Sehgal, K. L.** and **Sunder, S.** 1981. Observations on the fishery resources of the hill streams of Jammu province with special reference to mahseer and other commercially important species. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 197-206.

1100. **Joshi, S. N.** 1981. Retardation of gonadal development and ovulation in *Labeo gonius* (Ham.). —*Geobios*, **8** (2) : 89-90.

A detailed investigation was carried out on the maturity and induced breeding of *L. gonius* (Joshi, 1979).

1101. **Joshi, S. N.** 1981. Sexual dimorphism in three species of *Labeo* at Nanaksagar reservoir, India. —*Geobios*, **8** (4) : 174-175.

1102. **Joshi, V. R.** and **Saralaya, K. V.** 1981. Studies on the effect of precooking in fish (*Sardinella longiceps*) canning. II. On major chemical components.— *Mysore J. agric. Sci.*, **15** (1) : 142-150.

1103. **Joy, K.P.** and **Sathyanesan, A.G.** 1981. Histological response of thyroid of the teleost *Clarias batrachus* (L) to radioiodine ^{131}I treatment. —*Indian J. exp. Biol.*, **19** (1) : 29-31.

Histological changes occurring in the thyroid of *C. batrachus* in response to total and subtotal radiothyroidectomy are described here.

1104. **Kaliyamurthy, N., Ramamohana Rao, G.** and **Prabhakara Rao, A. V.** 1980. Ecological considerations concerning the seed of cultivable fishes of the Pulicat Lake. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 223-227.

Ecological plasticity, optimum conditions and tolerance limits of salinity, temperature and dissolved-oxygen content have been statistically computed for some naturally occurring populations of cultivable fish fry viz. *Sillago sihama*, *Chanos chanos*, *Elops saurus*, *Megalops cyprinoides*, *Mugil* sp. and *Gerres* sp. of Pulicat Lake.

1105. **Keshavanath, P.** 1981. Effects of estradiol—17 β and melatonin treatment on the hypophysis, testes and seminal vesicles of the catfish, *Heteropneustes fossilis* (Bloch.) in the prespawning season. —*Mysore J. agric. Sci.*, **15** (1) : 136-141.

1106. **Khangarot, B. S.** 1981. Chelating agent EDTA decreases the toxicity of copper to fish. —*Curr. Sci.*, **50** (5) : 246-248.

1107. **Konar, S. K.** 1980. Toxicity of nicotine to aquatic life. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 124-128.

Bioassays were made on 10 spp. of fish, 8 spp. of aquatic insects and 11 spp. of plankters. The insects were more tolerant than fishes and plankters. Sodium carbonate and lime increased nicotine toxicity. Nicotine detoxified in 8 days in alkaline and in 30 days in neutral waters. Nicotine, at 32 ppm. produced severe histopathological lesions in the livers and kidneys of fish. Mixed with lime, the prospect of nicotine as fish poison greatly increased.

1108. **Krishnamoorthi, B.** 1980. Maximum equilibrium yields of demersal fisheries based on exploratory trawling. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 76-82.

In most of the groups of fishes exploited in the 17° 40′ zone along the Andhra—Orissa coast the maximum equilibrium yields are not far different from the average yields. Hence the stock in this zone can but stand in future only a limited increase in fishing pressure.

1109. **Krishnamoorthi, B.** 1981. A note on the catch trends of catfishes *Tachysurus thalassinus* and *T. tenuispinis* based on exploratory data for the period from 1966 to 1976. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 268-270.

1110. **Krishnamurthy, K. N.** and **Kaliyamurthy, M.** 1981. Studies on the age and growth of sandwhiting *Saliago sihama* (Forskal) from Pulicat Lake with observations on its biology and fishery. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 84-97.

1111. **Kulkarni, G. M.** and **Balasubramanian, T. S.** 1981. On the occurrence of the deepsea snake fish *Acanthocepola limbata* (Cuvier) (Pisces : Cepolidae) in Karwar waters. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 243-246.

1112. **Kumar, S.** and **Pant, S. C.** 1981. Histopathologic effects of acutely toxic levels of copper and zinc on gills, liver and kidney of *Puntius conchonius* (Ham.). —*Indian J. exp. Biol.*, **19** (2) : 191-194.

1113. **Kumari, B. P.** and **Dharmaraja, S. K.** 1981. On the pomfret fishery of India with special reference to the catch statistics of Maharashtra and Gujarat coasts. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 214-221.

1114. **Kunjipalu, K. K.** and **Kuttappan, A. C.** 1981. Note on an abnormal catch of

Devil Rays *Dicerobatis eregoodoo* Day in gill nets off Veraval. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 254-256.

1115. **Kureishy, T. W., Sanzgiry, S.** and **Braganca, A.** 1981. Some heavy metals in fishes from the Andaman Sea.—*Indian J. mar. Sci.*, **10** (3) : 303-307.

1116. **Kurian, A.** 1980. Index of relative importance—a new method for assessing the food habits of fishes. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 217-219.

1117. **Kurian, A.** 1980. Effect of gel concentration on the resolution of the muscle myogens of Bombay duck in polyacrylamide gel electrophoresis. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 248-249.

1118. **Kuthalingam, M.D.K., Livingstone, P.** and **Sharma, P. S. S.** 1981. Observations on the catches of mechanised boats at Neendakara.—*Indian J. Fish.*, **25** (1 & 2) (1978) : 98-108.

1119. **Lazarus, S.** 1980. Observations on the food and feeding habits of *Sardinella gibbosa* from Vizhinjam.—*Indian J. Fish.*, **24** (1 & 2) (1977) : 107-112.

Studies at Vizhinjam show that *Sardinella gibbosa* feed mainly on copepods, Lucifer and diatoms. From a predominantly crustacean diet in the early stages, the fish seems to change to a diet of crustaceans and phytoplankton with the attainment of 80 mm length.

1120. **Lazarus, S.** 1980. A redescription of *Sardinella melanura* (Cuvier) (Clupeidae : Pisces) with remarks on the species *Sardinella nigricaudata* Chan. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 220-222.

1121. **Lazarus, S.** and **Sreenivasan, P. V.** 1980. A large scale washing—ashore of marine fauna at Kovalam, South West Coast of India.—*Indian J. Fish.*, **24** (1 & 2) (1977) : 198-200.

1122. **Lazarus, S.** and **Sreenivasan, P. V.** 1980. On a copepod parasite, *Pennella diodontis* Okon, with epizoic cirrepede *Conchoderma virgatum* Spengler on a new host *Zanclus canascens* (Linnaeus). *Indian J. Fish.*, **24** (1 & 2) (1977) : 204-206.

1123. **Mahajan, C. L., Sharma, S. D.** and **Jain, A.** 1981. Fish population dynamics in two contrasting aquatic ecosystems. —*Proc. Symp. Ecol. Anim. Popul. zool. Surv. India*, (2) (1978) : 141-146.

1124. **Mandloi, A. K.** 1981. An interesting deformed specimen of Indian major carp *Catla catla* (Hamilton and Blochman). —*J. N. K. V. V. Res. J.*, **15** (1-2) : 53.

1125. **Mercy, T.V.A.** 1981. On the unique disposition of the valvula cerebelli in *Horaglanis krishnai* Menon (Teleostei). —*Geobios*, **8** (2) : 95-96.

1126. **Miah, M. I.** *et. al.* 1981. A comparative study on the rate of growth of major carps in relation to physiochemical and biological factors.—*Proc. zool. Soc. Bangladesh* : 215-224 (Third National Zool. Conference).

1127. **Mishra, B. B.** and **Prasad, R. R.** 1981. Development of aquaculture through Fish Farmer's Development Agency. —*Seafd. Export. J.*, **13** (4) : 9, 11, 13 & 14.

1128. **Mishra, M.** and **Lal, M.S.** 1981. Some aspects of host—parasite relationship

in a hill-stream fish *Schizothorax richardsoni*. —*Indian J. Zootomy*, **22** (3) : 191-195.

1129. **Mishra, R. N., Mishra, N. K.** and **Munnel, S. K.** 1981. Deformed tail in *Heteropneustes fossilis* (Bloch.). —*Geobios*, **8** (2) : 64-65.

1130. Deleted.

1131. **Mohamed, M. P.** 1981. Metabolism of *Tilapia mossambica* (Peters) with emphasis on hypoxia. —*Indian J. exp. Biol.*, **19** (11) : 1098-1100.

1132. **Mohan, R. S. L.** 1980. A monograph for the various characters of the Sciaenid fish *Pennahia aneus* (Bloch.). —*Indian J. Fish.*, **24** (1 & 2) (1977) : 214-216.

1133. **Mojumder, P.** 1980. Length-frequency studies on catfish *Tachysurus thalassinus* at Waltair during 1964-1970. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 90-95.

Determination of age and growth of the catfish *Tachysurus thalassinus* (Ruppell) has been attempted employing length-frequency method, during the years 1964-65 to 1969-70. The fish is found to attain an average length of 18 cm. at the end of its 1st year, 35 mm. at the end of 2nd year and 42 mm. at the end of 3rd year.

1134. **Mojumder, P.** 1981. Maturity and spawning of the catfish *Tachysurus thalassinus* (Ruppell) off Waltair Coast. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 109-121.

1135. **Moyle, P. B.** and **Senanayake, F. R.** 1981. Rainforest fishes of Sri Lanka. —*Loris*, **15** (6) : 341-344.

1136. **Moyle, P. B.** and **Senanayake, F. R.** 1981. Conservation of ornamental freshwater fishes in Sri Lanka. —*Tiger Pap.*, **8** (4) : 1-3.

1137. **Mukundan, M. K.** *et. al.* 1981. Comparative study of the nutrient content of fish and shell fish. —*Fishery Technol.*, **18** (2) : 129-132.

1138. **Mukundan, P. S.** 1981. Suspended animation of fish out of water for many hours. —*J. Bombay nat. Hist. Soc.*, **78** (1) : 174.

1139. **Nair, J. R.** and **Nair, N. B.** 1981. Prey-predator relationships and feeding ethology in the glassy perchlet *Chanda* (=*Ambassis*) *commersonii* (Cuv. & Val.) (Pisces : Centropomidae). —*Indian J. mar. Sci.*, **10** (2) : 142-147.

The paper deals with the telestean prey in general in the different size groups and the 2 sexes of the predator, prey-predator length, weight relationship, cannibalism and feeding behaviour of the predator.

1140. **Nair, K. G. R.** and **Gopakumar, K.** 1981. Influence of sex, spawning, starvation and water temperature on fatty acid composition in *Tilapia mossambica*.—*Fishery Technol.*, **18** (2) : 123-127.

1141. **Nammalwar, P.** 1980. A note on parasitised ovaries in the perch *Pomadasys hasta* (Bloch.). —*Indian J. Fish.*, **24** (1 & 2) (1977) : 271-272.

1142. **Natarajan, G. M.** 1981. Changes in the Bimodal gas exchange and some blood parameters in the air-breathing fish, *Channa striatus* (Bleeker) follow-

ing lethal (Le 50/48 hrs.) exposure to Metastystox (Demeton). —*Curr. Sci*,. **50** (1) : 40-41.

1143. **Nath, S.** 1981. On the extension of range of two freshwater Catfishes, *Glyptothorax conirostris* (Steind.) (Sisoridae) and *Clupisoma garua* (Ham.) (Schilbeidae), to Poonch Valley (Jammu and Kashmir), India. —*J. Bombay nat. Hist. Soc.*, **78** (1) : 178-179.

1144. **Ojha, J.** and **Singh, R.** 1981. Oxygen uptake in relation to body weight of the fresh water catfish *Mystus cavasius* (Ham.). —*Indian J. exp. Biol.*, **19** (2) : 126-129.

1145. **Pandey, K. C.** and **Pandey, D. N.** 1981. Experimental identification of gonadotrophs and thyrotrophs in the pituitary glands of *Mystus vittatus* (Bloch.). —*J. zool. Soc. India*, **32** (1-2) (1980) : 19-26.

1146. **Pandian, T. J.** and **Sampath, K.** 1981. Energetics of air-breathing fishes in shallow waters. —*Int. J. Ecol. envir. Sci.*, 7 : 105-108.

The available information on the temporal and energetics costs of surfacing in *Channa striatus* is summarised and the results of our research with that species are presented here.

1147. **Pardhasaradhi, A.** and **Alfred, J. R. B.** 1981. A note on the biogeographical relictness of *Pillaia indica* Yazdani (Pillaidae : Mastacembeloidei). —*J. Bombay nat. Hist. Soc.*, **78** (1) : 175-177.

1148. **Pati, S.** 1981. Fecundity of silver pomfret, *Pampus argenteus* (Euphrasen) from Bay of Bengal. —*Indian J. mar. Sci.*, **10** (1) : 103-104.

1149. **Pati, S.** 1981. Present status of mechanised fishing along the Orissa coast. —*Seafd. Export J.*, **13** (4) : 19, 21, 23, 25, 27, 29 & 31.

The investigation is based on direct observation of fishing craft, gear and catch composition from important marine landing centres of Orissa State.

1150. **Pati, S.** 1981. Cranial osteology of the stromateid fishes of the genus *Pampus* Euphrasen. —*J. zool. Soc. India*, **32** (1-2) (1980) : 95-106.

1151. **Pati, S.** 1981. Observation on the lunar and tidal influence on gill netting in the Bay of Bengal. —*Fishery Technol.*, **18** (1) : 25-27.

1152. **Patnaik, S.** and **Ghosh, S. R.** 1981. Possible use of green coconut waste to clear submerged weed in fish ponds. —*J. inld. Fish. Soc. India*, **13** (1) : 46-50.

1153. **Pillai, P. K. M.** 1981. A preliminary study on the catfish fishery off Blangad on the southwest coast of India. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 240-242.

1154. **Pillai, S. K.** and **Jayaprakash, A. A.** 1981. Occurrence of juveniles of the Indian mackerel *Rastrelliger kanagurta* (Cuvier) in Bombay waters. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 257-259.

1155. **Prabhu, R. M., Saralaya, K. V.** and **Nagaraj, A. S.** 1981. Canning of smoked mackerels : I. Standardisation of canning methods.—*Mysore J. agric. Sci.*, **15** (1) : 113-119.

1156. **Prasad, R.** 1981. Artificial breeding of *Schizothorax richardsonii* (Gray and

Hard) at Kaldayani in Garhwal Himalayas. —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 121-122.

1157. **Prasad, R.** and **Pant, B. C.** 1981. Propagation of Trout in a Garhwal Himalayan District —Uttarkashi.— *Cheetal*, **22** (1-2) (1980) : 33-36.

Propagation of brown trout, an exotic fish species and the renowned game fish of the world has been studied and reported here.

1158. **Qadri, M. Y.** *et al.* 1981. Limnology of two trout streams of Kashmir. —*J. Indian Inst. Sci.*, (*Biol. Sci.*), (C) **63** (8) : 137-141.

The present contribution describes the results of investigations carried out during the year 1980 on the seasonal fluctuations of the physical and chemical characteristics of two streams, the Erin and the Madhumati, which are famous for the trout, particularly the former where a hatchery has also been established.

1159. **Qayyum, M. A., Gayasuddin, M.** and **Fatani, J. A.** 1981. Effect of lead and copper on the serum specific gravity of certain teleosts. —*J. scient. Res.*, **3** (1) : 67-69.

1160. **Radhakrishnan, N. S.** 1981. Hydrological studies in the inshore waters of Mangalore during 1964-1973. — *Indian J. Fish.*, **25** (1 & 2) (1978) : 222-227.

1161. **Rahmani, A. R.** 1981. Development of the secondary lamellae in the olfactory epithelium of *Anabas testudineus*. —*Jap. J. Ichthyol.*, **28** (2) : 177-180.

1162. **Rahmani, A. R.** and **Khan, S. M.** 1981. The olfactory organ in a few Indian teleosts. —*Curr. Sci.*, **50** (7) : 329-331.

The functional morphology and histology of the olfactory organ in some Indian teleosts have been studied here.

1163. **Raina, H. S.** 1980. Observations on the fecundity and spawning of *Schizothorax esocinus* Heckel from Dal lake, Kashmir. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 201-203.

1164. **Raizada, M. N.** and **Singh, C. P.** 1981. Seasonal variations in the differential leucocyte counts (DLC) of *Cirrhinus mrigala* (Ham.). —*Indian J. Zootomy*, **22** (3) : 147-150.

1165. **Ramalingam, R.** and **Reddy, Y. S.** 1981. Acute histopathological effects of Lindane (7-benzene hexachloride) on the liver of *Colisa lalia*. —*Curr. Sci.*, **50** (13) : 578-580.

1166. **Ramanathan, N., Vijaya, P., Ramaiyan, V.** and **Natarajan, R.** 1980. On the biology of the large-scaled tongue sole *Cynoglossus macrolepidotus* (Bleeker). —*Indian J. Fish.*, **24** (1 & 2) (1977) : 83-89.

Biometry, food, feeding and spawning habits of *C. macrolepidotus* are discussed here.

1167. **Rao, C. C. P.** *et. al.* 1981. Comparative study of traditional and improved containers for transportation of fresh fish. —*Fishery Technol.*, **18** (1) : 29-33.

1168. **Reddy, N. A. V. P.** and **Devi, U.** 1981. *Istiblennius cyanostigma* (Bleeker 1849) from Visakhapatnam Coast. —*Geobios*, **8** (2) : 81-82.

1169. **Reddy, N. A. V. P.** and **Devi, U.** 1981. A new distributional record for

Blennius lodosus Smith, 1959 from Indian waters. —*Geobios*, **8** (4) : 186-187.

1170. **Rengaswamy, V. S.** 1980. Studies on length frequency of oilsardine at Calicut during 1970-71 to 1973-74.—*Indian J. Fish.*, **24** (1 & 2) (1977) : 69-75.

Studies at Calicut on age and growth of *Sardinella longiceps* by means of length-frequency method indicated that the oilsardine attains the total length of 125-130 mm. at the end of one year, 165-175 mm. at the end of two years and 180-190 mm. on completion of three years.

1171. **Rishi, K.K., Haobam, M.S.** and **Singh, J.** 1981. A new karyotype in a teleost fish. —*Curr. Sci.*, **50** (5) : 244-245.

The authors have found in the teleost, *Monopterus alba*, a karyotype of 24 chromosomes and made a cytological study for chromosomal analysis.

1172. **Rubbi, S. F.** *et al.* 1981. Some aspects of preservation of *Hilsa ilisha* (H.) by salt curing method. The effect of salting methods and temperature on salt water transformation and quality during curing. —*Proc. zool. Soc. Bangladesh* : 231-237 (Third National Zool. Conference).

1173. **Sahai, S.** and **Sahai, Y. N.** 1981. A statistical assessment of the cells of the nucleus preopticus in *Rohtee cotio* (Sykes). —*J. scient. Res.*, **3** (3) : 221-222.

1174. **Sailatha, D., Sahib, I. K. A.** and **Rao, K. V. R.** 1981. Toxicity of technical and commercial grade malathion to the fish, *Tilapia mossambica* (Peters). —*Proc. Indian Acad. Sci.* (*Anim. Sci.*), **90** (1) : 87-92.

A comparative evaluation of the degree of toxicity of technical malathion and commercial grade malathion on the widely available, edible freshwater teleost, *T. mossambica* is given.

1175. **Sastry, K. V.** and **Malik, P. V.** 1981. Acute and chronic effects of Diazinon on some enzymes in certain tissues of a fresh water teleost fish, *Channa punctatus* (Bloch). —*J. envir. Biol.*, **2** (3) : 19-28.

1176. **Saxena, D. N.** and **Bhatnagar, S.** 1981. Toxicity of some heavy metals to a fresh water teleost, *Puntius ticto* (Ham.). —*Bioresearch*, **5** (1) : 113-116.

1177. **Saxena, M.** and **Kulshrestha, S. K.** 1981. Histochemical localization of carbohydrates in some epidermal cells of the skin of *Mystus* (*Mystus*) *vittatus* Bl. (Pisces—Bagridae). —*Bioresearch*, **5** (1) : 25-29.

1178. **Saxena, O. P.** 1981. Cadmium-induced neoplasia in *Channa punctatus* (Bloch.). —*Curr. Sci.*, **50** : 735-736.

1179. **Saxena, O. P.** and **Yadav, R. S.** 1981. Spontaneous epidermal neoplasm in freshwater aquarium fish *Xephophorus maculatus* (Gunther). —*Curr. Sci.*, **50** (2) : 101-102.

1180. **Seenappa, D.** and **Manohar, L.** 1981. Experimental infection of mrigal, *Cirrhina mrigala* (Hamilton) with the spores of *Myxobolus vanivilasae* (Myxosporida : Protozoa) and contaminated mud. —*Mysore J. agric. Sci.*, **15** (1) : 108-112.

1181. **Sehgal, H. S., Brar, C. S.** and **Sehdev, R. S.** 1981. A note on the large scale mortality of *Cyprinus carpio*-var. *com-*

munis (Linn.) and the related ecological factors. —*Indian J. Ecol.*, **8** (2) : 310-312.

1182. **Sen, N.** 1981. A redescription of *Doryichthys deocata* (Ham. Buch.) (Pisces : Syngnothidae). —*Rec. zool. Surv. India*, **77** : 343-355.

1183. **Sen, S.** and **Bhattacharya, S.** 1981. Role of thyroxine and gonadotropins on the mobilization of ovarian cholesterol in a teleost *Anabas testudineus* (Bloch.). —*Indian J. exp. Biol.*, **19** (5) : 408-412.

1184. **Sen, T. K.** 1981. The Minnows of India. —*Zoologiana*, No. 4 : 95-100.

1185. **Seshappa, G.** 1981. Some observations on the size distribution and the occurrence of growth rings in the scales of three species of *Cynoglossus* at Calicut. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 188-196.

1186. **Shankar, K. M.** and **Varghese, T. J.** 1981. Growth and survival of carps in ponds fertilized with cattle-dung and superphosphate.—*Mysore J. agric. Sci.*, **15** (1) : 91-96.

1187. **Sharma, B.K.** and **Saxena, O.P.** 1980. Effect of hyperacidity on blood pH of a few freshwater teleosts. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 261-263.

1188. **Sharma, C. L.** 1981. Early development of prosencephalon in *Cirrhina mrigala* (Ham.). —*Bioresearch*, **5** (1) : 9-18.

1189. **Shende, D. D., Pandey, O. P.** and **Majumdar, A. C.** 1981. Effect of thyroxine on oxygen uptake and carbon dioxide release in Lata fish (*Ophiocephalus punctatus*).—*Indian J. Physiol. all. Sci.*, **35** (3) : 78-84.

The meagre report on the effect of thyroxine on the O_2 consumption and CO_2 release in *O. punctatus* is presented here.

1190. **Shreni, K. D.** 1981. Seasonal changes in the biochemical composition of ovary in *Heteropneustes fossilis* (Bloch.). —*Fishery Technol.*, **18** (2) : 101-103.

1191. **Shrestha, J. (Mrs.)** 1981. Nomenclatural status of the fish *Diptychus annandalei* Regan. —*J. nat. Hist. Mus.*, **5** (1) : 85-92.

The Nepalese fish *D. annandalei* Regan has been studied thoroughly. Considering all the morphometric as well as other characters, it has been concluded that the fish should come under genus *Schizothoraichthys* Misra which is in between *Diptychus* and *Schizothorax* and species *S. annandalei* (Regan).

1192. **Shrestha, T. K.** 1981. Fishing with open wale catch boat in Narayani River system. —*J. nat. Hist. Mus.*, **5** (1) : 99-104.

1193. **Shrivastava, S.** and **Pandey, A.K.** 1981. Growth rate of different body parameters in *Cirrhina mrigala* (Ham.).—*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 69-73.

1194. **Shrivastava, S.** and **Pandey, A.K.** 1981. Growth rate of different body parametere in *Catla catla*. —*Geobios*, **8** (1) : 39-40.

1195. **Shukla, A.** 1981. Studies on the brain of *Puntius ticto* (Ham.) in relation to its feeding habits. —*J. scient. Res.*, **3** (1) : 33-35.

1196. **Singh, A. K.** 1981. Effect of prolactin on the tissue glycogen and lipid

content in the catfish *Heteropneustes fossilis* (Bloch.). —*Indian J. exp. Biol.*, **19** (5) : 425-427.

1197. **Singh, D.N., Tyagi, R.K.** and **Panwar, R. S.** 1981. Toxicity of some organic biocides to a fresh water fish, *Cyprinus carpio communis* (Linn.). —*J. envir. Biol.*, **2** (3) : 41-46.

1198. **Singh, H. R.** 1981. A study of the cerebellar tracts and their correlation with the habits in *Mastocembellus armatus* Lacepede (Pisces, Mastocembeliformes). —*J. zool. Soc. India*, **32** (1-2) (1980) : 11-17.

1199. **Singh, H. R.** and **Badola, S. P.** 1980. Ecological study on the fish and fisheries of Garhwal waters with a note on some applied problems.—*Proc. Workshop Wildl. Ecol., zool. Surv. India*, (1978) : 173-177.

1200. **Singh, H. R.** and **Singh, W.** 1981. Functional anatomy of the olfactory organs in the Himalayan snow—trout, *Schizothorax richardsonii* (Gray).—*Bioresearch*, **5** (1) : 31-35.

1201. **Singh, R.** and **Jayaram, K. C.** 1981. Utility of caudal fin ray counts in classification of suprageneric categories of Indian Siluroid fishes. —*Bull. zool. Surv. India*, **4** (2) : 221-230.

1202. **Singh, S. P.** 1981. Spawn prospecting in the Brahmputra river. —*J. zool. Soc. India*, **32** (1-2) (1980) : 55-66.

1203. **Sinha, N. D. P.** and **Munshi, J. S. D.** 1981. Intravascular components of an air breathing teleost *Channa punctata* (Bloch.)—their dimensions and responses to osmotic stress. —*Indian J. exp. Biol.*, **19** (8) : 763-765.

1204. **Sivaramakrishnan, A. S.** 1981. Fishmeal and fishoil plants in India.—*Seafd. Export J.*, **13** (4) : 15, 17 & 18.

This article aims at creating interest in fishmeal and fish oil production to high commercial standards acceptable in foreign markets.

1205. **Somasekharan Nair, K.V.** 1980. Maturity and spawning of *Johnius* (*Johnieops*) *sina* (Cuvier) at Calicut during 1969-72.—*Indian J. Fish.*, **24** (1-2) (1977) : 15-24.

The percentage occurrence of mature fish and ova-diameter frequency in *Johnius* (*Johnieops*) *sina* (Cuvier) indicated prolonged spawning of the species. The maximum size at first maturing has been found to be at an average size of 115 mm for females.

1206. **Soni, D. D., Srivastava, B. K.** and **Kathal, M.** 1981. Environmental studies on the Sagar lake—feeding spectrum of carps. —*Indian J. Ecol.*, **8** (1) : 102-107.

1207. **Sreenivasan, P.V.** 1981. Observations on the fishery and biology of *Megalaspis cordyla* (Linnaeus) at Vizhinjam. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 122-140.

1208. **Srinivasan, M.** and **Raghunathan, M.B.** 1981. Observation on the zooplankton and hydrography at Adyar Estuary, Madras, during solar eclipse in 1980. —*Indian J. Zootomy*, **22** (1) : 47-51.

1209. **Sriramachandra Murty, V.** 1981. *Nemipterus mesoprion* (Bleeker 1853) (Nemipteridae : Pisces) a new record from the seas around India. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 207-213.

1210. **Srivastava, D. K.** 1981. Observations on the kidney of certain catfishes.— *Indian J. Zootomy*, **22** (1) : 25-28.

1211. **Srivastava, G. J.** and **Srivastava, O.P.** 1981. Urea toxicity on the freshwater tropical teleost *Channa punctatus* (Bl.). —*Indian J. Phys. nat. Sci.*, (A) **1** (1) : 71-75.

1212. **Srivastava, V.M.S.** and **Venkateswarlu, T.** 1981. Fishes of Uttar Pradesh (India). —*Indian J. Zool.*, **17** (3) (1976) : 179-186.

1213. **Subba Rao, K. V.** 1980. Systematics and comparative osteology of Indian lizard fishes (*Saurida* spp.). —*Indian J. Fish.*, **24** (1 & 2) (1977) : 143-171.

Brief description of the four species of Sauridae viz., *S. tumbil*, *S. undosquamis*, *S. longimanus* and *S. gracilis* are given along with a key for their identification. A comparative study of different morphological and osteological characters of the first three spp. from Waltair coast showed that they exhibit masked similarity in many characters but differ in respect of some characters by which they can be distinguished.

1214. **Sufi, G. B.** and **Nomura, T.** 1981. Histology of the lymphoid organs of Masu Salmon, *Oncorhynchus masou* (Brevoort) during maturation and spawning.—*Proc. zool. Soc. Bangladesh* : 257-261 (Third National Zool. Conference).

1215. **Sultan, S.** and **Khan, S. M.** 1981. Studies on length-weight relationship of *Xenentodon cancila* (Ham.). —*J. scient. Res.*, 3 (1) : 49.

1216. **Sultan, S.** and **Khan, S. M.** 1981. Length-weight relationship of *Barbus stigma* (Cuv. & Val). —*J. scient. Res.*, 3 (2) : 101.

1217. **Sultan, S.** and **Khan, S. M.** 1981. Studies on the fecundity of *Barbus stigma* (Cuv. and Val.). —*Curr. Sci.*, **50** (7) : 335.

This note deals with the fecundity of *B. stigma* as the fecundity of female has a good bearing on reproductive potential of the population.

1218. **Sultan, S.** and **Shamsi, M. J. K.** 1981. Morphometric study of *Puntius sarana* (Ham.) of the river Kali. — *Geobios*, **8** (1) : 17-21.

Different morphometric characters of *P. sarana* have indicated linear relationship. Detailed study of measurements of various body parts shows uniformity in characters.

1219. **Sumitra-Viyayaraghavan, Krishna Kumari, L., Dhawan, R. M.** and **Royan, J. P.** 1981. Caloric densities of ingested food of *Etroplus suratensis* (Bloch.) grown in a culture pond. — *Indian J. mar. Sci.*, **10** (2) : 205-207.

The dietary intake, defined qualitatively and quantitatively by analysing the stomach contents, of *E.suratensis* has been discussed here.

1220. **Sumitra-Vijayaraghavan, Krishna Kumari, L., Gopinathan, V. G.** and **Dhawan, R. M.** 1981. Aquaculture of pearl spot (*Etroplus suratensis*) in an estuarine pond : environmental characteristics, primary production, growth and cost-benefit ratio. — *Indian J. mar. Sci.*, **10** (1) : 82-89.

1221. **Sumitra-Vijayaraghavan, Krishna Kumari, L.** and **Royan, J. P.** 1981. Aquaculture of pearl spot (*Etroplus*

suratensis) in an estuarine pond : some aspects of energetics. —*Indian J. mar. Sci.*, **10** (4) : 363-365.

1222. **Sunder, S.** and **Joshi, C. B.** 1980. Preliminary observations on the spawning of *Tor putitora* (Hamilton) in Anji stream, Jammu Province during 1969. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 253-258.

1223. **Surendran, P. K.** and **Gopakumar, K.** 1981. Selection of bacterial flora in the chlortetracycline treated oil sardine (*Sardinella longiceps*), Indian mackerel (*Rastrelliger kanagurta*) and prawn (*Metapenaeus dobsoni*) during ice storage. —*Fishery Technol.*, **18** (2) : 133-141.

1224. **Talwar, P. K.** 1981. Status and distribution of *Coilia mystus* (Linnaeus : 1758) (Pisces : Engraulidae) in the Indo-West Pacific Seas. —*J. mar. biol. Ass. India*, **18** (3) : 544-548.

1225. **Talwar, P. K.** 1981. Identity of the type specimen of the scyliorhinid shark, *Scyllium hispidum* Alcock. —*Bull. zool. Surv. India*, **4** (2) : 231-234.

1226. **Talwar, P. K.** 1981. The electric rays of the genus *Torpedo* Houttuyn (Rajiformes : Torpedinidae) of Indian Seas. —*Bull. zool. Surv. India*, **3** (3) : 185-189.

1227. **Talwar, P. K.** 1981. The electric rays of genus *Heteronarce* Regan (Rajiformes : Torpedinidae), with the description of a new species. —*Bull. zool. Surv. India*, **3** (3) : 147-151.

1228. **Thakre, V. P.** and **Bapat, S. S.** 1981. Maturation and spawning of *Rasbora daniconius* (Ham.—Buch.).—*J. Bombay nat. Hist. Soc.*, **78** (1) : 38-45.

The gonadal maturation, sex ratio, minimum size at maturity, spawning and spawning periodicity in a cyprinid fish, *Rasbora daniconius* are studied here.

1229. **Thampuran, N.** *et al.* 1981. The influence of plating technique and incubation temperature on bacterial count from fish and fishery products.—*Fishery Technol.*, **18** (2) : 95-100.

1230. **Thomas, P. A.** and **Kunju, M.M.** 1981. On an unusual catch of ghol *Pseudosciaena diacanthus* off Goa. —*Indian J. Fish.*, **25** (1 & 2) (1978) : 266-268.

1231. **Thomas, P. C.** and **Murthy, T.L.** 1981. Changes in new piscine enzymes due to endrin and sevin toxicosis.—*Indian J. Fish.*, **25** (1 & 2) (1978) : 1-8.

1232. **Tilak, R.** 1981. Description of a new schilbeid fish *Proeutropiichthys taakree burmanicus* from Burma. —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 34-39.

1233. **Tilak, R.** and **Husain, A.** 1981. On the systematics of the Indian fishes of the genus *Lepidocephalus* Bleeker with keys to the species of the genus and genera of the subfamilies Botiinae and Cobitinae (Cobitidae : Cypriformes). —*Rec. zool. Surv. India Occ. Pap.*, No. 32 : 1-42.

The authors have made an attempt to study systematics of *Lepidocephalus* fishes. They have reidentified the earlier material and given diagnostic features of 7 spp.

The keys provided in the paper should act as an aid to identify the Indian species of this genus.

1234. **Trewasvas, E.** and **Talwar, P. K.** 1981. *Pennahia* Fowler, 1926 (Pisces : Sciaenidae), request for designation of a

type species. —*Bull. zool. Nomencl.*, **34** (3) : 185-186.

1235. **Varghese, M. D.** *et al.* 1981. Estimation of fish production from Hirakud reservoir. —*Fishery Technol.*, **18** (1) : 17-23.

1236. **Venkateswaralu, T.** 1981. First record of *Ambassis interrupta* Bleeker (Pisces : Chandidae) from seas of India.—*Bull. zool. Surv. India*, **3** (3) : 211-212.

1237. **Victor, A. C. C.** 1981. Length-weight relationship in the Malabar Sole, *Cynoglossus macrostomus* Norman.—*Indian J. Fish.*, **25** (1 & 2) (1978) : 259-262.

1238. **Yadava, S. C., Ahsan, J., Sinha, S. P.** and **Prasad, M.** 1981. A report of the effect of solar eclipse on an Indian teleost, *Channa punctatus* (Bloch.). —*Uttar Pradesh J. Zool.*, **1** (1 & 2) : 29-33.

The paper reports the changes in behaviour, blood glucose content, R. B. C. number and blood clotting time during eclipse and immediately after that and appears to be first work of its kind.

1239. **Yohannan, T. M.** 1980. Studies on the mackerel fishery of Mangalore area during 1969-73. —*Indian J. Fish.*, **24** (1 & 2) (1977) : 113-123.

The mackerel fishery was a success in 1970-71 and failure in 1972-73. The relative abundance of juvenile and fluctuation in monsoons intensity seem to have great bearing on the fishery. Spawning appears to be intense around July and January. The length frequency studies reveal that mackerel measuring 14-16 cm and 20-22 cm are one-year-old and two-year-old respectively.

(b) Amphibia

1240. **Chetty, C. S.** *et al.* 1981. On the occurrence of Arginase in the muscle and its role in various tissues of frog, *Rana hexadactyla*, during denervation atrophy and chronic ammonia toxicity. —*Curr. Sci.*, **50** (2) : 71-73.

Argine activity increased in the gastrocnemius muscle, brain, liver and kidney tissues following unilateral sciateomy and induced ammonia intoxication.

1241. **Gundappa, K. R., Balakrishna, T. A.** and **Shakuntala, K.** 1981. Ecology of *Ichthyophis glutinosus* (Linn.) (Apoda : Amphibia). —*Curr. Sci.*, **50** (20) : 480-483.

The restricted distribution of *I. glutinosus* could be ascribed to the characteristics of the soils in which it lives. Denudation of the forests in the Western Ghats, an important homeland of caecilians in South India, spells their extinction.

1242. **Hussain, M., Kanamadi, R. D.** and **Saidapur, S. K.** 1981. Effect of cyproterone acetate & Cyproterone acetate + ascorbic acid on pars distalis of the toad *Bufo melanosticus*. —*Indian J. exp. Biol.*, **19** (11) : 1061-1062.

1243. **Karande, A. A.** and **Nakauchi, M.** 1981. Culturing of the ascidian, *Aphidium* multiplication and its dimorphic larvae. —*Indian J. mar. Sci.*, **10** (1) : 93-95.

The paper deals with the duality of tadpole larvae of *A. multiplicatin*

and highlights the laboratory rearing technique perfected by Nakauchi which can be used for studying the Indian species.

1243a. **Kumar, S.** and **Yadav, M. P.** 1981. Note on coxiellosis (*Coxiella burnetti*) infection in amphibians. —*Indian J. Anim. Sci.*, **51** (3) : 390-391.

1243b. **Mansukhani, M. R.** and **Sarkar, A. K.** 1981. Notes on some amphibian collections from Tripura, India. —*Rec. zool. Surv. India*, **79** (1-2) : 267-273.

1244. **Miller, H.** 1981. Living with frogs. —*Hornbill*, (2) : 23.

1244a. **Mohanty—Hejmadi, P., Dutta, S. K.** and **Khan, I.** 1981. Life history of Indian frogs. III : The ornate frog *Microphyla ornata*.—*J. zool. Soc. India*, **32** (1-2) (1980) : 43-48.

1245. **Nigam, H.** 1981. A first report on the occurrence of the glandula pulmonala on the pulmocutaneous arch in the water-skipping frog *Rana cyanophlyctis* (Boulenger). —*Indian J. exp. Biol.*, **19** (3) : 292-294.

1246. **Nigam, H.** and **Srivastava, S. C.** 1981. Some events in cardiac cycle of the Indian bullfrog *Rana tigrina* (Daud). —*Indian J. exp. Biol.*, **19** (6) : 588-590.

1247. **Pillai, R. S.** 1981. Two new species of Amphibia from Silent Valley, S. India. —*Bull. zool. Surv. India*, **3** (3) : 153-158.

1248. **Pillai, R. S.** and **Chanda, S. K.** 1981. Amphibian fauna of Garo Hills, Meghalaya, with description of a new species of *Rana*. —*Rec. zool. Surv. India*, **79** (1-2) : 159-168.

1249. **Pillai, R. S.** and **Pattabiraman, R.** 1981. A new species of torrent toad (Genus : *Ansonia*) from Silent Valley. —*Proc. Indian Acad. Sci.*, **90** (2) : 203-208.

1250. **Rao, N. M.** and **Nandy, S. C.** 1981. Inhibition of salmonella in frog legs by bronidiol. —*Indian vet. J.*, **58** (5) : 343-347.

1251. **Sareen, M. L.** and **Harteen.** 1981. Morphological and cytochemical studies on the ovary of the frog, *Rana cyanophlyctis* Schneider and the toad, *Bufo melanostictus* Schneider. —*Res. Bull. Panjab Univ.*, **29** (1-4) (1978) : 45-54.

1252. **Shrestha, R. L.** 1981. Note on *Bufo melanostictus* (Schneider), the common toad of Kathmandu. —*J. nat. Hist. Mus.*, **5** (1) : 75-78.

Diagnostic features of the toad and its role in the economy of nature have been described in brief.

(c) Reptilia

1253. **Agrawal, H. P.** 1981. On a collection of reptiles from Madhya Pradesh, India. —*Indian J. Zootomy*, **22** (3) : 203-206.

1254. **Anonymous** 1981. First successful breeding of Ganges gharials (*Gavialis gangeticus*). —*Tiger Pap.*, **8** (2) : 10.

1255. **Auffenberg, W.** 1981. Combat behaviour in *Varanus bengalensis* (Sauria : Varanidae). —*J. Bombay nat. Hist. Soc.*, **78** (1) : 54-72.

1256. **Bhaskar, S.** 1981. Greenhorn in the Andamans. —*Newsl. Nat. Cl. India*, **6** (3) : 12-14.

1257. **Bhaskar, S.** 1981. Preliminary report on the status and distribution of sea

turtles in Indian waters. —*Indian Forester*, **107** (11) : 707-711.

Sea turtles of five of the seven species in existence are known from Indian seas. Their frequency of occurrence, as is presently known, ranges from 'rare' e.g. the leatherback (*Dermochelys coriacea*) and the loggerhead (*Caretta caretta*) to 'common' C the outstanding example being the Ridley (*Lepidochelys olivacea*).

1258. **Biswas, S.** 1981. Some observations on nesting habits and biology of *Varanus salvator* (Laurenti) of Bhitorkoniker Sanctuary. —*J. Bombay nat. Hist. Soc.*, **78** (2) : 303-308.

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1387. **Ramalingam, K.** and **Srinivas, D.** 1981. A note on the incidence of liver adenocarcinoma in the common crow *Corvus splendens splendens*. —*Curr. Sci.*, **50** (6) : 291-292.

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1390. **Rao, C. N.** *et al.* The effect of wing amputation on growth, feed intake, livability and economics of white cornish chicks. —*Indian vet. J.*, **58** (3) : 215-218.

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1396. **Rezakhan, M. A.** and **Saha, S. N.** 1981. Birds of the natural and artificial vegetation of the Botanical Garden, Mirpur, Dacca—A case study. —*Proc. zool. Soc. Bangladesh* : 9-21 (Third National Zool. Conference).

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1412. **Singh, J., Kalra, D. S.** and **Kharole, M. U.** 1981. Note on comparative susceptibility of chicken, quail, turkey and duck embryos to Marek's disease virus. —*Indian J. Anim. Sci.*, **51** (1) : 123-124.

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(e) Mammalia

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1437. **Ambalkar, S. S., Desai, R. T.** and **Thatte, V. R.** 1981. A study of secondary sex ratio and effect of sex on birth weight of calves in Nagpuri buffaloes. —*Indian J. Anim. Hlth.*, **20** (2) : 105-107.

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1441. **Ansari, M. R., Benjamin, B. R.** and **Umashankar,** 1981. Studies on the fertility of cattle and buffalo semen preserved at refrigerator temp. (5°C) in Laiciphos. —*Indian J. Anim. Reprod.*, **1** (1) : 107.

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1444. **Arora, C. L.** and **Marwaha, C. L.** 1981. Behaviour of yak. —*Indian Fmg.*, **30** (12) : 29 and 32.

1445. **Arora, S. P.** *et al.* 1981. Note on the relative lactation performance of cows fed on milk substitute during pre-ruminant age. —*Indian J. Anim. Sci.*, **51** (9) : 904-905.

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1450. **Balaraman, N.** and **Vnuegopal, K.** 1981. Goats can be money spinners to Sikkim farmers. —*Indian Fmg.*, **30** (12) : 26.

1451. **Bandyopadhyay, S., Basu, P. S.** and **Banerjee, S.** 1981. Plasma adrenaline and tissue monoamine oxidase of Scorbutic guinea pigs. —*Indian J. exp. Biol.*, **19** (10) : 1091-1092.

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1459. **Basuthakur, A. K.** and **Kalia, S. D.** 1981. Rate of conception in relation to time of insemination in Corriedale sheep. —*Indian J. Anim. Sci.*, **51** (8) : 779-781.

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1461. **Batra, T. S.** and **Khanna, N. D.** 1981. Note on the genetic polymorphism of alkaline phosphatase in pigs.—*Indian J. Anim. Sci.*, **51** (1) : 111-112.

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1463. **Belsare, S. D.** 1981. Chronic effects of drugs on liver histology and serum aminotransferases in rabbits maintained on high fat diet. —*Indian J. exp. Biol.*, **19** (2) : 135-138.

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1469. **Bhat, S. K.** 1981. Preferance of the south Indian palm squirrel, *Funambulus palmarum* for dry baits. — *Rodent Newsl.*, **5** (4) : 26-27.

1470. **Bhatia, D. R., Mohan, M., Patnayak, B. C,** and **Ratan, R.** 1981. Note on growth of Malpura lambs with or without supplemental concentrates. — *Indian J. Anim. Sci.*, **51** (2) : 238-242.

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1472. **Bhatia, Y. S., Lavania, J. P.** and **Angelo, S. J.** 1981. A safe anaesthetic procedure for surgically poor risk dogs. —*Indian vet. J.*, **58** (3) : 255-256

1473. **Bhatnagar, R. K., Saxena, P. N.** and **Singh, S.** 1981. Encapsulated Zn^3 P^2 baits for control of field rodents in moist fields. —*Rodent Newsl.*, **5** (3) : 22-23.

1474. **Bhattacharyya, B. K., Mazumder, N. K., Mazumder, A. Luktuke, S. N.** 1981. Studies on certain aspects of oestrous behaviour in Pashmina goats. —*Indian J. Anim. Sci.*, **51** (1) : 67-69.

In the present study certain aspects of oestrous behaviour such as oestrous cycle, duration of oestrous, oestrual discharge, oestrous symptoms, intensity of oestrous and first post-partum oestrous in Pashmina goats were investigated.

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The structure, histology and mucins secreted by the mucosa in two bats with markedly different dietary habits are discussed here.

1477. **Bhide, S. A.** and **Bhatia, D.** 1981. Giant cells in the placenta of the Indian sheath-tailed bat *Taphozous longimanus* (Hardwicke). —*Curr. Sci.*, **50** (17) : 753-756.

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1481. **Bonia, K. K.** 1981. A clinical note on the ovarian conditions of the rural cattle of Assam. —*Indian J. Anim. Reprod.*, **1** (1) : 17-19.

1482. **Chakrabarti, K. K.** 1981. Dystocia in a goat due to schistosomus reflexus,—a case record. —*Indian vet. J.*, **58** (5) : 415.

1483. **Chakraborty, K.** and **Maitra, D. N.** 1981. Note on metabolic nitrogen in Black Bengal goat. —*Indian J. Anim. Sci.*, **51** (11) : 1093-1096.

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1485. **Chalapathy, P. V.** and **Rao, A. R.** 1981. Effect of improved housing on semen quality of Murrah bulls. — *Indian J. Anim. Sci.*, **51** (8) : 761-765.

The effect of improved housing on quality and quantity of semen obtained from Murrah bulls under local conditions during summer is discussed.

1486. **Chandna, S. S.** 1981. Rodent menace in water bunds. —*Rodent Newsl.*, **5** (4) ; 25-26.

1487. **Chandna, S. S.** and **Garg, S. K.** 1981. Burrowing habits of the lesser bandicoot rat, *Bandicota bengalensis* (Gray). —*Indian J. Ecol.*, **8** (2) : 259-264.

1488. **Chandna, S. S., Garg, S.K.** and **Parve, I.** 1981. Nitrogen application enhances rodent population. —*Rodent Newsl.*, **5** (3) : 21.

1489. **Chandramohan, K. K.** and **Bhat, P. N.** 1981. Note on factors affecting first gestation length in Sahiwal cattle. —*Indian J. Anim. Sci.*, **51** (8) : 788-790.

1490. **Chandanani, R. E., Ganguly, N. K., Prasad, R. N., Kabir, M. S. A.** and **Mahajan, R. C.** 1981. Cellular studies in rhesus monkeys during acute, protracted and reinfection stages infected with *Plasmodium knowlesi*. —*Indian J. med. Res.*, **73** (1) (Suppl.) : 45-49.

The study deals with the changes observed in the peripheral lymphocytes and their transformation during acute, protracted and reinfection stages produced in rhesus monkeys with *P. knowlesi* infection.

1491. **Chandrapuria, V. P.** and **Pandey, S. K.** 1981. A case of facial dysgenesis (Arhinencephalia) in a calf. —*Indian vet. J.*, **58** (3) : 245.

1492. **Chatterjee, A. K.** 1981. Pig production X-rayed. —*Fmr's J.*, **1** (3) : 23-25.

1493. **Chaudhuri, A. B.** and **Chakrabarti, K.** 1981. Wild Life biology of Sundarban forests—further study on the habitat and behaviour pattern of Sundarban tiger. —*Proc. Workshop Wildl. Ecol.*, zool Surv. India, (1978) : 27-33.

1494. **Chauhan, F. S.** *et al.* 1981. Seasonal variation, biochemical profile and treatment of anestrus in buffaloes. —*Indian J. Anim. Reprod.*, **1** (1) : 31-36.

1495. **Chawla, D. S.** and **Mishra, R. R.** 1981. Role of exotic genes on growth rate of Zebu crosses. —*Indian J. Anim. Sci.*, **51** (2) : 140-149.

This investigation was carried out on Zebu cross-breds to study the role of Brown Swiss and Holstein—Friesian genes on growth rate.

1496. **Chengappa, R.** 1981. Conservation : forgotten forests. —*India Today* : **6** (13) : 105 & 107.

The team led by Dr. Madhav Gadgil studied wildlife and ecology, particularly the mammals in the Bandipur game sanctuary in Karnataka. A unique mammal found in these forests is lion-tailed macaque which along with Nilgiri langur is facing extinction because of neglect of evergreen forest habitat. The team feels that conservation efforts must be directed towards preserving the overall biological diversity, specially by developing "Biosphere."

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1498. **Chhatwani, D. R.** and **Vaidya, B. S.** 1981. Tippling bats. —*Hornbill*, (2) : 11.

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and Surti buffaloes. —*Indian vet. J.*, **58** (3) : 203-207.

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1507. **Dass, L. L., Khan, A. A.** and **Sahay, P. N.** 1981. Clinico-biochemical changes in abomasal torsion in buffalo-calves—an experimental study. —*Indian vet. J.*, **58** (2) : 118-123.

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1509. **David, S. K.** and **Lall, S. B.** 1981. Regional differences in the histochemical site and pattern of distribution of acid phosphatase in the adrenal gland of *Pterodus giganteus giganteus* Brunnich (Megachiroptera : Mammalia). —*Curr. Sci.*, **50** (12) : 527-529.

Pronounced differences were observed in the histochemical site and pattern of distribution of acid phosphatase (AcPace) in the cortical zones, as well as between cortex and medulla of the adrenal gland of *Pteropus giganteus giganteus*.

1510. **David, S. K.** and **Lall, S. B.** 1981. A comparison of acid phosphatase activity in the spermatogenic and androgenic cells of the testes of impuberal and sexually competent *Pteropus giganteus giganteus* Brunnich (Megachiroptera : Mammalia). —*Curr. Sci.*, **50** (9) : 400-403.

The present study was aimed to determine the histochemical site and pattern of distribution of acid phosphatase, a lysosomal 'marker' enzyme, in the seminifercus epithelial cells and Leydig cells of the testes of *P. g. giganteus*.

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The study was undertaken to find out the histopathological alterations due to mixed infection of *E. arloingi*, *E. parva* and *E. ninakohlyakimovae* in goats.

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adjust lactation number in Sahiwal. — *Indian vet. J.*, **58** (3) : 208-211.

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The effect of various genetic and non-genetic factors was investigated on average daily weight gain in various growth periods in 446+131+423 pigs.

1517. **Deoras, P. J.** and **Bhatt, S.** (Miss) 1981. Studies on *Mus* species in Goregaon 'P' ward. —*Rodent Newsl.*, **5** (1) : 2-3.

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1519. **Deshmukh, A. P.** and **Chavan, I. G.** 1981. Raising murrah buffalo calves on a limited quantity of whole milk and milk substitute. —*J. Maharashtra agric. Univ.*, **6** (2) : 134-137.

1520. **Deshpande, B. R.** *et al.* 1981. Nutrition in relation to reproduction in females. —*Indian J. Anim. Reprod.*, **1** (1) : 23-26.

1521. **Deshpande, K. S.** and **Sakhare, P. G.** 1981. Correlation of body measurements with lactation yield in red Kandhari cows. —*Indian vet. J.*, **58** (10) : 790-793.

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The changes in the activity of alanine aminotransferase in ventricular tissue and serum in different ages of rats after exercise are reported here.

1524. **Dhingra, L. D.** and **Sharma, D. N.** 1981. Scrotal histology in relation to testicular homeothermy in buffalo. —*Indian J. Anim. Sci.*, **51** (2) : 182-189.

Detailed histological observations were conducted on different regions of the scrotum of adult healthy Murrah buffalo bulls.

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1526. **Dixit, S. N., Kharole, M. U.** and **Kalra, D. S.** 1981. Mesothelioma in a cow. —*Indian vet. J.*, **58** (3) : 243.

1527. **Dixit, V. P., Bhargava, S. K.** and **Gupta, R. A.** 1981. Hyperglycemia induced testicular dysfunction after

chronic administration of *Balanites roxburghii* Planch fruit pulp extract in dogs *Canis indicus* L. —*Indian J. exp. Biol.*, **19** (10) : 918-921.

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1529. **Dugwekar, Y. G.** 1981. Hormones in relation to infertility in cattle and buffaloes. —*Indian J. Anim. Reprod.*, **1** (1) : 71-76.

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In the present study the blocking action of protease inhibitors has been further evaluated using *P. knowlesi*—*P. entellus* erythrocyte system. The evidence available so far suggests that proteases of merozoites of *P. knowlesi* may be involved in invasion process.

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1533. **Dutta, P. K.** *et al.* 1981. Foot and mouth disease in yak. —*Indian vet. J.*, **58** (5) : 421.

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1537. **Fernando, A.** 1981. Jumbo junior.—*Loris*, **15** (6) : 309.

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Data on the movements of 4 adults of *B. bengalensis* and 2 adults of *N. indica* were gathered and studied.

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tuents of blood with the incorporation of neem seed cake (*Azadirachta indica*) in the ration of milch Murrah buffaloes. —*Indian J. Anim. Hlth.*, **20** (1) : 61-63.

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The study deals with the uterine prostaglandins E and F levels from day 1 to day 6 of pregnancy in the rat along with the biosynthetic ability of the uterine tissue for prostaglandins from the endogenous precursors.

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The study was undertaken to find out whether exogenous steroid hormones have any relationship with prostaglandins at the time of implantation in pregnant, ovariectomized rats treated with progesterone and estradiol—17 β.

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An attempt was made to investigate the influence of climate on body fluid homeostesis in Murrah buffalo calves protected from direct exposure to climatic stress over a period of one complete year.

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Histochemistry of alkaline and acid phosphatases, 5-nucleotidase, lipase, phosphamidase and peroxidase in the lungs of *F. pennanti* have been analysed. Causes and significance of altered enzyme levels in exposed subjects to these pollutants have also been discussed.

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1551. **Gera, K. L.** and **Dutt, S. C.** 1981. Foetal dystokia in a she-camel : a case report. —*Indian vet. J.*, **58** (1) : 64-65.

1552. **Ghaskadbi, S. M.** and **Indurkar, A. K.** 1981. Chromosomal analysis of *Suncus murinus* (Linn.) from Poona (India). —*Curr. Sci.*, **50** (9) : 406-408.

Detailed morphometric data of chromosomes, karyotype and idiogram of *S. murinus* from Poona are presented in this paper.

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cal response and coat characteristics of Nali and Corriedale sheep during the canary season. —*Indian J. Anim. Sci.*, **51** (2) : 243-245.

1554. **Ghose, R. K.** and **Saha, S. S.** 1981. Taxonomic review of Hodgson's giant flying squirrel, *Petaurista magnificus* (Hodgson) (Sciuridae : Rodentia), with description of a new subspecies from Darjeeling district, West Bengal, India. —*J. Bombay nat. Hist. Soc.*, **78** (1) : 93-102.

1555. **Ghosh, R. K.** and **Rao, G. S.** 1981. A note on the histochemical study of trigeminal ganglion in the buffalo. —*Indian J. Anim. Hlth.*, **20** (1) : 49-50, pl. 1.

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1558. **Gill, G. S.** and **Tiwana, M. S.** 1981. How to keep 8-10 buffaloes/cows on one hectare. —*Indian J. Anim. Reprod.*, **1** (1) : 126.

1559. **Gill, R. S.** 1981. Monthwise body-weight variations in *Bandicota bengalensis* (Gray) in the fields of PAU, Ludhiana. —*Rodent Newsl.*, **5** (3) : 18.

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1561. **Gogoi, P. C.** 1981. A sanctuary for golden langur. —*Tiger Pap.*, **8** (2) : 7-9.

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1564. **Gopalakrishna Rao, D., Kamalpur, P. N.** and **Seshadri, S. J.** 1981. Note on some uncommon neoplastic condition of bovines. —*Indian J. Anim. Sci.*, **51** (7) : 740-742.

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The mammals of the Nepal Himalaya are a mixture of species derived from the Oriental and Palaearctic regions.

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mucus characteristics of the bonnet monkeys *Macaca radiata*. —*Indian J. exp. Biol.*, **19** (1) : 80-82.

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The study was conducted with a view to collect ecological facts on location, climate, flora and fauna and its exploitations of Khaptad area. Recommendation and immediate measures has been suggested to maintain the fragile ecosystem of Khaptad.

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of anoestrus and cyclic buffaloes as influenced by level of nutrition. — *Indian J. Anim. Reprod.*, **1** (1) : 29.

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1608. **Khan, B. U.** and **Bhat, P. N.** 1981. Genetic and non-genetic factors affecting live lamb traits in Muzaffarnagari sheep and its half-breds with Corriedale. —*Indian J. Anim. Sci.*, **51** (1) : 39-48.

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Muscle esterase enzyme patterns were studied with the help of starch-gel electrophoresis in water-soluble extracts of superficial sternocephalicus in goats, sheep, cattle and buffaloes.

1754. **Purbe, L. N.** and **Sane, C. R.** 1981. Studies on conception rate by natural service in a Dangi herd. —*Indian J. Anim. Reprod.*, **1** (1) : 80 D.

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The paper reports on the haematological values of an Indian hedgehog, *H. auratus collaris* (Gray) in different sexes.

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1781. **Rao, A. V. N.** and **Murty, T. S.** 1981. A note on oestrus and ovarian activity in the buffalo during summer. —*Indian vet. J.*, **58** (2) : 171-172.

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(*Elephas maximus*). —*Black Buck Newsl.*, **3** (1) : 8-9.

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1798. **Rehman, A.** and **Roychoudhury, G. K.** 1981. Haematological observations during experimental studies on babesiosis in cattle. —*Indian vet. J.*, **58**(5) : 355-358.

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This paper brings the knowledge regarding non-human primates to an upto-date level and gives the present distribution and status of all the species occurring there.

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The available information with the addition of fresh data have been assembled in the present account. These have been examined from the point of view of subspecific and geographical variation, sexual dimorphism and subspecies relationships.

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1808. **Saha, S. N.** 1981. A note on spontaneous outbreak of *Salmonella typhimurium* in a guinea pig colony. —*Indian J. Anim. Hlth.*, **20**(2) : 153-154.

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1810. **Saharia, V. B.** 1981. Wildlife census and monitoring in India : A review.

—*Proc. Workshop Wildl. Ecol., zool. Surv. India*, (1978) : 159-172.

1811. **Samad, A.** *et al.* 1981. An unusual case of foreign body in bullock. — *Indian vet. J.*, **58** (6) : 493-494.

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1825. **Sarode, D. B., Nisal, M. B.** and **Sapre, V. A.** 1981. Note on bovine ketosis. —*Indian J. Anim. Sci.*, **51** (2) : 228-229.

1826. **Sasidharan, T. O.** 1981. Effect of steroid hormones on the reproductive system of male Indian gerbil, *Tatera indica indica*. —*Rodent Newsl.*, **5** (1) : 1.

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1829. **Sastry, V. R. B.** and **Mahajan, J. M.** 1981. Note on growth rate and feed efficiency of New Zealand white rabbits on different concentrate : roughage ration diets. —*Indian J. Anim. Sci.*, **51** (6) : 685-688.

1830. **Saxena, S. K.** and **Joshi, B. C.** 1981. Note on respiratory moisture loss in Hariana and their temperate breed crosses under controlled environments. —*Indian J. Anim. Sci.*, **51** (4) : 491-493.

1831. **Saxena, V. B.** 1981. Improve milk yield of cows through artificial insemination. —*Indian Fmr's Dig.*, **14** (9) : 47.

1832. **Saxena, V. B.** 1981. Reproductive behaviour of farm and domestic animals. —*Indian Fmr's Dig.*, **14** (9) : 54.

1833. **Saxena, V. B.** and **Tripathi, S.S.** 1981. Note on seasonal variation in abnormalities of spermatozoa of cross-bred bulls. —*Indian J. Anim. Sci.*, **51** (9) : 891-894.

The effect of seasons on various types of abnormalities, both primary and secondary, in head, mid-piece and tail of spermatozoa of Jersey X Sahiwal (F1) cross-bred bulls maintained under Sub-Himalayan Tarai conditions of Uttar Pradesh, is studied here.

1834. **Sawhney, A.** and **Arora, S. P.** 1981. Studies on oestradiol 17-β and cholesterol in blood plasma of normal cycling buffaloes as influenced by two levels of nutrition. —*Indian J. Anim. Reprod.*, **1** (1) : 28.

1835. **Seth, S. D., Johri, N.** and **Sundaram, K. R.** 1981. Antispermatogenic effect of *Ocimum sanctum*. —*Indian J. exp. Biol.*, **19** (10) : 975-976.

1836. **Sethi, R. K.** and **Nagarcenkar, R.** 1981. Inheritance of heat tolerance in buffaloes. —*Indian J. Anim. Sci.*, **51** (6) : 591-595.

Eighty four buffaloes put to heat stress for 6 hours from sun's direct radiation in hot, low humid and slow windy weather showed initial body temperature and pulse rate, and the increase in this physiological parameters was studied.

1837. **Shahi, S.P.** 1981. Encounter at Dalma. —*Hornbill*, (1) : 8-13.

1838. **Shahi, S. P.** 1981. About the Indian wild ass. —*Hornbill*, (3) : 13-16.

1839. **Shahi, S.P.** 1981. The Indian wild ass (*Equus hemionus khur*). —*Tiger Pap.*, **8** (4) : 20-23.

1840. **Shailesh, K. P.** and **Radha, E.** 1981. Lipofuscin accumulation and lipid peroxidation in rat myocardium as a function of age. —*Curr. Sci.*, **50** (7) : 332-334.

1841. **Shankar, H.** and **Uppal, P. K.** 1981. Transfer of antibodies through colostrum in calves born to FMD—vaccinated cows. —*Indian J. Anim. Sci.*, **51** (6) : 622-626.

1842. **Shanmugasundaram, K. R.** and **Raman, U.** 1981. Studies on intestinal and muscle protein-bound carbohydrate components in experimental hypercholesterolemia—effect of Annapavalasindhooram—an indigenous drug formulation. —*J. Indian Inst. Sci.*, (*Biol. Sci.*), (C) **63** (4) : 1-11.

In the present study, the variations in PBC and GAGs in serum and in tissues—small intestine and skeletal muscle of normal, atherosclerotic and Annapavalasindhooram (APS)-treated animals have been taken into consideration.

1843. **Sharda, D. P., Singh, P.** and **Yadav, K. R.** 1981. Performance and carcass quality of indigenous versus Middle White Yorkshire pigs from two to six months of age. —*Haryana agric. Univ. J. Res.*, **11** (1) : 117-120.

The relative performance and carcass quality of exotic (Middle White Yorkshire) and indigenous pigs raised under identical managemental conditions are determined here.

1844. **Sharma, B. D.** and **Sharma, T.** 1981. Some ecological aspects of wild life extinction in the Himalayas. —*Cheetal*, **22** (3) : 29-31.

1845. **Sharma, D. D.** and **Mudgal, V. D.** 1981. Performance of lactating Zebu cattle and water-buffaloes on different levels of urea in the ration. —*Indian J. Anim. Sci.*, **51** (6) : 599-603.

Nine lactating Tharparkar (Zebu) cows and 9 lactating Murrah buffaloes were subjected to 3 feeding regimes.

1846. **Sharma, D. N., Barnwal, A. K.** and **Dhingra, L. D.** 1981. Studies on the arterial supply to the diaphragm of buffalo. —*Haryana agric. Univ. J. Res.*, **11** (1) : 121-128.

1847. **Sharma, G. P., Sobti, R. C.** and **Sahi, K.** 1981. Clastogenicity of estrone in the rat bone-marrow cells. —*Curr. Sci.*, **50** (9) : 425-426.

1848. **Sharma, I. K.** 1981. Ecological aspects of habitat preferences, feeding, daily activities and niche of the Nilgai (*Boselaphus tragocamelus*). —*Tiger Pap.*, **8** (1) : 21-22.

The ecological aspects of habitat preferences, feeding, daily activities and niche of the Nilgai in Jodhpur district of the Indian Thar desert from Feb. 1979 to Oct. 1979 have been studied here.

1849. **Sharma, I. K.** 1981. Survival of the blackbuck. —*Wld. Wildl. Fund-Newsl.*, **2** (2) : 7-8.

1850. **Sharma. N. D., Naithani, S. P.** and **Gupta, I.** 1981. Note on the acute toxicity of sulphamethazine sodium 33⅓% when administered intravenously to buffalo calves. —*Indian J. Anim. Sci.*, **51** (2) : 226-228.

1851. **Sharma, O. P.** 1981. Cross-breeding for more milk. —*Indian Fmr's Dig.*, **14** (9) : 3.

1852. **Sharma, P., Das, P.** and **Dutta, G. P.** 1981. Use of glutaraldehyde-treated sheep erythrocytes in indirect haemagglutination test for amoebic coproantibody. —*Indian J. med. Res.*, **74** (8) : 215-218.

1853. **Sharma, R. C.** and **Singh, B. P.** 1981. Factors affecting the life-time milk production in Bhadawri buffaloes. —*Indian vet. J.*, **58** (1) : 47-52.

1854. **Shashidhar, M. K.** 1981. Translocation of four-horned antelope (*Tetracerus quadricornis*) using Ketamine anaesthesia. —*Tiger Pap.*, **8** (4) : 8.

1855. **Shastri, U. V.** and **Degloorkar, N. M.** 1981. A case of malignant lymphoma in a cow. —*Indian vet. J.*, **58** (6) : 438-439.

1856. **Shetty, B. R.** *et al.* 1981. Fate of enzyme treated arterial prosthesis of bovine origin in dogs : an experimental study. —*Indian vet. J.*, **58** (4) : 316-320.

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1861. **Siddiqui, G. M., Kharche, K. G.** and **Dutta, I. C.** 1981. *In vitro* survivability of bull spermatozoa in homologues estrual cervical mucus. —*Indian J. Anim. Reprod.*, **1** (1) : 114.

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Note on body measurements and weights of black and brown Bengal goats. —*Indian J. Anim. Sci.*, **51** (2) : 234-236.

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1875. **Singh, H.** and **Bhat, P. N.** 1981. Note on the efficacy of certain polymorphic system for parentage determination in Indian cattle. —*Indian J. Anim. Sci.*, **51** (5) : 547-549.

1876. **Singh, H.** and **Bhat, P. N.** 1981. Phylogenetic relationship of Indian cattle breeds. —*Indian J. Anim. Sci.*, **51** (7) : 691-697.

The present study describes the phylogenetic relationships of certain cattle breeds indigenous to Indo-Pak sub-continent using genetic distance parameters based on 8 polymorphic gene loci.

1877. **Singh, H.** and **Bhat, P. N.** 1981. β-casein polymorphism in indigenous cattle. —*Indian J. Anim. Sci.*, **51** (1) : 11-16.

The present investigation describes the status of this polymorphism among some of the important Indian zebu cattle breeds and their cross-breds.

1878. **Singh, H., Bhat, P. N.** and **Singh, R.** 1981. Association of protein polymorphic genotypes with certain performance traits in cross-bred cattle. —*Indian J. Anim. Sci.*, **51** (1) : 5-10.

The relationship of 25 genotypes belonging to 7 protein polymorphic systems, viz. albumin, amylase, ceruloplasmin, haemoglobin, transferrin, β-lactoglobulin and β-casein, with growth and performance traits in Friesian half-breds was studied.

1879. **Singh, H., Bhat, P. N.** and **Singh, R.** 1981. Gene differentiation in Indian cattle. —*Indian J. Anim. Sci.*, **51** (3) : 267-270.

Gene frequency data on 8 protein/enzyme polymorphic systems for Hariana, Sahiwal, Friesians and Friesian-grades were utilized for investigating the respective heterozygosity.

1880. **Singh, H. P., Narain, P.** and **Khanna, N.D.** 1981. Association between blood group antigenic factors and quantitative characters in some Indian herds of cattle and buffaloes. —*Indian J. Anim. Sci.*, **51** (8) : 745-751.

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and the respiratory divisions of the buffalo lung. —*Indian vet. J.*, **58** (2) : 99-103.

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1888. **Singh, R. N.** *et al.* 1981. Note on variation in the pre-and post weaning body weight in Malpara and Sonadi, and their crosses with Suffolk and Dorset. —*Indian J. Anim. Sci.*, **51** (9) : 877-880.

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The lethal and teratogenic effect of environmental heat shock on the developing foetuses of hamsters are dealt with here.

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A field study of Hog deer *A. P. porcinus* was carried out at Dhikala, Corbett National Park from January, 1977 to June, 1979. General and social behaviour of the species are described in considerable detail. Efforts were also made to study the reproductive behaviour but could not be carried out in detail.

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Data on 1724 fertile services of 8 genetic groups of Holstein-Sahiwal cross-bred cows with a class interval of fraction of Holstein breeding were analysed.

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Bio-availability of chloramphenicol in buffalo calves by studying its distribution in tissues and different body fluids was discussed.

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thymus and bone marrow cells in immunity to *Nematospiroides dubius* in mice. —*Curr. Sci.*, **50** (9) : 427-428.

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1963. **Wiekremasuriya, U. G. J. S.** 1981. A survey of some aspects of dairy farming in Colombo and Gampaha districts. —*Ceylon vet. J.*, **29** (1-4) : 7-9

1964. **Wijeyaratne, D.** 1981. Elephants through binos. —*Loris.*, **15** (6) : 357.

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1966. **Zamre, V. N., Pandey, S. K.** and **Patel, M. R.** 1981. A study on certain biochemical and haematological changes during abomasal displacement in male calves. —*Indian vet. J.*, **58** (4) : 321-325.

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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 fam.n., subfam.n., gen.n. etc.

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

I. PHYLUM : PROTOZOA

I. Class : Sarcodina

Order : Foraminifera

(i) Family : Buliminidae

1. *Praeglobobulimina sastryi* Srinivasan & Rajshekhar (96)

(ii) Family : Lituolidae

2. *Flabellammina pliocenica* Srinivasan & Rajshekhar (96)

(iii) Family : Uvigerinidae

3. *Rectuvigerina oldhami* Srinivasan & Rajshekhar (96)

II. Class : Sporozoa

(1) Order : Coccidia

Family : Eimeriidae

4. *Eimeria ailuri* Agarwal, Ahluwalia, Bhatia & Chauhan (51)

(2) Order : Haemosporidia

(i) Family : Haemoproteidae

5. *Haemoproteus ovalis* Ray & Chaudhury (84)

(ii) Family : Plasmodiidae

6. *Isospora hippopotami* Agarwal, Ahluwalia, Bhatia & Chauhan (51)

7. *Isospora leopardi* Agarwal, Ahluwalia, Bhatia & Chauhan (51)

8. *Isospora mohini* Agarwal, Ahluwalia, Bhatia & Chauhan (51)

9. *Isospora pantheri* Agarwal, Ahluwalia, Bhatia & Chauhan (51)

10. *Isospora ursi* Agarwal, Ahluwalia, Bhatia & Chauhan (51)

(3) Order : Myxosporidia

(i) Family : Myxobolidae

11. *Henneguya thermalis* Seenappa, Manohar & Prabhu (89)

12. *Myxobolus tripathi* Kalavati, Sandeep & Narasimhamurti (65)

(ii) Family : Myxosomatidae

13. *Myxosoma channai* Kalavati, Sandeep & Narasimhamurti (65)

14. *Myxosoma mathurii* Jayasri, Paryateem & Mathur (64)

(III) Class : Ciliata

Order : Holotricha

Family : Philasteridae

15. *Helicostoma sigmoida* Rao, Rao & Shyamasundari (80)

II. PHYLUM : PLATYHELMINTHES

I. Class : Trematoda

(a) Sub-class : Monogenea

(i) Family : Dactylogyridae

16. *Silonditrema chauhani* Agrawal & Singh (10)

17. *Silonditrema lucknowensis* Agrawal & Singh (10)

18. *Silonditrema yogendrai* Agrawal & Singh (10)

(ii) Family : Diclidophoridae

Neodiclidophora Gupta & Krishna (gen.n.) (116)

19. *Neodiclidophora simhai* Gupta & Krishna (116)

20. *Osphyobothrus cameroni* Gupta & Krishna (116)

(iii) Family : Diplectanidae

Pseudolamellodiscoides Gupta & Krishna (gen.n.) (116)

21. *Pseudolamellodiscoides orissai* Gupta & Krishna (116)

(iv) Family : Discocotylidae

22. *Gemmaecaputia tripathii* Gupta & Krishna (116)

(v) Family : Engraulitrematidae Gupta & Krishna (fam.n.) (116)

Engraulitrema Gupta & Krishna (gen.n.) (116)

23. *Engrawlitrema chauhani* Gupta & Krishna (116)

(vi) Family : Gastrocotylidae

24. *Gastrocotyle buckleyi* Gupta & Krishna (116)

(vii) Family : Microcotylidae

25. *Microcotyle gussevi* Gupta & Krishna (116)

26. *Microcotyle inglisi* Gupta & Krishna (116)

27. *Microcotyle korathai* Gupta & Krishna (116)

(viii) Family : Protomicrocotylidae

28. *Bilaterocyle polynemusi* Gupta & Krishna (116)

(b) Sub-class : Digenea

(i) Family : Acanthocolpidae

29. *Acanthocolpus guptai* Gupta & Puri (117)

30. *Acanthocolpus lucknowensis* Gupta & Puri (117)

31. *Acanthocolpus puriensis* Gupta & Puri (117)

(ii) Family : Cryptogonimidae

Folliculovarium Singh & Sinha (gen.n.) (132)

32. *Folliculovarium indicum* Singh & Sinha (132)

(iii) Family : Cyclocoelidae

33. *Szidatitrema philomachii* Lal (123)

(iv) Family : Echinostomatidae

34. *Parallelotestis bubulcusi* Gupta & Gupta (112)

(v) Family : Hemiuridae

35. *Aphanurus tuberculatus* Hafeezullah (118)

36. *Dinurus thapari* Gupta & Gupta (115)

37. *Paraheniurus dussumierial* Hafezullah (118)

(vi) Family : Lepocreadiidae

38. *Lobatocreadium gupti* Ahmad (106)

39. *Pseudolepocreadioides thapari* Ahmad (106)

40. *Transversocreadium manteri* Ahmad (106)

(vii) Family : Opisthorchiidae

41. *Cercaria komiyai* Pandey & Agrawal (129)

42. *Cercaria peteri* Agrawal & Singh (104)

(viii) Family : Plagiorchiidae

43. *Astiotrema siddiqii* Lal & Prasad (125)

(ix) Family : Proterodiplostomidae

44. *Tetracotyla chauhani* Dwivedi & Dwivedi (109)

(x) Family : Transversotrematidae

45. *Transversotrema chauhani* Agarwal & Singh (103)

II. Class : Cestoda

(i) Family : Anoplocephalidae

46. *Gidhaia kolhapurensis* Kadam, Shinde & Jadhav (143)

(ii) Family : Dilepididae

47. *Cotylorhipis sureshi* Jadhav & Shinde (141)

48. *Krimi burti* Shinde & Gaikwad (151)

(iii) Family : Hymenolepididae

49. *Dicranotaenia alcipina* Srivastav & Capoor (152)

II. LIST OF NEW TAXA

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

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

I. PHYLUM : PROTOZOA

I. Class : Sarcodina

Order : Foraminifera

(i) Family : Buliminidae

1. *Praeglobobulimina sastryi* Srinivasan & Rajshekhar (96)

(ii) Family : Lituolidae

2. *Flabellammina pliocenica* Srinivasan & Rajshekhar (96)

(iii) Family : Uvigerinidae

3. *Rectuvigerina oldhami* Srinivasan & Rajshekhar (96)

II. Class : Sporozoa

(1) Order : Coccidia

Family : Eimeriidae

4. *Eimeria ailuri* Agarwal, Ahluwalia, Bhatia & Chauhan (51)

(2) Order : Haemosporidia

(i) Family : Haemoproteidae

5. *Haemoproteus ovalis* Ray & Chaudhury (84)

(ii) Family : Plasmodiidae

6. *Isospora hippopotami* Agarwal, Ahluwalia, Bhatia & Chauhan (51)

7. *Isospora leopardi* Agarwal, Ahluwalia, Bhatia & Chauhan (51)

8. *Isospora mohini* Agarwal, Ahluwalia, Bhatia & Chauhan (51)

9. *Isospora pantheri* Agarwal, Ahluwalia, Bhatia & Chauhan (51)

10. *Isospora ursi* Agarwal, Ahluwalia, Bhatia & Chauhan (51)

(3) Order : Myxosporidia

(i) Family : Myxobolidae

11. *Henneguya thermalis* Seenappa, Manohar & Prabhu (89)

12. *Myxobolus tripathi* Kalavati, Sandeep & Narasimhamurti (65)

(ii) Family : Myxosomatidae

13. *Myxosoma channai* Kalavati, Sandeep & Narasimhamurti (65)

14. *Myxosoma mathurii* Jayasri, Paryateem & Mathur (64)

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48. *Krimi burti* Shinde & Gaikwad (151)

(iii) Family : Hymenolepididae

49. *Dicranotaenia alcipina* Srivastav & Capoor (152)

50. *Hispaniolepidoides aurangabadensis* Shinde & Ghare (150)
51. *Vampirolepis allahabadensis* Srivastava & Pandey (153)

(iv) Family : Proteocephalidae

52. *Gangesia haryanae* Gupta & Arora (136)
53. *Gangesia (Gangesia) kashmirensis* Dhar & Fotedar (133)

(v) Family : Ptychobothriidae

54. *Senga mastacembali* Gupta & Sinha (140)
55. *Senga paithanensis* Kadam, Jadhav & Shinde (142)
56. *Senga punctati* Gupta & Sinha (140)

III. PHYLUM : ASCHELMINTHES

I. Class : Gastrotricha
Order : Macrodasyida

(i) Family : Lepidodasyidae

57. *Cephalodasys caudatus* Chandrasekhara Rao (159)

(ii) Family : Planodasyidae

58. *Crasiella indica* Chandrasekhara Rao (160)

(iii) Family : Thaumastodermatidae

59. *Tetranchyroderma littoralis* Chandrasekhara Rao (159)

(iv) Family : Turbanellidae

60. *Turbanella indica* Chandrasekhara Rao (159)

II. Class : Nematoda

(i) Family : Allantonematidae

61. *Heterotylenchus crassirostris* Yatham & Narayan Rao (258)

(ii) Family : Anatonchidae

62. *Anatonchus sukuli* Baqri, Das & Ahmad (168)

(iii) Family : Aphelenchoididae

63. *Aphelenchoides graminophilus* Verma (254)

(iv) Family : Aporcelaimidae

64. *Aporcelaimellus tropicus* Jana & Baqri (203)

(v) Family : Camallanidae

65. *Camallanus goaensis* Soota (240)
66. *Neocamallanus lucknowensis* Gupta & Bakshi (198)
67. *Procamallanus (Monospiculus) kashmirensis* Dhar & Fotedar (184)

(vi) Family : Criconematidae

68. *Hemicycliophora ekdavici* Darekar & Khan (176)

(vii) Family : Cucullanidae

69. *Paracuculanellus alatae* Gupta & Bakshi (198)

(viii) Family : Diplotriaeidae

70. *Hastospiculum bombayensis* Deshmukh & Shamim (180)

(ix) Family : Habronematidae

71. *Habronema avicedae* Soota & De Sarkar (242)

(x) Family : Hoplolaimidae

72. *Hoplolaimus jonesi* Kumar (212)
73. *Hoplolaimus sanwali* Kumar (212)
74. *Scutellonema erectum* Sivakumar & Khan (238)
75. *Scutellonema naveenum* Sivakumar & Khan (238)

(xi) Family : Longidoridae

76. *Paralongidorus distinctus* Baqri & Jairajpuri (169)

(xii) Family : Medinematidae

Seshadriella Darekar & Khan (gen. n.) (177)

(xiii) Family : Oxyuridae

Gallioxynema Shamim & Deshmukh (gen. n.) (230)

77. *Gallioxynema thapari* Shamim & Deshmukh (230)

(xiv) Family : Pharyngodonidae

78. *Thelandros* (*Thelandros*) *freitasi* Grewal & Sandhu (191)

(xv) Family : Qudsianematidae

Paraxonchinae Dhanachand & Jairajpuri (Sub fam. n.) (181)

79. *Paraxonchium parvus* Dhanachand & Jairajpuri (181)

(xvi) Family : Quimperiidae

80. *Metaquimperia gomtii* Gupta & Bakshi (198)

(xvii) Family : Rhabdochonidae

81. *Subulascaris ranae* Arya (163a)

82. *Rhabdochona* (*Glabochona*) *bariliusi* Soota & Dey Sarkar (243)

(xviii) Family : Spiruridae

83. *Habronema* (*Aviabronema*) *asiaticusi* Gupta & Kumar (197)

(xix) Family : Thelastomatidae

84. *Protrellatus murtii* Vijayalakshmi & Khan (255)

(xx) Family : Thelazidae

85. *Cyathospirura chabaudi* Gupta & Pande (199)

IV. PHYLUM : ACANTHOCEPHALA

(i) Family : Oligacanthorhynchidae

86. *Oligacanthorhynchus indicus* Rengaraju & Das (260)

(ii) Family : Pomphorynchidae

87. *Longicollum psettodesai* Gupta & Gupta (259)

(iii) Family : Quadriyridae

88. *Pallisentis clupei* Gupta & Gupta (259)

(iv) Family : Rhadinorhynchidae

89. *Rhadinorhynchus echeneisi* Gupta & Gupta (259)

90. *Rhadinorhynchus hiansi* Soota & Bhattacharya (261)

91. *Rhadinorhynchus pelamysi* Gupta & Gupta (259)

92. *Serrasentis engraulisi* Gupta & Gupta (259)

93. *Serrasentis psenesi* Gupta & Gupta (259)

V. PHYLUM : ANNELIDA

I. Class : Chaetopoda

Order : Polychaeta

Family : Nereidae

Lycastonereis Nageswara Rao (gen.n.) (268)

94. *Lycastonereis indica* Nageswara Rao (268)

95. *Namalycastis fauveil* Nageswara Rao (268)

II. Class : Clitellala

(1) Order : Gnathobdellida

Family : Hirudidae

96. *Haemadipsa moorei* Sanjeeva Ray & Gladstone (270)

(2) Order : Oligochaeta

(i) Family : Acanthodrilidae

97. *Plutellus bahli* Julka (264)

98. *Plutellus damiensis* Julka (264)

99. *Plutellus rtchikensis* Julka (264)

100. *Plutellus taskingensis* Julka (264)

(ii) Family : Megascolecidae

101. *Perionyx daflaensis* Julka (264)

102. *Perionyx damiensis* Julka (264)

103. *Perionyx vidakensis* Julka (264)

104. *Tonoscolex indicus* Julka (264)

105. *Tonoscolex kabakensis* Julka (264)

(iii) Family : Moniligastridae

106. *Drawida aruna* Julka (264)

107. *Drawida duttai* Julka (264)

VI. PHYLUM : MOLLUSCA

Class : Cephalopoda

Order : Octopoda

Family : Octopodidae

108. *Berrya annae* Oommen (304)

VII. PHYLUM : ARTHROPODA

I. Class : Arachnida

(1) Order : Araneae

(i) Family : Araneidae (=Argiopidae)

109. *Araneus anantnagensis* Tikader & Bal (379)

110. *Araneus pahelgaonensis* Tikader & Bal (379)

111. *Araneus panchganiensis* Tikader & Bal (379)

112. *Neoscona bengalensis* Tikader & Bal (379)

113. *Neoscona chrysanthusi* Tikader & Bal (379)

114. *Neoscona elliptica* Tikader & Bal (379)

115. *Neoscona molemensis* Tikader & Bal (379)

116. *Neoscona pomaensis* Tikader & Bal (379)

117. *Neoscona shillongensis* Tikader & Bal (379)

(ii) Family : Ctenidae

118. *Ctenus bondilaensis* Tikader & Malhotra (381)

(iii) Family : Ochyroceratidae

119. *Speocera taprobanica* Brignoli (327)

(iv) Family : Salticidae

120. *Marpissa anusuae* Tikader & Biswas (380)

(v) Family : Uloboridae

121. *Hyptiotes himalayaensis* Tikader (378)

(vi) Family : Zodariidae

122. *Lutica poonaensis* Tikader (376)

(2) Order : Acarina

(i) Family : Acaridae

123. *Acarus griffithsi* Raghunath, Channabasavanna & Krishna Rao (363)

(ii) Family : Argasidae

124. *Argas (Carios) gujaratensis* Advani & Vazirani (546)

125. *Argas (Carios) hoogstraali* Advani & Vazirani (546)

126. *Argas (Carios) indicus* Advani & Vazirani (546)

127. *Argas (Carios) soneshinei* Advani & Vazirani (546)

128. *Argas (Chiropteragus) wilsoni* Advani & Vazirani (546)

(iii) Family : Eriophyidae

129. *Acalitus meliosmae* Mohanasundaram (348)

130. *Acalitus reticulatae* Mohanasundaram (348)

131. *Acalitus schefflerae* Mohanasundaram (348)

132. *Aculops abutiloni* Mandal & Chakrabarti (350)

133. *Aculus cassiae* Mandal & Chakrabarti (350)

134. *Calacarus microrostrus* Chakrabarti & Ghosh (328)

135. *Eriophyes erythrensis* Chakrabarti & Ghosh (328)

Neophytoptus Mahanasundaram (gen.n.) (349)

136. *Neohytoptus ocimae* Mahanasundaram (349)

137. *Phytoptus breyniae* Mohanasundaram (349)

138. *Phytoptus carissae* Mohanasundaram (349)

139. *Phytoptus eletariae* Mohanasundaram (349)

140. *Phytoptus glycosmisae* Mohanasundaram (349)

141. *Phytoptus karnatakaensis* Mohanasundaram (349)

142. *Phytoptus lantanae* Mohanasundaram (349)

143. *Phytoptus laurae* Mohanasundaram (349)
144. *Phytoptus morindae* Mohanasundaram (349)
145. *Phytoptus rosae* Mohanasundaram (349)
146. *Phytoptus subbaraoi* Mohanasundaram (349)
147. *Tegonotus bengalensis* Mondal & Chakrabarti (350)

(iv) Family : Macronyssidae

148. *Parasteatonyssus jayanti* Advani & Vazirani (546)
149. *Steatonyssus allredi* Advani & Vazirani (546)
150. *Steatonyssus decisetosus* Advani & Vazirani (546)
151. *Steatonyssus quadrisetosus* Advani & Vazirani (546)

(v) Family Nalepellidae

152. *Anchiphytoptus giganticus* Mohanasundaram (347a)
153. *Mackiella borasis* Mohanasundaram (347a)

(vi) Family : Oribatulidae

154. *Chaunoproctus longisetosus* Dhali, Bhaduri & Raychaudhuri (331)
155. *Scheloribates sikkimensis* Dhali, Bhaduri & Raychaudhuri (331)
156. *Scheloribates swswati* Dhali, Bhaduri & Raychaudhuri (331)

(vii) Family : Phytoseiidae

157. *Amblyseius giganticus* Gupta (335)
158. *Amblyseius* (*Paraphytoseius*) *scleroticus* Gupta & Ray (337)
159. *Phytoseius* (*Dubininellus*) *wainsteini* Gupta (336)
160. *Typhlodromus himalayensis* Gupta (335)
161. *Typhlodromus kashmiricus* Gupta (336)
162. *Typhlodromus mori* Gupta (336)
163. *Typhlodromus neosoleiger* Gupta (336)
164. *Typhlodromus transitans* Gupta (336)

(viii) Family : Spinturnicidae

Parameristaspis Advani & Vazirani (gen. n.) (546)
165. *Parameristaspis delfinadoi* Advani & Vazirani (546)
166. *Spinturnix bakeri* Advani & Vazirani (546)
167. *Spinturnix rudnicki* Advani & Vazirani (546)

(ix) Family : Tetranychidae

168. *Eotetranychus ladakhensis* Gupta (338)

(x) Family : Trombiculidae

169. *Leptotrombidium* (*Ericotrombidium*) *kalyani* Kulkarni (344)
170. *Leptotrombidium* (*Ericotrombidium*) *rajaniae* Kulkarni (344)

II. Class : Crustacea

(a) Sub-class : Copepoda

(1) Order : Arguloida

Family : Catlaphillidae

171. *Catlaphilla lingi* Manohar, Seenappa, Venkteshappa & Shetty (420)

(2) Order : Lernaeopodoida

Family : Lernaeopodidae

172. *Thysanote polyfimbriata* Prabha & Pillai (429)

(b) Sub-class : Malacostraca

Order : Amphipoda

Family : Gammaridae

173. *Elasmopus rishikodensis* Kanakadurga, Manamantha Rao & Shyamasundari (404)
174. *Elasmopus visakhapatnamensis* Kanakadurga, Manamantha Rao & Shyamasundari (404)

III. Class : Insecta

(1) Order : Orthoptera

Family : Scleropteridae

175. *Scleropterus lambai* Bhargava (501)

(2) Order : Dermaptera

Family : Carcinophoridae

176. *Nannisolabis hincksi* Srivastava (521)

177. *Platylabia brindlel* Srivastava (520)

178. *Platylabia nathani* Srivastava (520)

(3) Order : Isoptera

(i) Family : Kalotermitidae

179. *Glyptotermes krishnai* Maiti & Chakraborty (530)

180. *Glyptotermes nicobarensis* Maiti & Chakraborty (530)

(ii) Family : Termitidae

181. *Odontotermes boveni* Thakur (538)

182. *Odontotermes indicus* Thakur (538)

183. *Odontotermes yadevi* Thakur (538)

(4) Order : Anoplura (Siphunculata)

Family : Hoplopleuridae

184. *Hoplopleura khandala* Mishra (545)

185. *Hoplopleura kondana* Mishra (545)

186. *Hoplopleura sahyadri* Mishra (545)

187. *Polyplax hurrianicus* Mishra (545)

188. *Polyplax kondana* Mishra (545)

(5) Order : Hemiptera

(a) Sub-order : Homoptera

(i) Family : Aleyrodidae

189. *Bemisia curvata* Qureshi (608)

(ii) Family : Aphididae

190. *Aulacerthum delphinae* Das, Raychaudhuri & Raychaudhuri (562)

191. *Cinara curtis* Ghosh & Roychowdhury (569)

192. *Dactynotus minatii* Das, Raychaudhuri & Raychaudhuri (562)

(iii) Family : Cicadellidae

193. *Agnesiella (Draberiella) alni* Sharma & Malhotra (633)

194. *Agnesiella (Draberiella) jammuensis* Sharma & Malhotra (633)

(iv) Family : Issidae

195. *Afronaso tapirifacies* Prasad (607)

196. *Lanceonotus malabaricus* Thirumalai & Ananthasubramanian (645)

Neocentrus Thirumalai & Ananthasubramanian (gen. n.) (645)

197. *Neocentrus rufus* Thirumalai & Anathasubramanian (645)

198. *Telingana majuscula* Thirumalai & Anathasubramanian (645)

199. *Tricentrus syrandrikae* Thirumalai & Anathasubramanian (645)

(b) Sub-order : Heteroptera

(i) Family : Aradidae

200. *Aneurus krombeini* Kormilev (552)

201. *Arictus ceylonensis* Kormilev (552)

202. *Camerarius ceylonensis* Kormilev (552)

203. *Mastigocoris brachypterus* Kormilev (552)

(ii) Family : Cimicidae

204. *Cacodmus bhati* Advani & Vazirani (546)

205. *Cimex pattoni* Advani & Vazirani (546)

206. *Cimex ueshimai* Advani & Vazirani (546)

207. *Leptocimex hiregaudari* Advani & Vazirani (546)

(6) Order : Thysanoptera

Family : Phlaeothrıpidae

208. *Crotonothrips erraticus* Muraleedharan & Sen (652)

209. *Crotonothrips longirostris* Muraleedharan & Sen (653)
210. *Gynaikothrips affinis* Muraleedharan & Sen (653)
211. *Liothrips clarus* Muraleedharan & Sen (653)
212. *Liothrips infrequens* Muraleedharan & Sen (653)
213. *Liothrips loranthi* Muraleedharan & Sen (653)
214. *Liothrips renukae* Muraleedharan & Sen (652)
215. *Mesothrips acutus* Muraleedharan & Sen (653)
216. *Mesothrips ambasensis* Muraleedharan & Sen (653)
217. *Mesothrips latus* Muraleedharan & Sen (653)
218. *Mesothrips perlucidus* Muraleedharan & Sen (653)
219. *Stigmothrips okajimai* Muraleedharan & Sen (653)
220. *Thilibothrips* (*Athilibothrips*) *yercaudensis* Muraleedharan & Sen (652)

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221. *Italochrysa flavobrunnea* Ghosh (657)

(ii) Family : Myrmeleonidae

222. *Bubopsis rubrapunctata* Ghosh (659)
223. *Neuroleon unpunctatus* Ghosh (659)

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(i) Family : Chrysomelidae

224. *Clavicornaltica schereri* Basu & Sengupta (667)
225. *Longtarsus incicaus* Basu, Bhoumik & Sengupta (668)
226. *Lypnea manipurensis* Basu & Sengupta (667)
227. *Phyllotreta tripurensis* Basu, Bhoumik & Sengupta (668)
228. *Schenklingia bhaumiki* Basu & Sengupta (667)
229. *Schenklingia heteropunctata* Basu & Sengupta (667)
230. *Schenklingia himalayensis* Basu & Sengupta (667)

(ii) Family : Meloidae

Pseudosybaris Saha (gen. n.) (708)
231. *Pseudosybaris kempi* Saha (708)

(iii) Family : Scarabaeidae

232. *Clinteria arunachaia* Chatterjee & Saha (677)

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(i) Family : Asilidae

233. *Laphria assamensis* Joseph & Parui (770)
234. *Laphria frommeri* Joseph & Parui (770)
235. *Laphria indica* Joseph & Parui (770)
236. *Laphria keralaensis* Joseph & Parui (770)
237. *Laphria luteopilosa* Joseph & Parui (770)
238. *Laphria nathani* Joseph & Parui (770)
239. *Laphria orientalis* Joseph & Parui (770)
240. *Maira delfinadoi* Joseph & Parui (770)
241. *Orthogonis andamanensis* Joseph & Parui (770)
242. *Trigonomima fuscopoda* Joseph & Parui (771)

(ii) Family : Drosophilidae

243. *Drosophila* (*Drosophila*) *bimorpha* Singh & Gupta (804)
244. *Drosophila* (*Drosophila*) *neomakinoi* Gupta & Singh (764)

245. *Drosophila (Drosophila) paralongifera* Gupta & Singh (764)

246. *Drosophila (Drosophila) penniclubata* Singh & Gupta (804)

247. *Drosophila (Drosophila) tetradentata* Singh & Gupta (804)

248. *Drosophila madikerii* Muniyappa & Reddy (783)

(iii) Family : Celyphidae

249. *Spaniocelyphus dasguptii* Chatterjee (746)

250. *Spaniocelyphus roychoudhurii* Chatterjee (746)

(iv) Family : Ceratopogonidae

251. *Alluaudomyia flexistyla* Chaudhuri & Ghosh (748)

(v) Family : Chironomidae

252. *Microchironomus clarilatus* Gupta & Chaudhuri (762)

253. *Pentapedilum macrotrichium* Guha & Chaudhuri (763)

254. *Xenochironomus loripes* Guha & Chaudhuri (763)

(vi) Family : Phoridae

255. *Megaselia deningi* Disney (754)

(vii) Family : Streblidae

256. *Brachytarsina joblingi* Advani & Vazirani (546)

257. *Brachytarsina maai* Advani & Vazirani (546)

258. *Brachytarsina theodori* Advani & Vazirani (546)

Paraascodipteron Advani & Vazirani (gen. n.) (546)

259. *Paraascodipteron scotophilus* Advani & Vazirani (546)

(viii) Family : Tabanidae

260. *Haematopota darjeelingensis* Datta (752)

(10) Order : Hymenoptera

(i) Family : Eurytomidae

261. *Bephrata dalhousiensis* Mukherjee (995)

262. *Bephrata kumaonensis* Mukherjee (995)

263. *Bephrata nepalensis* Mukherjee (995)

264. *Decatoma karnatakensis* Mukherjee (995)

265. *Decatoma kollimaliana* Mukherjee (995)

266. *Eudectoma coorgensis* Mukherjee (995)

267. *Eurytoma karnatakensis* Mukherjee (995)

268. *Eurytoma kasaragodensis* Mukherjee (995)

269. *Eurytoma manipurensis* Mukherjee (995)

270. *Eurytoma poroensis* Mukherjee (995)

271. *Eurytomacharis coromandalicus* Mukherjee (995)

272. *Eurytomacharis dubeyi* Mukherjee (995)

273. *Eurytomacharis karalensis* Mukherjee (995)

274. *Eurytomacharis nilamburensis* Mukherjee (995)

275. *Eurytomacharis pechipariensis* Mukherjee (995)

276. *Eurytomacharis sayadriensis* Mukherjee (995)

277. *Harmolita dalhousiae* Mukherjee (995)

278. *Harmolita decanensis* Mukherjee (995)

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279. *Odonteurytoma tanjorensis* Mukherjee (995)

280. *Phylloxeroxenus godiarensis* Mukherjee (995)

281. *Phylloxeroxenus pechipariensis* Mukherjee (995)

282. *Phylloxeroxenus poroensis* Mukherjee (995)

283. *Phylloxeroxenus rajaensis* Mukherjee (995)

284. *Prodecatoma ahlaensis* Mukherjee (995)
285. *Prodecatoma bengalensis* Mukherjee (995)
286. *Prodecatoma brachynerva* Mukherjee (995)
287. *Prodecatoma fusciscapa* Mukherjee (995)
288. *Prodecatoma hogenakalensis* Mukherjee (995)
289. *Prodecatoma moozhiarensis* Mukherjee (995)
290. *Prodecatoma nilamburensis* Mukherjee (995)
291. *Prodecatoma postmarginalis* Mukherjee (995)

(ii) Family : Formicidae

292. *Tetramorium barryi* Mathew (994)

(iii) Family : Ichneumonidae

Anupama Jonathan (gen. n.) (984)

(iv) Family : Platygastridae

293. *Fidiobia coorgensis* Mukherjee (996)
294. *Inostemma anamalaianus* Mukherjee (996)
295. *Inostemma coorgensis* Mukherjee (996)
296. *Inostemma dalhousianus* Mukherjee (996)
297. *Inostemma nelgiensis* Mukherjee (996)
298. *Inostemma shencottahensis* Mukherjee (996)
299. *Isostasius poroicus* Mukherjee (996)
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301. *Leptacis bengalensis* Mukherjee (996)
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303. *Leptacis coorgensis* Mukherjee (996)
304. *Leptacis maldarensis* Mukherjee (996)
305. *Leptacis yercaudensis* Mukherjee (996)
306. *Platygastoides indicus* Mukherjee (996)
307. *Synopeas atturensis* Mukherjee (996)
308. *Synopeas nepalensis* Mukherjee (996)

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309. *Ccratobaeus longituberculata* Mukherjee (996)
310. *Idris agraensis* Mukherjee (996)
311. *Idris annexia* Mukherjee (996)
312. *Idris appangalus* Mukherjee (996)
313. *Idris dubarensis* Mukherjee (996)
314. *Idris keethami* Mukherjee (996)
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316. *Idris triangularis* Mukherjee (996)
317. *Idris velakkadaiensis* Mukherjee (996)
318. *Sparasion travancoricus* Mani & Sharma (943)
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323. *Trimorus atturensis* Mukherjee (996)
324. *Trimorus deccana* Mukherjee (996)
325. *Trimorus dimidicornis* Mukherjee (996)
326. *Trimorus dubarensis* Mukherjee (996)
327. *Trimorus fasciatus* Mukherjee (996)
328. *Trimorus longispina* Mukherjee (996)
329. *Trimorus maldara* Mukherjee (996)
330. *Trimorus nigricephala* Mukherjee (996)
331. *Trimorus nilaburensis* Mukherjee (996)
332. *Trimorus ponmudiensis* Mukherjee (996)
333. *Tritebia kotturensis* Sharma (1007)
334. *Tritebia vindhiensis* Sharma (1007)
335. *Xenomerus indicus* Mukherjee (996)

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Class : Phylacto laemata.

Family : Plumatellidae

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I. Class : Pisces

(2) Order : Cypriniformes

(i) Family : Cyprinidae

336. *Puntius saberi* Datta & Karmakar (1065)

(ii) Family : Homalopteridae

337. *Homaloptera pillai* Indra & Remadevi (1087)

(iii) Family : Schilbeidae

338. *Proeutropiichthys taakree burmanicus* sub sp. n. Tilak (1232)

(2) Order : Rajiformes

Family : Torpedinidae

339. *Heteronarce prabhui* Talwar (1227)

II. Class : Amphibia

Order : Anura

(i) Family : Bufonidae

340. *Ansonia rubigina* Pillai & Pattabiraman (1249)

(ii) Family : Ranidae

341. *Micrixalus thampii* Pillai (1247)

342. *Rana bilineata* Pillai & Chanda (1248)

III. Class : Reptilia

Order : Squamata

Family : Geckonidae

343. *Hemidactylus porbandarensis* Sharma (1292)

IV. Class : Mammalia

Order : Rodentia

(i) Family : Muridae

344. *Millardia meltada singuri* sub. sp. n. Mandal & Ghosh (1675)

(ii) Family : Sciuridae

345. *Petaurista magnificus hodgsoni* sub. sp. n. Ghose & Saha (1554)

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6. **Aschelminthes**
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   - (c) Nematoda
7. **Acanthocephala**
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