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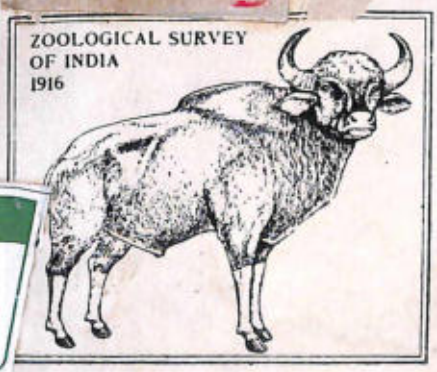

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The information regarding published work on Indian Zoology may please be forwarded to the Director, Zoological Survey of India 234/4 A. J. C. Bose Road, Calcutta 700 020 for incorporating in the **Bibliography of Indian Zoology.**

FOREWORD

The 22nd Volume of the **Bibliography of Indian Zoology**, dealing with the published zoological literature refers mainly for the year 1979 and a part of year 1978 on the fauna from the Indian Region including India, Bangladesh, Burma, Bhutan, Nepal, Pakistan and Sri Lanka.

There had been a long felt need to bring about changes in the general format of the **Bibliography** which had hitherto been arranged alphabetically. This has been changed now and the whole literature has been arranged according to a generally accepted zoological classification of the Animal Groups. This would greatly help the researchers in consulting the relevant chapter instantly. The detailed contents at the beginning will also help in consulting the volume. Besides, all other salient features of the **Bibliography**, i. e. *Subject Index*, *New Taxa List*, *Regional Bibliography*, etc., have been retained. A new chapter has been added at the end, indexing all the authors, arranged alphabetically, quoting serial number of the papers. The co-authors have been shown in italics.

Efforts have been made to highlight some of the papers with brief abstracts. A perusal of the published literature reveals that a wide range of subjects have been covered, such as Wildlife, Environmental Science & Ecology, Aquatic Ecology, Economic Zoology, Behaviour, Histochemistry, Systematics, Faunistics & Zoogeography, Parasitology, Cytogenetics, Cytology, Palaeozoology, etc. These studies have brought to light over 370 taxa new to science, which have been listed separately. Of these, nearly three-fourths represent Arthropoda including Arachnida, Myriapoda, Crustacea and Insecta. All those workers who are interested in literature on a particular subject, or from a particular area, would find chapters III and IV quite useful, where figures in bold-face deal with new taxa.

It is not out of scope to mention that publication of the Bibliography by the Zoological Survey of India will benefit all the young workers in several fields of Zoology. Though this Volume is for 1979, the consolidated references on Indian Zoology will be a ready tool in the hands of all the workers.

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

Thanks are due to Dr. G. S. Arora, Scientist 'SD', Sri M. Z. Ansari, Asstt. Zoologist and other staff members of Information & Documentation Division, particularly for their sincere efforts in bringing about the desired change in this volume, and to staff of the Publication Division for bringing out the same.

Dr. B. S. Lamba
Acting Director

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I. BIBLIOGRAPHY OF THE INDIAN ZOOLOGY FOR THE YEAR 1979

GENERAL ZOOLOGY

1. **Acharjyo, L. N.** 1979. Nandankanan biological park.—*Wldl. Newsl.*, **6** (1) : 4-5.

2. **Agrawal, H. P.** 1979. The problem of India's wild life conservation.—*Corsonat*, **1** (1) : 3-5 & 11.

3. **Agrawal, H. P., Singh, R. K.** and **Rane, P. D.** 1979. A report on the Madhaw National Park, Shivpuri. —*Wild Life*, **1** (4-6) : 8-16.

4. **Alam, M.** and **Bhargava, S. C.** 1979. Diurnal rhythm of zooplankton in relation to certain physico-chemical factors at Sambhar lake —*Geobios*, **6** (Suppl.) : 314-317.

5. **Bhattacharya, T.** and **Raychaudhuri, D. N.** 1979. Monthly variation in the density of soil microarthropods in relation to some climatic and edaphic factors. —*Entomon*, **4** (4) : 313-318.

   Population fluctuation of soil microarthropods in a wasteland of Santiniketan was studied in relation to some climatic and edaphic factors for two years.

6. **Bodner, A.** 1979. Intestinal parasites in Peace Corps volunteers in Nepal.—*Trop. Doctor*, **9** (4) : 150-151.

7. **Browne, T.** 1979. Animals in agony. —*Loris*, **15** (2) : 127-128.

8. **Deva, S., Srivastava, M. M.** and **Shyam, G.** 1979. Conservation of swamp forests for wild life. —*Cheetal*, **21** (1) : 21-24.

9. **Dey, T.** and **Misra, S. D.** 1978. Diurnal movement of zooplanktons in rainy season in Balsamand Lake. —*Trans. Indian Soc. Desert Technol.*, **3** (2) : 78-81.

   Diurnal fluctuation of physico-chemical factors were studied.

10. **Dharmakumarsinhji, K. S.** 1979. The changing wildlife of Kathiawar. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 632-650

11. **Ghosh, S. D.** 1978-79. Wild life preservation—its significance and importance. —*Nth. Forest Rangers Coll. Mag.*, **27** [1977-78] : 48-52.

12. **Goswami, S. C., Selvakumar, R. A.** and **Goswami, U.** 1979. Diel and tidal variations in zooplanktonic populations in the Zuari Estuary, Goa. —*Mahasagar —Bull. natn. Inst. Oceanogr.*, **12** (4) : 247-258.

    Present paper deals with the qualitative variations in the distribution of zooplankton in the Zuari estuary in relation to diel rhythm, tides and seasons.

13. **Hameed, S. F.** and **Sharma, S. C.** 1979. Biological performance of insecticides in relation to their consequent pollution in environment. —*Pesticides*, **13** (6) : 24-30.

    This paper deals with the effects of pesticide pollution in soil, in air, in human body, in water, in crops, animal feeds, eggs and meats.

14. **Khacher, L.** 1979. The Nanda Devi Sanctuary. 1977. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 868-886.

15. **Lamba, B. S.** and **Bhatnagar, R. K.** 1979. Fauna of Corbett National Park (Part II) Cont. —*Cheetal*, **20** (1) : 19-22.

16. **Maity, A. K.** and **Mishra, A.** 1979. Hypothalamus and animal behaviour.—*Sci. Reptr.*, **16** (3) : 192-195.

17. **Mathur, S. N.** 1979. Palaeoecology of the Subathu Formation, Kumaon Himalaya. —*Bull. Indian geol. Ass.*, 12 (1) : 81-90.

    The paper deals with the ecological conditions of Subathu Formation (Upper Palaeocene=Middle Eocene) of the region and has discovered fossil fauna and flora.

18. **Nammalwar, P.** and **Prakasam, V. R.** 1979. Present status and problems of fishermen in the marine fishing industry. —*Seafd. Export J.*, **11** (2) : 27-30.

19. **Nath, B.** and **Biswas, M. K.** 1979. Animal remains from Lumbini (Nepal). —*Rec. zool. Surv. India*, **75** (1-4) : 361-370.

20. **Nirula, K. K.** 1979. Relevant crop protection technology for the future. —*Pesticides*, **13** (6) : 15-19.

    The paper deals with resources of production increase, neglect of crop protection, crop protection technology, yield potential under crop protection umbrella and crop protection during last 25 years.

21. **Peter, G.** and **Nair, V. R.** 1978. Vertical distribution of zooplankton in relation to thermoline. —*Mahasagar*, **11** (3-4) : 169-175.

    The role of thermocline in the distribution of zooplankton is discussed on the samples collected from the top most layer of the thermocline up to the surface and from 150 m below the thermocline up to the thermocline depths.

22. **Ranganathan, G. S.** 1979. Jagara valley Sanctuary. —*Hornbill*, No. 13 : 5-9.

23. **Roonwal, M. L.** 1979. The true scientist : criteria of excellence. —*J. scient. ind. Res.*, **38** (12) : 665-667.

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25. **Samson, M. V.** and **Munmigutti, S. G.** 1979. *In vitro* screening of chemicals against *Beauveria bassiana* (Bals.) Vuillemin. —*Indian J. Seric.*, **18** (1) : 49-50.

26. **Scott, P.** 1979. Why conserve wildlife ? —*Loris*, **15** (2) : 104-105.

27. **Shaha, H.** 1979. Frozen embryos. —*Sci. Reptr.*, **16** (2) : 123.

27a. **Sharma, R. N.** 1979. Standardization of pest control equipment. —*Pesticides*, **13** (3) : 37-45.

28. **Sinha, N. K.** 1979. List of National Parks and Wild Life Sanctuaries of Madhya Pradesh. —*J. Bombay nat. Hist. Soc.*, **75** (2) : 469-472.

29. **Soman, P. W.** 1979. Occurrence of the Ceacilian *Indotyphlus battersbyi* Taylor in Ratnagiri. —*J. zool. Soc. India*, **27** (1-2) [1975] : 176-177.

30. **Sundararaj, V.** 1979. Mangrove biotope for aqua culture. —*Kisan Wld.*, **6** (6) : 46-47.

    The paper deals with the hydrobiological aspects of the mangrove waters and their adjacent areas spread along the rivers, bays and estuaries along the east and the west coast of India.

31. **Thapa, K. B.** 1978-79. Role of the modern Zoo. —*Nth. Forest Rangers Coll. Mag.*, **27** : 65-66.

32. **Tiwari, K. K.** 1979. Zoological studies in the national economy. —*Sci. Cult.*, **45** (4) : 12-15.

People have to understand the finer implications of ecological benefits. Once this knowledge takes root at the grass level, we can hope for a better quality of life.

33. **Varkey John** 1979. A preliminary ecological study on a freshwater lake in Kerala during 1972. —*J. zool. Soc. India*, **27** (1-2) [1975] : 85-92.

34. **Vijayan, V. S.** 1979. Parambikulam wild life sanctuary and its adjacent areas. —*J. Bombay nat. Hist. Soc.*, **75** (3) (1978) : 888-900.

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PROTOZOA

36. **Agarwal, K., Puri, S. K.** and **Dutta, G. P.** 1979. Selection of pyrimethamine resistant strain of *Plasmodium berghei*. —*Indian J. med. Res.*, **69** (4) : 577-582.

37. **Alam, M.** and **Ahmed, S.** 1979. Prolonged cultures of *Entamoeba histolytica*. —*Indian J. exp. Biol.*, **17** (10) : 1152-1153.

38. **Bhalla, S. N.** and **Nigam, R.** 1979. Recent foraminifera from Calangute Beach sand, Goa. —*Bull. Indian geol. Ass.*, **12** (2) : 239-240.

39. **Dalal, S. G.** 1979. Planktonic foraminifera off Bombay—on appraisal using multivariate analysis. —*Mahasagar—Bull. natn. Inst. Oceanogr.*, **12** (4) : 269-270.

Relative abundance of twenty-two planktonic species of foraminifera has been studied in relation to temperature, salinity, water depth and calcium carbonate in the bottom water using cluster analysis.

40. **Das, S. R., Das, P.** and **Rai, G. P.** 1979. Revival of pathogenicity of axenically grown *Entamoeba histolytica* for the rat. —*Aust. J. exp. Biol. med. Sci.*, **57** (3) : 241-244.

41. **Das, S. R., Kidwai, S. A.** and **Gupta, A. K.** 1979. Preparation of standard amoeba-antigen from axenic *Entamoeba histolytica* and its use in the serodiagnosis and seroepidemiology of amoebiasis. —*J. Biosci.*, **1** (3) : 255-262.

This paper deals with preparation of standard amoeba-antigen from *E. histolytica* grown on modified axenic medium, and its use in the detection of specific *E. histolytica* antibody in patients' sera as also epidemiologic survey of amoebiasis patients.

42. **Deore, P. A., Sabnis, M. G.** and **Bendre, V. U.** 1979. A case of cutaneous theilariasis in a graded calf.—*Indian vet. J.*, **56** (9) : 794-795.

A case of cutaneous theilariasis was recorded. The lesions were hard nodular and convex. They were seen more in pigmented areas of the skin. The nodules did not show any tendency to form pustules. The nodules subsided on recovery after treatment.

43. **Dhar, S.** and **Gautam, O. P.** 1979. Serum proteins in experimental *Theileria annulata* infection of cattle. — *ndian J. Anim. Sci.*, **49** (7) : 511-516.

Total serum protein and protein fractions were estimated quantitatively and qualitatively in experimentally induced acute and chronic *Theileria annulata* infection of cattle. In acute phase of both the types of infection, hypoproteinaemia was accompanied by an increase in alpha—and beta-globulin fractions. In chronic phase these fractions became almost normal but gamma —globulin increased significantly.

44. **Dutta, G. P.** 1979. Recent advances in cytochemistry and ultrastructure of cytoplasmic inclusions in Sarcodina (Protozoa) : Part-II- Pathogenic and non-pathogenic aerobic free-living amoebae. —*J. scient. ind. Res.*, **38** (4) : 199-218.

Recent advances in the cytochemistry and ultrastructure of cytoplasmic inclusions of aerobic free-living amoebae are discussed and the structure and function of their cytoplasmic inclusion correlated with those of Mastigophora, Opalinata, Ciliophora and other groups of Protozoa. Recent advances in the cytochemistry and ultrastructure of *E. histolytica* and other anaerobic amoebae have been discussed separately.

45. **Gupta, P. D.** 1979. Ciliated protozoa hyperparasitic in the digenetic trematode *Diplodiscus mehrai* Pande.—*Biovigyanam*, **5** (2) : 159-164, 1 pl.

A brief review of the protozoan hyperparasites of trematodes has been given.

46. **Hagargi, S. S.** and **Amoji, S. D.** 1979. Occurrence of *Trichodina pediculus* Ehrenberg, 1838 on freshwater carps, *Barbus* spp.—*Curr. Sci.*, **48** (17) : 789-790.

The specimens found on *Barbus* spp. have revealed some biometric differences from those reported earlier which are given here in parenthesis with their respective reference number. The present finding in India is an additional evidence to substantiate the statement.

47. **Haldar, D. P., Sarkar, N. K.** and **Dutta, S. C.** 1979. New host for *Quadruspinospora chakravartyei* Chakraborty and Haldar, 1974 (Protozoa : Sporozoa). —*Curr. Sci.*, **48** (14) : 656.

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This paper deals with two new species of *Trypanosoma* which were found in the blood of two carps, *Labeo bata* and *Puntius stigma*. The histomorphological characteristics are carefully described.

51. **Joshi, B. D.** 1979. On the occurrence of trypanosomes in the blood of some freshwater teleosts of Lucknow (U. P.), India. —*Proc. Indian Acad. Sci.* (B), **88** (1) : 59-63.

Of 2150 freshwater teloeosts from Lucknow, 75 from 13 species contained trypanosomes in the blood.

52. **Krishnamurthy, R.** and **Madre, V. E.** 1979. Studies on two flagellates of the *Monocercomonoides* Travis, 1932 (Mastigophora : Polymastigina) from amphibians and reptiles in India. —*Acta Protozool.*, **18** (2) : 251-257.

Monocercomonoides dobelli n. sp. from the rectal contents of *Bufo melanostictus* from Aurangabad, India. It is distinguished by the unequal length of the anterior flagella and by the uneven thickness of the axoneme.

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The effect of exogenous cholesterol on trophozoite multiplication, lipid metabolism and the activity of lysosomal enzymes of *H. culbertsoni* cultured in peptone-vitamin-salt medium.

54. **Mandal, A. K.** 1979. Studies on the haematozoa of some catfishes belonging to the genus *Mystus* Scopoli from India. —*Bull. zool. Surv. India*, **2** (1) : 17-23.

A study on the haematozoa of fishes belonging to the genus *Mystus* Scopoli has been made. As a result, two new species have been described. *A Dactylosoma* sp. has also been described along with the redescription of *I. vittati* Tandon and Joshi, 1973 from *M. vittatus*.

A comment on the host specificity of these haemoflagellates have also been made.

55. **Muley, A. K.** *et al.* 1979. Pathological changes in experimental *Babesia bigemina* infection in cross bred calves. —*Res. Bull. Marathwada agric. Univ.*, 3 (8) : 108-110.

56. **Nagar, S. K., Saxena, V. K.** and **Kumar, K.** 1979. Studies on small mammals of Delhi Zoological Park as possible source of babesiosis infection among white tigers in the Zoo. —*J. Com. Dis.*, **10** (3) [1978] : 175-178.

In a study aimed at elucidating the role of small mammals in maintaining a foci of babesiosis in Delhi Zoological Park, a total of 79 small mammals were live trapped. Ectoparasites viz. *Haemaphysalis* (*R.*) *leachi*, *Rhipicephalus sanguineus*, *Xenopsylla cheopis*, *Ctenocephalides felis felis* and a new species of mite were recovered from these hosts.

57. **Nandi, N. C.** 1979. Bird malaria : its perspective and predicament. —*Zoologiana*, (**2**) [1978] : 40-48.

There are over 25 species of *Plasmodium* infecting a wide range of birds—some of them are highly pathogenic to domestic and game birds.

58. **Narasimhamurti, C. C.** and **Kalavati, C.** 1979. *Kudoa tetraspora* n. sp. (Myxosporidea : Protozoa) parasitic in the brain tissue of *Mugil cephalus*. —*Proc. Indian Acad. Sci.* (B), **88** (1) : 85-89.

Kudoa tetraspora n. sp., from the tissue surrounding the optic lobes of *Mugil cephalus* from India has cysts 0.3 to 1.5 mm. in diameter.

59. **Narasimhamurti, C. C.** and **Kalavati, C.** 1979. *Kudoa sphyraeni* n. sp. (Myxosporidia : Protozoa) parasitic in the muscles of the gut of the marine fish, *Sphyraena jello* Cuv. —*Proc. Indian Acad. Sci.*, **88**B (1) : 265-268.

A new histozoic myxosporidian infecting the muscles of the gut of *S. jello* is described.

60. **Narasimhamurti, C. C.** and **Kalavati, C.** 1979. *Myxosoma lairdi* sp. n. (Protozoa : Myxosporidia) parasitic in the gut of the estuarine fish, *Liza macrolepis* Smith. —*Proc. Indian Acad. Sci.*, **88**B (1) : 269-272.

A new species of myxosporidian, *M. lairdi* n. sp. infecting the gut of *Liza macrolepis* is described from Andhra Pradesh.

61. **Nasreen**, and **Khan, M. A.** 1979. Responses of the ciliate *Oxytricha fallax* Stein, to lead acetate. —*Indian J. exp. Biol.*, **17** (9) : 982-984.

62. **Panda, B. K.** and **Tripathy, S. B.** 1979. Some ovservations on the incidence of coccidiosis and the prevalence of different *Eimeria* species among the chicks of Bhubaneswar area, Orissa. —*Indian Poult. Gaz.*, **63** (3) : 102-107.

62a. **Purohit, S. K.** and **Jatkar, P. R.** 1979. Antigenic analysis of *Trypanosoma evansi*. —*Indian vet. J.*, **56** (2) : 91-94.

63. **Rama Rao, R.** 1979. Malarial infection and the nucleic acids of the chick. —*J. Com. Dis.*, **10** (3) [1978] : 165-169.

Chicks with acute malarial infection have been found to demonstrate appreciable increase in total nucleic acid contents in the liver.

64. **Santhakumari, V.** and **Saraswathy, M.** 1979. On the Ellobiopsidae, parasitic protozoa from zooplankton. —*Mahasagar, Bull. natn. Inst. Oceanogr.*, **12** (2) : 83-92.

Two species, namely *Ellobiopsis chattoni* and *Amallocystis fagei* of the family Ellobiopsidae, parasitic protozoa, are described and figured.

65. **Setty, M. G. A. P.** 1979. Role of foraminifera in oceanographic events. —*J. scient. ind. Res.*, **38** (7) : 380-399.

Living foraminifers from various depths in tows and dead assemblages in undisturbed long cores from various regions of the ocean were collected and studied.

66. **Setty, M.G.A.P., Nigam, R.** and **Ambre, N. V.** 1979. Graphic pattern of foraminiferal dominance in nearshore region of central west coast of India. —*Mahasagar—Bull. natn. Inst. Oceanogr.*, **12** (3) : 195-199.

Within the inner neritic zone (0-55m. depth) along the central west coast of India, some foraminiferal groups such as Ammonia, Elphidium, Trochammina, Bulimina, Bolivina, Nonion, Nonionella and Florilus individually (total foraminiferal number) and collectively (total species number) are dominant. Their distribution pattern is shown graphically. The living/dead foraminiferal test ratio was found to be anomalous but the richness of foraminiferal number probably reflects the high organic productivity of the region.

67. **Sharma, O. P.** *et al.* 1979. Suppression of malaria infection by starvation—a biochemical study.—*Indian J. med. Res.*, **69** (2) : 251-254.

68. **Sikdar, A.** and **Rao, J. R.** 1979. A note about the occurrence of *Eimeria (Globidium) leuckarti* (Flesch, 1883) Reichenow 1940 in a cow-calf in Andaman & Nicobar Islands. —*Indian J. Anim. Hlth.*, **18** (2) : 69.

69. Deleted.

70. **Sinha, C. K.** 1979. *Dorisiella harpia* n. sp. from hairy—winged bat. —*Indian J. Parasit.*, **3** (2) : 173-175.

71. **Subba Rao, B.V.S.S.R., Kalavati, C.** and **Narasimhamurti, C. C.** 1979. A new aseptate gregarine, *Monocystis pontodrili* sp. n. from the littoral oligochaete, *Pontodrilus bermudensis* Beddard. —*Acta Protozool.*, **18** (2) : 259-264.

Monocystis pontodrili n. sp. from *Pontodrilus bermudensis* from Visakhapatnam harbour, India, is distinguished by its solitary elongated trophozoites with a distinct crescent-shaped anterior mucron, by the isogamous, spherical gametes and by the boat-shaped spores.

72. **Tewari, B. S.** 1979. Stratigraphic significance of fossiliferous Blainis with fusulinids from lesser Himalayas of Kumaon, India. —*Bull. Indian geol. Ass.*, **12** (2) : 257-258.

73. **Tewari, B. S.** and **Muthukrishnan, R.** 1979. Occurrence of Pleistocene estuarine beds at Subramanipuram near Tuticorin, Tamil Nadu. —*Bull. Indian geol. Ass.*, **12** (2) : 251-252.

74. **Verma, B. B.** and **Gautam, O. P.** 1979. Electrophoretic analysis of serum protein of calves experimentally infected with *Trypanosoma evansi*. —*Indian J. Anim. Hlth.*, **18** (2) : 33-36.

The present investigation was carried out to observe the changes in total serum protein and its components, during the coaurse of 40 day's of infection.

COELENTERATA (CNIDARIA)

75. **Mathew, K.** 1979. Studies on the biology of a sea anemone *Anthopleura nigrescens* (Verrill) from the south west coast of India. —*Bull. Dept. Mar. Sci. Univ. Cochin*, **10** : 75-158.

76. **Mathew, K.** and **Kurian, C. V.** 1979. A new actinian *Paratealla keralensis* gen. et. sp. nov. from the southwest coast of India. —*J. mar. Ass. India*, **18** (1) [1976] 159-162.

In the benthos samples of 'R. V. Conch' from the Kerala Coast at a depth of 150m. occurred specimens of a deep water actinian, which resembles that of the genus *Tealia*, but show marked differences and so referred to a new genus *Paratealia*.

77. **Mookerjee, S., Chakrabarti, D.** and **Sinha, S.** 1979. Regenerative capacity of isolated midgastric annulus of hydra by varying its cell quanta. —*Indian J. exp. Biol.*, **17** (10) : 1101-1106.

In a certain range of tissue size the relationship between the percentage of structural regeneration and tissue size is linear in hydra.

78. **Qasim, S. Z.** and **Wafer, M. V. M.** 1979. Occurrence of living corals at several places along the west coast of India. —*Mahasagar* —*Bull. natn. Inst. Oceanogr.*, **12** (1) : 53-58.

79. **Rattan, S. I. S.** and **Mookerjee, S.** 1979. Altered profiles of RNA synthesis in a dimelthyl sulphate mutant hydra. —*Indian J. exp. Biol.*, **17** (10) : 1007-1011.

A stable molecular marker in dimethyl sulphate (DMS) induced mutant hydra has been identified. The mutant has higher dependence on fresh RNA synthesis during its regeneration.

80. **Santhakumari, V.** 1978. Distribution of Scyphomedusae in the Indian Ocean. —*Mahasagar*, **11** (3-4) : 217-220-

PLATYHELMINTHES

Trematoda

81. **Ahmad, J.** 1979. A new species of *Pseudolepocreadioides* Hafeezullah, 1970 (Trematoda : Lepocreadiidae) from Puri coast, Bay of Bengal. —*Curr. Sci.*, **48** (12) : 554.

82. **Ahmad, J.** 1979. Two new dicrocoelid trematodes from birds. —*Geobios*, **6** (3) : 122-123.

83. **Bhadauria, S.** and **Dandotia, M. R.** 1979. On a new species of the genus *Opisthorchis* Blanchard (1895) from the gall bladder of a siluroid fish *Wallago attu* from Gwalior (M. P.) India. —*Riv. Parassit.*, **40** (3) : 273-274.

84. **Bilqees, F. M.** 1979. Description of three trematodes including two new species from the fishes of Kalri Lake, Sind, Pakistan. —*Pakist. J. scient. Res.*, **31** (3-4) : 220-222.

Three trematodes including two new species are described from the fishes of Kalri Lake, Sind.

85. **Chhabra, R. C.** and **Bali, H. S.** 1979. On gastro-intestinal helminth parasites of pigs in Punjab. —*J. Res. Punjab agric. Univ.*, **15** (3) [1978] : 343-345.

Observations on the helminth parasites of the gastro-intestinal tract of 83 domestic pigs from Ludhiana and Jullundur are reported.

86. **Dantotia, M. R.** and **Bhadauria, S.** 1979. On a new species of the genus *Brahmputrotrema* Dayal and Gupta, 1954 (Family : Lissorchiidae Poche, 1926) from a fresh water fish *Puntius sophore*. —*Riv. Parassit.*, **40** (1/2) : 57-61.

B. Gwaliorensis sp. n. from the intestine of *P. sophore* from the Tigra Dam, Gwalior (M. P.) India, is described and figured.

87. **Ghichenok, L. A.** 1979. Monogeneans from flying fishes of the genus *Exocoetus* (Beloniformes) from the Indian and Pacific Oceans. —*Zool. Zh.*, **58** (7) : 958-968.

88. **Ghosh, R. K.** and **Srivastava, C. B.** 1979. On abnormal development of male genitalia in digenetic trematodes.—*Bull. zool. Surv. India*, **2** (1) : 115-118.

89. **Gupta, N. K.** and **Sharma, Y. P.** 1979. On two new furcocercous cercariae from snails at Chandigarh and Nabha. —*Res. Bull. Panjab Univ.*, **27** (3 & 4) [1976] : 177-183.

Two new furcocercous cercariae namely *C. bithyniaea* and *C. nabhia* have been described.

90. **Gupta, P. D.** 1979. Trematode fauna of Rajasthan, India. Part 2. Families Cathaemasiidae, Echinostomatidae and Paramphistomidae. —*Rec. zool. Surv. India*, **75** (1-4) : 203-208.

The present paper deals with one species belonging to Cathaemasiidae, 6 species to Echinostomatidae and 4 species to Paramphistomidae from Rajasthan.

91. **Gupta, P. D.** and **Ghosh, R. K.** 1979. Catalogue of type specimens present in the Zoological Survey of India. Part 3. Helminths. —*Rec. zool. Surv. India*, **74** (3) : 243-331.

91a. **Hafeez, Md.** and **Rao, B. V.** 1979. Viability of amphistome metacercaria (*C. indicae XXVI*) after irradiation. —*Indian vet. J.*, **56** (7) : 622.

The study on the viability of amphistome metacercariae (*C. indicae* XXVI), five weeks after irradiation at 2 Kr level in a lamb is reported.

92. **Hafeezullah, M.** 1979. A new digenean genus from a marine fish from East Coast of India. —*Riv. Parassit.*, **40** (3) : 327-332.

Karyakartia n. g. is erected within the family Enenteridae to accomodate flukes found in the intestine of *Therapon jarbua* at Machilipatnam, India.

93. **Karyakarte, P. P.** and **Das, S. R.** 1979. A new species of monogenetic trematode *Ancyrocephaloides* (Monopisthocotylea : Dactylogyridae) from the fish, *Triacanthus brevirostris* in India.—*Riv. Parassit.*, **40** (1/2) : 9-12.

A. indicus n. sp. from the gill filaments of *T. brevirostris* from Ratnagiri, West Coast, Maharashtra, India, is described and figured.

93a. **Khan, D.** and **Habeeb, M. A.** 1979. Studies on larval trematodes infecting freshwater snails in Pakistan. I. *Cercaria buckleyi*, a new xiphidiocercaria.—*Pakist. J. Zool.*, **11** (2) : 225-230.

94. **Manna, B.** 1979. Death of *Corvus splendens* due to heavy infestation of *Lyperosomum kakeo* Bhalerao, 1926 (Dicrocoeliidae : Trematoda). —*Indian J. Anim. Hlth.*, **18** (1) : 17-18.

95. **Mehrotra, U.** and **Bhutta, P. T.** 1979. Neuro secretory cells in the *Gastrothylax* sp.—*Indian J. Parasit.*, **3** (1) : 5-8.

95a. **Mishra, P. N.** and **Gupta, N. K.** 1979. Redescription of *Mesostephanus mlivi* Yamaguti, 1939 (Trematoda : Prohemi : Tomatidae) from pariah kite —*Mlivus migrans* (Bodd.). —*Res. Bull. Panjab Univ.*, **27** (1 & 2) [1976] : 107-109.

95b. **Mohandas, A.** 1979. Studies on the freshwater cercariae of Kerala, 6. Philophthalmid cercaria, *Cercaria* sp. II. Kerala n. sp. —*Indian J. Parasit.*, **3** (1) : 29-32.

96. **Nagabhushanam, R.** and **Vaidya, D. P.** 1979. The pathological effects of trematodes on the biochemical components of hepatopancreas and blood glucose of freshwater snail *Indoplanorbis exustus*. —*Riv. Parassit.*, **40** (3) : 267-272.

97. **Nama, H. S.** 1979. A new host record for *Calicophoron orientalis* Mukherjee, 1966 (Trematoda : Paramphistomidae). —*Indian vet. J.*, **56** (6) : 523-524.

98. **Narasimha Rao, L.** 1979. Quantitative glycogen studies on two trematode parasites of *Rana tigrina*. —*J. zool. Soc. India*, **27** (1-2) [1975] : 81-84.

99. **Narasimha Rao, L., Kameswari, M.** and **Hanumanth Rao, G. R.** 1979. An yet undefined host of *Isoparorchis hypselobagri* Billet, 1898. —*Curr. Sci.*, **48** (7) : 320.

100. **Pande, V.** 1979. Metacercaria and adult of *Haplorchoides attenuatus* infesting local fishes. —*Indian J. Anim. Sci.*, **49** (4) : 303-307.

Fifteen species of local freshwater fishes are reported as second intermediaries in the transmission of *Haplorchoides attenuatus*.

101. **Pandey, K. C.** and **Agrawal, N.** 1979. *Calotes versicolor* Daud as an intermediate host in the life cycle of a trematode. —*Indian J. Zoot.*, **20** (1) : 47.

101a. **Qadir, A.N.M.A.** 1979. Comparative anthelmintic efficiency of acedist, a new compound and bilevon against *Fasciola gigantica* infection in goats. —*Indian vet. J.*, **56** (5) : 429-431.

102. **Ramulu, G. R.** and **Rao, L. N.** 1979. Esterases in the suckers of *Diplodiscus subclavatus* (Trematoda). —*Curr. Sci.*, **48** (16) : 745.

The present work presents an account of esterase activity and mode of innervation in the amphistome *Diplodiscus subclavatus*.

103. **Rao, K. H.** 1979. Some observations on the miracidium of *Singhiatrema longifurca* Simha 1958 (Trematoda : Echinostomatidae). —*Curr. Sci.*, **48** (15) : 699-700.

Miracidia were studied alive and in sections of eggs in situ in adult worms.

104. **Raut, S. K.** and **Ghosh, K. C.** 1979. The planaria, *Bipalium indica* an effective predator of *Achatina fulica*. —*Bull. zool. Surv. India*, **2** (1) : 101-102.

In the present communication a terrestrial planaria *Bipalium indica* is reported for the first time as an effective predator of *A. fulica*.

104a. **Sardey, M. R.** and **Bhilegaonkar, N. G.** 1979. Occurrence of *Prosthogonimus macrorchis* (Macy, 1934, Syn. *P. rudolphi* Skrj., 1919 ; Witenberg and Eckman, 1939) in the egg of deshi hen. —*Indian vet. J.*, **56** (1) : 65-66.

105. **Saxena, S. K.** 1979. Studies on the life-history of *Philophthalmus lucknowensis* Baugh, 1962. I. Morphology of the adult with discussion on the taxonomic status of the species. —*Revta iber. Parasit.*, **39** (1-4) : 467-484.

The species is redescribed in detail and its taxonomic status is discussed.

106. **Sey, O.** 1979. Examination of the validity and systematic position of some paramphistomids of Indian ruminants. —*Parasitologia Hung.*, **12** : 31-36.

107. **Sharma, P. N.** 1979. Histochemical localization of glycogen, lipids, proteins and phophatases in the parenchyma and other tissues of some digenetic trematodes. —*Indian J. exp. Biol.*, **17** (5) : 479-483.

The distribution of glycogen, lipids, proteins and 4 hydrolytic enzymes in 10 species of trematodes has been studied using standard histochemical techniques.

108. **Sharma, P. N.** 1979. Histochemical distribution of succinate dehydrogenase in tissues of an amphistome, *Ceylonocotyle scoliocoelium* (Trematoda : Digenea). —*Indian J. exp. Biol.*, **17** (5) : 525-528.

109. **Sharma, P. N.** 1979. Carboxylic esterase activity and sensory structures of the trematode *Ceylonocotyle scoliocoelium*. —*Indian J. exp. Biol.*, **17** (11) : 1268-1271.

110. **Sharma, P. N.** and **Hora, C.** 1979. Histochemical demonstration of monoamine oxidase in tissues of the trematode *Paramphistomum cervi*. —*Indian J. exp. Biol.*, **17** (11) : 1271-1273.

111. **Singh, J. P.** 1979. *Liopyge indica* n. sp. from a marine fish *Chorinemus moadetta* (Cuv. and Val.) from Quilon, India. —*Indian J. Zoot.*, **20** (1) : 51-53.

112. **Singh, S. P.** and **Sinha, D. P.** 1979. Observations on egg-shell formation in *Ganeo tigrinum*, *Mehraorchis ranarum*, *Tremiorchis ranarum* and *Halipegus mehransis*. —*Indian J. Anim. Res.*, **13** (1) : 27-30.

A comparative histochemical study of the mechanism of egg-shell formation in four species of trematodes obtained from different locations in the frog host indicated that the mechanism involved sclerotisation by oxidation of phenols to quinones by phenolase.

113. **Varma, P. K.** and **Singh, J. P.** 1979. *Opisthomonorchis thapari* n. sp. from a marine fish *Caranx armatus* (Cuv. & Val.) from the Arabian Sea at Quilon, India. —*Indian J. Zoot.*, **20** (1) :49-50.

4. **Vasantha Kumari, N.** and **Srivastava, C. B.** 1979. A review of the genus *Pycnadena* Linton, 1911 (Trematoda : Opistholebetidae) with description of a new species. —*J. zool. Soc. India*, **27** (1-2) [1975] : 170-174.

5. **Wason, A.** and **Johnson, S.** 1979. A new host and geographical record for *Anchitrema sanguincum* (Trematoda : Anchitrematidae). —*Ann. Arid Zone*, **18** (3) : 209.

estoda

6. **Biswas, H., Arora, R. R.** and **Sehgal, S.** 1979. Epidemiology of *Hymenolepis nana* infection in a selected rural community. —*J. Com. Dis.*, **10** (3) [1978] : 170-174.

One hundred and thirty house holds comprising 757 individuals were selected in a village of Rajasthan to study the epidemiology of *H. nana* infection. About 6% of the selected population were found to harbour this tapeworm. Childern showed significantly higher rate of this infection (10.1%) than adults (3.9%).

7. **Capoor, V. N.** and **Srivastava, V. C.** 1979. On a new cestode *Joyeuxiella vulpusi* n. sp. (Dilepididae Railliet *et* Henry, 1909) from Allahabad, India.— *J. zool. Soc. India*, **28** (1-2) [1976] : 7-11.

8. **Deshmukh, R. A.** 1979. On a new cestode *Yorkeria southwelli* (Cestoda : Onchobothriidae) from a marine fish. —*Curr. Sci.*, **48** (6) : 271-272.

Yorkeria southwelli sp. n. from spiral valve of *Ginglymostoma conolor* at Ratnagiri (West Coast of India).

119. **Deshmukh, R. A.** 1979. On a new cestode *Flapocephalus trygonis* gen. et sp. nov (Cestoda : Locanicephalidae) from *Trygon sephen* from West Coast of India. —*Riv. Parassit.*, **40** (3) : 261-265.

F. trygonis n.g., n.sp. from the spiral valve of *T. sephen* at Ratnagiri, India is described and differs from all other genera in the family in having the scolex divided into an anterior region represented by 2 semicircular flaps and a posterior region represented by a cushion—like structure bearing 4 suckers.

120. **Gupta, N. K.** and **Singla, S. L.** 1979. Studies on tapeworms of the genus *Stilesia* Railliet, 1893 from India. —*Res. Bull. Panjab Univ.*, **27** (3 & 4) [1976] : 129-133.

Two species of tapeworm *Stilesia globipunctata* (Rivolta, 1874) Railliet, 1893, and *Stilesia vittata* Railliet, 1896, were collected from the bovine hosts in India. These are redescribed in detail.

121. **Gupta, N. K.** and **Singla, S. L.** 1979. Studies on two tapeworms of the genus *Moniezia* from northern India. —*Res. Bull. Panjab Univ.*, **27** (3 & 4) [1976] : 135-140.

Two species of tapeworm belonging to the genus *Moniezia*, viz. *Moniezia benedeni* (Monioz, 1879) Blanchard, 1891, and *Moniezia expansa* (Rudolphi, 1810) Blanchard, 1891, were collected from the bovine hosts in northern India. These have been redescribed in detail.

122. **Kanwar, U.** and **Agrawal, M.** 1979. Cytochemical studies on the female germ—cells of the cestode, *Raillietina* sp. —*Res. Bull. Panjab Univ.*, **28** (1-2) [1977] : 99-104.

The ovary of the cestode is bilobed, each lobe being further lobulated. Cytological studies have been made.

123. **Mahapatra, B.** and **Chatterji, P. N.** 1979. New cyclophyllidian cestode of the genus *Pseudohymenolepis* Joyeux and Baer, 1935. —*Proc. natn. Acad. Sci. India*, (B) **47** (3) [1977] : 195-196.

124. **Qureshi, M. A.** and **Sabir, M.** 1979. Preliminary study on anthelmintic efficacy of *Embellia* seeds (Babarang) against tapeworms of poultry. —*Pakist. J. Sci.*, **31** (3-6) : 218-220.

A study was designed to assess the efficacy of Embellia seeds (Babarang) against tapeworms in poultry at Government Poultry Farm, Lahore Cantt. and Quadri Poultry Farm, Shadbagh, Lahore.

125. **Ramakrishna, G. V., Narsiah, J. V.** and **Simha, S. S.** 1979. Histochemical localization of acetylcholinesterase in the whole mounts of *Cotugnia* sp. — *Curr. Sci.*, **48** (4) : 183-184.

The present communication is concerned with the demonstration of nervous system in the cestode *Cotugnia*, the only Davaineid genus with double genitalia, as a result of acetylcholinesterase localization.

126. **Sircar, M.** and **Sinha, D. P.** 1979. Water and protein content of some cestodes. —*Indian J. Anim. Res.*, **13** (1) : 23-26.

The value of data on chemical composition in the assessment of normalcy of cultured worms and efficacy of culture media is discussed here.

127. **Srivastava, A. K.** and **Capoor, V. N.** 1979. On a new cestode, *Vampirolepis molus* sp. n. —*Helminthologia*, **16** (3) : 195-198.

128. **Srivastava, V. C.** 1979. Cestode fauna of birds in India. Part I. *Amoebotaenia gallusina* n. sp. (Cestoda : Dilepididae Railliet et Henry, 1909) from domestic fowl, *Gallus gallus* (Linnaeus) from Allahabad. —*Sci. Environ.*, **1** : 179-182.

ASCHELMINTHES

Rotifera

129. **Jyoti, M. K.** and **Sehgal, H.** 1979. Ecology of rotifers of Surinsar, a subtropical freshwater lake in Jammu (J. & K.), India. —*Hydrobiologia*, **65** (1) : 23.

130. **Rao, R. K.** and **Mohan, P. C.** 1979. The combinations of *Brachionus urceolaris* O.F. Muller.—*Geobios*, **6** (Suppl.) : 341-342.

131. **Sharma, B. K.** 1979. Further contributions to the lecanid fauna (Rotifera : Lecanidae) of West Bengal. —*Acta Hydrobiol.*, **21** (1) : 53-59.

Further collections made from some localities in 24-Parganas and Howrah districts of Lower Bengal revealed 21 lecanid rotifers. Out of these, 10 taxa represent new records from thm region of the country while seven of them are new records from the Indian subcontinent.

132. **Sharma, B. K.** 1979. Record of the rotifer *Tripleuchlanis plicata* (Levander) from a freshwater tank in Calcutta, India. —*Bull. zool. Surv. India*, **2** (1) : 105.

133. **Sharma, B. K.** 1979. On some epizoic rotifers from West Bengal. —*Bull. zool. Surv. India*, **2** (1) : 109-110.

133a. **Sharma, B. K.** 1979. Rotifers from West Bengal. III. Further studies on the Eurotatoria.—*Hydrobiologia*, **64** (3) : 239-250.

134. **Sharma, B. K.** 1979. Rotifers from West Bengal. IV. Further contributions to the Eurotatoria. —*Hydrobiologia*, **65** (1) : 39.

135. **Sreenivasan, A., Ananthanarayanan, R.** and **Kalaimani, N.** 1979. Relationship between high chloride and hardness with rotifers. —*Indian J. envir. Hlth.*, **21** (3) : 287-288.

136. **Vasisht, H. S.** and **Chaudhary, I.** 1979. Digestive system of the rotifer *Keratella tropica* (Apstein, 1907). —*Proc. natn. Acad. Sci. India*, (B) **47** (3) : 182-186.

137. **Vasisht, H. S.** and **Sharma, B. K.** 1979. Seasonal abundance of Rotifer population in a freshwater pond in Ambala city (Haryana), India. —*J. zool. Soc. India*, **28** (1-2) [1976] : 35-44.

Nematoda

138. **Ahmad, I.** and **Jairajpuri, M. S.** 1979. Developmental biology of *Chiloplacus symmetricus*. —*Indian J. Nematol.*, **7** (2) [1977] : 123-139.

139. **Ahmad, M.** and **Jairajpuri, M. S.** 1979. *Oxybelondira* N. Gen. (Dorylaimida : Oxydiridae) with descriptions of two new species. —*Indian J. Nematol.*, **8** (1) [1978] : 25-31.

140. **Ahmad, M.** and **Jairajpuri, M. S.** 1979. First report of the male of *Mylonchulus mulveyi* Jairajpuri, 1970 (Nematoda : Mononchida). —*Curr. Sci.*, **48** (24) : 1093-1094.

141. **Alam, M. M., Siddiqui, S. A.** and **Khan, A. M.** 1979. Mechanism of control of plant parasitic nematodes as a result of the application of organic amendments to the soil. III. Role of phenols and amino acids in host roots. —*Indian J. Nematol.*, 7 (1) [1977] : 27-31.

Organic soil amendments in the form of oilcakes, bonemeal and horn meal suppressed the population of *T. brassicae* attacking knol-khol and increased the level of phenols in its roots, thereby appeared to have induced certain degree of resistance.

142. **Arya, S. N.** 1979. Redescription of *Rictularia cahirensis* Jagerskiold, 1904 from the cat (*Felis domesticus*) from Jodhpur, India. —*Parasitologia Hung.*, **12** : 87-89.

143. **Azam, M. F., Khan, A. M.** and **Saxena, S. K.** 1979. Effect of extracts of roots infected with root-knot nematode on the growth of *R. solani*, *Pythium* sp. and *C. atrament arium*. —*Indian J. Nematol.*, 7 (2) [1977] : 182.

144. **Azam, M. F., Khan, A. M.** and **Saxena, S. K.** 1979. Population of plant-parasitic nematodes as influenced by certain nematicides around some ornamentals. —*Indian J. Nematol.*, **8** (1) [1978] : 69-73.

145. **Azmi, M. I.** and **Jairajpuri, M. S.** 1979. Studies on nematode behaviour. VI. Responses of *Hemicriconemoides mangiferae* Siddiqi, 1961 to hydrogen ion concentration. —*Indian J. Nematol.*, **6** (2) [1976] : 165-167.

In the present paper an experiment to study the kinetic and tactic responses of the species under the influence of hydrogen ion concentration is reported.

146. **Azmi, M. I., Jairajpuri, M.S.** and **Sajid, M.** 1979. Studies on nematode behaviour. VII. Lethal effects of ultrasonics and temperature on the juveniles of *Meloidogyne incognita*. —*Indian J. Nematol.*, **6** (2) [1976] : 183-184.

147. **Azmi, M. I.** and **Jairajpuri, M. S.** 1979. Studies on nematode behaviour. VIII. Some observations on the effects of diffused light on *Hemicriconemoides mangiferae*. —*Indian J. Nematol.*, **7** (1) [1977] : 83-86.

The following experiments were designed to study the effects of diffused light on the movement of head in terms of movement of spear knobs of *H. mangiferae* in water as well as in different concentrations of agar which provides a sort of environmental resistance to the nematodes during locomotion.

148. **Azmi, M. I.** and **Jairajpuri, M. S.** 1979. Studies on nematode behaviour. IX. Effects of light on the movement patterns of *Hemicriconemoides mangiferae*, *Tylenchorhynchus mashhoodi* and juveniles of *Acrobeloides* sp. —*Indian J. Nematol.*, **7** (1) [1977] : 87-91.

The present experiment was designed to assess the effects of light on the movement patterns of the three species of nematodes.

149. **Bajaj, H. K.** and **Bhatti, D. S.** 1979. *Chronogaster indica* n. sp. and *C. typica* (Nematoda : Plectidae) from Haryana, India. —*Indian J. Nematol.*, **8** (1) [1978] : 78-81.

150. **Bajaj, H. K.** and **Jairajpuri, M. S.** 1979. Studies on nematode behavour. X. Observations on feeding of *Xiphinema basiri* on tomato. —*Indian J. Nematol.*, **7** (1) [1977] : 91-93.

In the present study, observations were made *in vitro* on its feeding behaviour on tomato roots grown in agar.

151. **Bajaj, H. K.** and **Jairajpuri, M. S.** 1979. A review of the genus *Xiphinema* Cobb, 1913 with descriptions of species from India. —*Rec. zool. Surv. India*, **75** (1-4) : 255-325.

The present paper deals with the morphology and systematics of *Xiphinema* species. The validity of the subgenera has been discussed and the species of this genus have been rearranged in 5 groups. A key to all the species is provided.

152. **Baqri, Q. H.** 1979. Nematodes from West Bengal (India). VI. Species of Criconematoidea (Tylenchida).—*Indian J. Nematol.*, **8** : 116-121.

153. **Baqri, Q. H.** and **Jairajpuri, M. S.** 1979. Nematodes of Agricultural crops in India I. Distribution of nematodes associated with fibrous crops in Uttar Pradesh. —*J. zool. Soc. India*, **27** (1-2) [1975] : 93-100.

154. **Baqri, Q. H.** and **Khera, S.** 1979. Nematodes from West Bengal (India). IV. Three known and two new species of the genus *Dorylaimoides* Thorne & Swanger, 1936 (Leptonchidae : Dorylaimida). —*Rec. zool. Surv. India*, **75** (1-4) : 247-254.

155. **Basu, S. D.** and **Roy, S. K.** 1979. Sample survey of nematodes in the Dooars. —*Two Bud*, **26** (2) : 69-70.

156. **Basu, S. D.** and **Gope, B.** 1979. More weed hosts of root-knot nematodes. —*Two Bud*, **26** (2) : 71.

157. **Bhatnagar, A., Mukerjee, T. K.** and **Tiagi, B.** 1979. Isolation and study of giant cells and abnormal xylem in root galls incited by *Meloidogyne incognita* in *Abelmoschus esculentus*. —*Indian J. Nematol.*, **9** (1) : 46-48.

158. **Bhatti, D. S.** and **Dahiya, R. S.** 1979. New host records of *Meloidogyne* spp. —*Indian J. Nematol.*, **7** (2) [1977] : 154.

159. **Bhatti, D. S., Dalal, M. R.** and **Dahiya, R. S.** 1979. Some factorial involvement in non-parasitisation of maize by *Heterodera avenae*. —*Indian J. Nematol.*, **7** (2) [1977] : 112-116.

160. **Bhatti, D. S.** and **Jain, R. K.** 1979. Estimation of loss in okra, tomato and brinjal yield due to *Meloidogyne incognita*. —*Indian J. Nematol.*, **7** (1) [1977] : 37-41.

In a field infested with *M. incognita* @ 2800-3460 1/kg. soil, the losses in yield of lady's finger, tomato and brinjal were assessed to be 90.9, 46.2 and 27.3 per cent, respectively.

160a. **Biswas, H., Saraljit, S., Arora, R. R.** and **Mathur, K. K.** 1979. Intestinal parasites and different species of hookworm in slum dwelling people around Delhi. —*J. Com. Dis.*, **10** (4) [1978] : 234-237.

161. **Bopaiah, B. M., Patil, R. B.** and **Reddy, D. D. R.** 1979. Effect of *Meloidogyne javanica* on nodulation and symbiotic nitrogen fixation in mung, *Vigna radiata*. —*Indian J. Nematol.*, **6** (2) [1976] : 124-130.

Effect of *Meloidogyne javanica* on growth, nodulation and nitrogen fixation in mung plants was investigated. The infestation by the nematode interfered with nitrogen fixation and reduced the nitrogen content of shoot and root.

162. **Chakraborty, B., Ray, N.M.** and **Sikdar, S.** 1979. Study of anthelmintic property of *Tribulus terrestris* Linn.— *Indian J. Anim. Hlth.*, **18** (1) : 23-25.

The investigation has been undertaken to study the anthelmintic activity of the plant against *Ascaridia galli* both *in-vitro* and *in-vivo*.

163. **Chatterjee, S. K.** and **Majumdar, G.** 1979. Host-parasite relationship. I. Total protein values in the livers of the garden lizard (*Calotes versicolor*) in the non-infected and infected conditions with *Strongyluris bengalensis*. II. Protein value in *Strongyluris bengalensis* (Nematoda : Heterakidae). —*Riv. Parassit.*, **40** (3) : 291-294.

164. **Chaturvedi, Y.** and **Khera, S.** 1979. Studies on taxonomy, biology and ecology of nematodes associated with jute crop. —*Zool. Surv. India, Tech. Monogr.*, No. **2** : 1-105.

This work includes the taxonomic studies of the nematodes recovered during the course of survey work, survey of jute fields of West Bengal, population dynamics of three species of tylenchids, namely *Tylenchorhynchus mashhoodi*, *Helicotylenchus indentatus* sp.n. and *Hirschmanniella oryzae* in relation to temperature and rainfall. Effects of crop rotation and fallow have also been observed. Besides, the population fluctuations of rhabditids and dorylaimids have also been dealt with. Studies on embryology, life cycle, abundance of males and intersexes of *M. javanica* by potcultures developed on *C. olitorius*, host-paras te relationships and histopathology have also been made. For this, a predominant species of root-knot nematode, *Meloidogyne javanica* was selected for studies in relation to *C. olitorius*. The experiments made on potted plants for making observations on 11 characters selected to show the effects of nematode infestation. Ovoviviparity in *Meloidogyne incognita* is also included.

165. **Chawla, M. L.** and **Khan, E.** 1979. Two nomenclatorial corrections.— *Indian J. Nematol.*, **7** (1) [1977] : 100.

166. **Chhabra, H. K.** 1979. Influence of *Fusarium moniliforme* on *Meloidogyne incognita*. —*Indian J. Nematol.*, **8** (1) [1978] : 62-63.

167. **Chhabra, H. K.** 1979. Distributional pattern of *Tylenchulus semipenetrans* population and determination of suitable distance and depth per soil sampling. —*Indian J. Nematol.*, **8** (1) [1978] : 66-68.

168. **Chhabra, H. K., Sidhu, A. S.** and **Singh, I.** 1979. *Meloidogyne incognita* and *Rhizoctonia solani* interaction on okra. —*Indian J. Nematol.*, **7** (1) [1977] : 54-57.

The interactions involving *R. solani* and *M. incognita* on 7 day old okra plants were investigated with artificial inoculations.

169. **Darekar, K. S.** and **Khan, E.** 1979. Soil and plant-parasitic nematodes from Maharashtra, India. III. *Basiria nasikensis* n. sp. and *Criconemoides mongomorgum* n. sp. (Tylenchida : Nematoda). —*Indian J. Nematol.*, **7** (2) [1977] : 148-153.

170. **Das, A.** and **Tiagi, B.** 1979. Occurrence of root-knot nematode, *Meloidogyne incognita* in *Corchorus tridens* L. —*Sci. Cult.*, **45** (2) : 83-84.

171. **Das, V. M.** and **Sultana, S.** 1979. Five new species of the genus *Pratylenchus* from vegetable crops of Hyderabad (Andhra Pradesh).—*Indian J. Nematol.*, **9** (1) : 5-14.

172. **Desai, M. V., Shah, H. M., Pillai, S. N.** and **Patel, A. S.** 1979. Oil cakes in control of root-knot nematodes. —*Tob. Res.*, **5** (1) : 105-108.

The present study was undertaken to investigate into the efficacy of neem, Karanj etc. cakes in relation to DBCP in controlling root-knot disease in bidi tobacco.

173. **Dhar, D. N.** and **Sharma, R. L.** 1979. A note on the prevalence of lungworm infections in sheep and goats in Tehsil Kargil of District Ladakh (Jammu and Kashmir). —*Indian J. Anim. Sci.*, **49** (7) : 585-588.

Detailed epidemiological studies on lungworms and gastrointestinal nematode infections of sheep and goats in the Kargil tehsil of the Ladak District in the State were undertaken for the first time.

174. **Dhawan, S. C.** and **Swarup, G.** 1979. On the *Anguina tritici* infestation of barley. —*Indian J. Nematol.*, **9** (1) : 51-52.

175. **Fotedar, D. N.** and **Handoo, Z. A.** 1979. *Aerotylenchus safroni* n. gen., n. sp. (Nematoda : Tylenchida) from Kashmir, India. —*Indian J. Nematol.*, **7** (2) [1977] : 145-147.

176. **Gaur, S. N. S.** and **Dutt, S. C.** 1979. Studies on comparative efficacy of Thibendole, Nilverm and Helmatac against *Mecistocirrus digitatus* in cattle. —*Indian vet. J.*, **56** (1) : 62-64.

177. **Gill, J. S.** and **Sharma, N. K.** 1979. Additional hosts of the foliar nematode *Aphelenchoides ritzemabosi* from India. —*Indian J. Nematol.*, **6** (2) [1976] : 169-171.

178. **Gill, J. S.** and **Swarup, G.** 1979. Effect of interaction between *Heterodera avenae* Woll. 1924, *Fusarium moniliforme* and *Helminthosporium gramineum* on barley plants and nematode reproduction.—*Indian J. Nematol.*, **7** (2) : [1977] : 42-45.

Barley plants infested with *H. avenae* were observed to have fungal infections as well.

179. **Gill, J. S.** and **Swarup, G.** 1979. Pathogenic effect of *Tylenchorhynchus vulgaris* on gram. —*Indian J. Nematol.*, **7** (2) [1977] : 155-156.

180. **Gill, J. S.** and **Uppal, D. S.** 1979. Phenolic and sugar contents of *Zinnia elegans* infested with *Aphelenchoides ritzemabosi*. —*Indian J. Nematol.*, **7** (2) [1977] : 157-159.

181. **Goswami, U.** 1979. Chromosomal studies during cleavage divisions in ten species of nematodes. —*Res. Bull. Panjab Univ.*, **27** (1 & 2) [1976] : 119-120.

The note gives information on the behaviour and morphology of chromosomes during the cleavage divisions in ten species of nematodes.

182. **Goswami, U.** 1979. Chromosomes during fertilization in nematodes. —*Res. Bull. Panjab Univ.*, **27** (3 & 4) [1976] ; 217-218.

183. **Goswami, U.** 1979. Karyological studies on fifteen species of parasitic nematodes. —*Res. Bull. Punjab Univ.*, **28** (1-2) : 111-112.

184. **Gowda, D. N.** and **Setty, K. G. H.** 1979. *In vitro* studies of neem cake (*Azadirachta indica A.* Juss) extract on hatching of eggs and survival of larvae of root-knot nematode (*Meloidogyne incognita* Chitwood). —*Curr. Res. mon. Newsl.*, **8** (5) : 78-79.

185. **Gupta, D. C.** and **Yadav, B. S.** 1979. Studies on the pathogenicity of reniform nematode, *Rotylenchulus reniformis* to urad, *Vigna mungo* L. Wilczek. —*Indian J. Nematol.*, **9** (1) : 48-50.

186. **Gupta, M. C., Singh, R. S.** and **Sitaramaiah, K.** 1979. A new endoparasitic fungus on *Xiphinema* and cultivation of *Rhabditis* spp. and *Aphelenchus avenae* on same fungus. —*Nematologica*, **25** (1) : 142.

Pythium middletonii is able to parasitize *Xiphinema* spp. and other dorylaimids but is a food source for *Aphelenchus avenae* and *Rhabditis* spp.

187. **Gupta, N. K.** and **Kapoor, M.** 1979. Histochemical studies on *Cotugnia digonopora* (Pasquale, 1980) in *Gallus gallus domesticus*. —*Riv. Parassit.*, **40** (1/2) : 63-79.

188. **Gupta, R. P., Malik, P. D.** and **Gautam, O. P.** 1979. The effect of fenbendazole on gastrointestinal nematodes and *Dictyocaulus filaria* in naturally infected sheep. —*J. Res. Haryana agric. Univ.*, **9** (4) : 349-354.

189. **Haider, M. G., Nath, R. P.** and **Prasad, S. S.** 1979. Studies on the lance nematode *Hoplolaimus indicus*. I. pathogenicity and histopathogenesis on maize. —*Indian J. Nematol.*, **8** (1) [1978] : 9-12.

190. **Hasan, A., Rashid, A.** and **Khan, A. M.** 1979. An abnormal male of *Hoplolaimus indicus* Sher, 1963. —*Indian J. Nematol.*, **6** (2) [1976] : 167-168.

191. **Haseeb, A., Khan, A. M.** and **Saxena, S. K.** 1979. Studies on histochemical changes induced by the root-knot nematode in tomato.—*Indian J. Nematol.*, **8** (1) [1978] : 81-82.

192. **Higgins, R. P.** and **Rao, G. C.** 1979. Kinorhynchs from the Andaman Islands. —*Zool. J. Linn. Soc.*, **67** : 76-85.

193. **Hussain, S. S.** and **Seshadri, A. R.** 1979. Resistance in some mung bean (*Vigna radiata*) varieties and breeding lines to the root-knot nematode, *Meloidogyne incognita*. —*Indian J. Nematol.*, **6** (2) [1976] : 131-137.

Varietal resistance in mung bean to *M. incognita* has been studied.

194. **Ilyas, R.** 1979. A new species of *Desportesius* (Chaband of Campana, 1949) Skrjabin, Sobolev and Ivaschkin, 1965 from *Ardeola grayii*. —*Riv. Parassit.*, **40** (3) : 351-354.

D. skrjabini n. sp. is described from the gizzard of *Ardeola grayii* from Maharashtra, India.

195. **Ismail, W., Johri, J. K., Zaidi, A. A.** and **Singh, B. P.** 1979. Influence of root-knot nematode, tobacco mosaic virus and complex on the growth and carbohydrates of *Solanum khasianum* Clarke. —*Indian J. exp. Biol.*, **17** (11) : 1266-1267.

196. **Jacob, J. A.** and **Kurian, J.** 1979. Screening of pepper varieties for resistance against root-knot nematode *Meloidogyne incognita*. —*Agric. Res. J. Kerala*, **17** (1) : 90.

197. **Jacob, J. A.** and **Kurian, J.** 1979. Survey of nematodes associated with pepper in Kerala. —*Agric. Res. J. Kerala*, **17** (2) : 270-271.

198. **Jain, B. K.** and **Bhatti, D. S.** 1979. Bare root treatment with systemics for controlling root-knot nematode in tomato transplants. —*Indian J. Nematol.*, **8** (1) : 19-24.

199. **Jairajpuri, M. S., Ahmad, I.** and **Ahmad, M.** 1979. Record of an intersex of *Aquatides thornei* with remarks on the phenomenon of intersexuality in nematodes. —*Indian J. Nematol.*, **7** (2) [1977] : 177-181.

200. **Jairajpuri, M. S., Ahmad, M.** and **Dhanachand, C.** 1979. Two new species of the genus *Thornenema* Andrasey, 1959 from Manipur, India. —*Nematologica*, **25** (1) : 136-141.

Two new species of *Thornenema* are described from Manipur. Both the species are compared with other related genera and illustrated.

201. **Jairajpuri, M. S.** and **Azmi, M. I.** 1979. Studies on nematode behaviour V. Effects of intensity of light on the activity of *Acrobeloides* sp. —*Indian J. Nematol.*, **6** (2) [1976] : 163-164.

An experiment was designed to study the effects of low and high intensities of light on the life activity of the adults and the juveniles of the species, a free-living soil nematode.

202. **Jairajpuri, M. S., Khan, W. U., Setty, K. G. H.** and **Govindu, H. C.** 1979. *Heterodera delvii* n. sp. (Nematoda : Heteroderidae), a parasite of ragi (*Eleusine coracana*) in Bangalore, India. —*Revue Nematol.*, **2** (1) : 3-9.

H. delvii n. sp. is described from the roots of *E. coracana* at Bangalore, India.

203. **Jairajpuri, M. S.** and **Khan, W. U.** 1979. *Hemicycliophora index* n. sp. (Nematoda : Tylenchida) from India. —*J. zool. Soc. India*, **28** (1-2) [1976] : 99-101.

204. **Jairajpuri, M. S.** and **Rahmani, S. A.** 1979. *Dolichodorus kishansinghi* n. sp. (Nematoda : Dolichodoridae). —*Indian J. Nematol.*, **7** (2) [1977] : 183-185.

205. **Jairajpuri, M. S.** and **Siddiqi, M. R.** 1979. Observations on the nematode genera *Orientylus* and *Calvatylus* (Rotylenchoidinae : Hoplolaimidae) with descriptions of three species. —*Indian J. Nematol.*, **7** (2) [1977] : 101-111.

205a. **Johnson, S.** 1979. Helminth infestation of the Indian gerbil, *Tatera indica indica*. —*Vest. cs. spol. zool.*, **43** (2) : 107-111.

The Indian gerbil or the Antelope rat *T. indica indica* was examined for helminth parasites during the rainy season, July 1969 to September 1969. The helminth fauna included three nematodes, viz., *Streptopharagus indicus*, *Rictularia taterae* and *Trichuris barusi* and a cestode *Rodentolepis fraterua*. *S. indicus* contributed 53.5%, *T. barusi* 29.6%., *R. taterae* 9.1% and *R. fraterua* 7.6% to the total helminth burden. The between-sex differences in the incidence and intensity in the two sexes of the host and the FMR (female to male ratio) in different nematode populations have been reported and discussed.

205b. **Johri, G. N.** and **Bhopale, M. K.** 1979. Experimental infection of *Ancylostoma caninum* larvae in Mice. I. Their migration and distribution in the tissues after an oral dose of primary infection. —*J. zoo'. Soc. India*, **28** (1-2) [1976] : 45-54.

206. **Kalha, B. S.** and **Edward, J. C.** 1979. *Heterodera vigni* Edward and Mishra, 1968, a synonymy of *H. cajani* Koshy, 1967. —*Allahabad Fmr.*, **50** (2) : 143-146, 1 pl.

207. **Kanoujia, K. H., Bendle, M. S., Nair, E. P. K., Ravindranathan, T. C., Sethumadhavan, K. V. P., Sharma, S. P., Das, M., Bhatnagar, V. N., Wattal, B. L.** and **Rao, C. K.** 1979. Urban filariasis control with "Abata" and Diethylcarbamazine. —*J. Com. Dis.*, **10** (4) [1978] : 226-233.

208. **Khaleel, S.** and **Shah, H. M.** 1979. Eeffect of soil moisture and pH on root-knot disease of tobacco. —*Tob. Res.*, **5** (2) : 129-134.

The investigation was undertaken to find out the effect of soil moisture and pH on the development of root-knot disease in bidi tobacco under Gujarat conditions and to find out a suitable moisture level and soil pH at which the disease development may be kept at the minimum without hampering the growth and development of tobacco crop.

209. **Khan, E., Azmi, M. I.** and **Chawla, M. L.** 1979. *Yubeldus glandulosus* gen. n. sp. n. (Belondiridae : Nematoda) from Bangalore, India. —*Indian J. Nematol.*, **7** (2) [1977] : 186-188.

210. **Khan, E.** and **Darekar, K. S.** 1979. Soil and plant-parasitic nematodes from Maharashtra, India. IV. Two new species of *Telotylenchus* Siddiqi, 1960 (Tylenchida : Nematoda). —*Indian J. Nematol.*, **8** (1) [1978] : 13-18.

211. **Khan, E.** and **Darekar, K. S.** 1979. Soil and plant-parasitic nematodes from Maharashtra, India. IV. *Tylenchorhynchus punensis* n. sp. and *Merlinius macrophasmidus* n. sp. (Nematoda : Tylenchida). —*Indian J. Nematol.*, **8** (1) [1978] : 43-48.

212. **Khera, S.** and **Chaturvedi, Y.** 1979. Systematic status of *Caloosia paralongi caudata* Siddiqui and Goodey, 1963 (Criconematidae : Nematoda). —*Indian J. Helminth.*, **29** (1) : 79-83.

213. **Koshy, P. K., Nair, C. P. R., Sosamma, V. K.** and **Sundararaju, P.** 1979. On the incidence of root-knot nematode in cardamom nurseries. —*Indian J. Nematol.*, **6** (2) [1976] : 174-175.

214. **Koshy, P. K.** and **Radhakrishnan, Nair, C. P.** 1979. Control of *Radopholus similis* (Cobb, 1893) Thorne, 1949 in coconut nursery. —*Indian J. Nematol.*, **9** (1) : 15-19.

215. **Koshy, P. K.** and **Sosamma, V. K.** 1979. Susceptibility of coconut plumule to *Radopholus similis* (Cobb, 1893) Thorne, 1949.—*Indian J. Nematol.*, **8** (1) [1978] : 77-78.

216. **Koshy, P. K.** and **Sosamma, V. K.** 1979. Control of the burrowing nematode, *Radopholus similis* on coconut seedlings with DBCP. —*Indian J. Nematol.*, **9** (1) : 32-33.

217. **Koshy, P. K., Sosamma, V. K.** and **Sundararaju, P.** 1979. Reactions of thirty-one Areca germplasm ollections to the burrowing nematode, *Radopholus similis*. —*Pl. Dis. Rep.*, **63** (5) : 433-435.

218. **Koshy, P. K., Sundararaju, P.** and **Sosamma, V. K.** 1979. Occurrence and distribution of *Radopholus similis* (Cobb, 1893) Thorne, 1949 in South India. —*Indian J. Nematol.*, **8** (1) [1978] : 49-58.

219. **Krishna Prasad, K. S.** and **Rao, Y. S.** 1979. Interaction between *Tylenchorhynchus claytoni* and *Helicotylenchus crenatus* in rice. —*Indian J. Nematol.*, **7** (2) [1977] : 170-172.

220. **Kumar, P.** and **Gupta, S. P.** 1979. On two new spirurid nematodes of birds. —*Riv. Parassit.*, **40** (1/2) : 43-48.

Cucullanus egrettae n. sp. is described from the intestine of *Egretta garzetta* from Lucknow, India.

Rhabdochona gondae n. sp. is described from the intestine of *Pelecanus philippensis* from Gonda, India.

221. **Kumar, P.** and **Gupta, S. P.** 1979. On two species of the genus *Synhimantus* Railliet, Henry and Sissoff, 1912 (Family : Acuariidae Seurat, 1913) from avian hosts from Lucknow. —*Riv. Parassit.*, **40** (1/2) : 81-86.

S. bubulcus n. sp. is described from the tunic of the gizzard of *Bubulcus ibis* from Lucknow, India.

222. **Kumar, P.** and **Gupta, S. P.** 1979. Two species of the genus *Heterakis* Dujardin, 1845 (Family : Heterakidae Railliet et Henry, 1914) from avian hosts from Lucknow. —*Riv. Parassit.*, **40** (3) : 299-303.

H. cameroni n. sp. is described from the intestine of *Falco chicquera* from Lucknow, India.

223. **Kundu, S.C.** and **Bogdanov, Yu, F.** 1979. Ultrastructural studies of late meiotic prophase nuclei of spermatocytes in *Ascaris sum*. —*Chromosoma*, **70** (3) : 375-384.

In this paper post-pachytene stages of meiotic prophase in male *Ascaris sum* analysed by electron microscopy.

224. **Lal, R., Nagarajan, K.** and **Krishnamurthy, V. G.** 1979. Reaction of crop and ornamental plants to root-knot nematode (*Meloidogyne javanica*). —*Tob. Res.*, **5** (2) : 149-152.

34 crop and ornamental plants, not screened earlier, were tested against tobacco strain of *M. javanica* for cataloguing the susceptible non-hosts and ultimately selecting suitable crops for rotation with tobacco in nematode—sick soils.

225. **Mahajan, R.** 1979. Efficacy of carbofuran for the control of *Meloidogyne incognita* on okra. —*Indian J. Nematol.*, **8** (1) [1978] ; 91-92.

226. **Mahajan, R.** and **Chhabra, H. K.** 1979. Occurrence of plant parasitic nematodes in Panjab, India. —*Pest Artic. News Summ.*, **25** (1) : 46-49.

Forty seven plant nematode species were found associated with 33 crops, bringing the total number of plant nematode species reported from the State to 68. Vegetables were the most adversely affected of all the crops investigated, *M. incognita* being the principal pest.

227. **Mathur, V. K.** 1979. Record of abnormal spears in *Hirschmanniella oryzae*. —*Indian J. Nematol.*, **7** (1) [1977] : 74-77.

228. **Mathur, V. K.** and **Varaprasad, K. S.** 1979. Nematodes associated with sugarbeet in India. —*Indian J. Nematol.*, **8** (1) [1978] : 75-77.

228a. **Matta, S. C.** and **Ahluwalia, S. S.** 1979. Efficacy of two indigenous drugs 'Helminta-P' and 'Sonex' against some common helminths of poultry. —*Indian vet. J.*, **56** (7) : 616-617.

The efficacy of two indigenous drugs—'Helminta—P' against *A. galli* and *Subulura* sp. and 'Sonex' against *A. galli* has been dealt with.

229. **Misra, C.** and **Das, S. N.** 1979. Interaction of some plant parasitic nematodes on the root-knot development in brinjal. —*Indian J. Nematol.*, **7** (1) [1977] : 46-53.

Three ectoparasitic nematodes *C. ornatus*, *H. indicus* and *T. nudus* in combination significantly affected the infectivity of *M. incognita* in brinjal and greatest reduction in root-knot development was observed when associated with the lance nematodes, followed by stunt and ring nematodes.

230. **Misra, S. R.** and **Singh, K.** 1979. Spatial distribution of nematodes in a sugarcane field. —*Indian J. Nematol.*, **7** (1) [1977] : 96-97.

Distribution of plant parasitic nematodes in different layers of soil is largely dependent on the concentration of young growing roots and moisture.

231. **Mohandas, C.** 1979. *Iotonchus prabhooi* sp. n. (Mononchida—Nematoda), a new predatory nematode from the soils of Kerala. —*Curr. Sci.*, **48** (10) : 460.

232. **Mohandas, C.** and **Prabhoo, M. R.** 1979. Record of male *Mylonchulus hawaiiensis* (Mononchida : Mylonchulidae) and females with abnormal gonads.—*Indian J. Nematol.*, **8** (1) [1978] : 73-75.

233. **Muthukrishnan, T. S., Rajendran, G., Ramamurthy, V. V.** and **Chandrasekaran, J.** 1979. Pathogenicity and control of *Hirschmanniella oryzae*. —*Indian J. Nematol.*, **7** (1) [1972] : 8-16.

Observations were carried out on the pathogenic effect, damage threshold, effect of fallow and chemical control of the rice root nematode, *H. oryzae* at the Tamil Nadu Agricultural University, Coimbatore, during 1971-1976.

234. **Muthukrishnan, T. S., Vadivelu, S.** and **Rajendran, G.** 1979. *Longidorus africanus* and its pathogenic effect on *Crossandra undulaefolia*. —*Indian J. Nematol.*, **7** (1) [1977] : 69-72.

The results of the preliminary observations made here under glasshouse conditions to confirm the nematode association and its histopathological effect on the roots of *C. undulaefolia* are presented in this note.

234a. **Naidu, T. S. V.** 1979. A report on the larval forms of the nematodes belonging to *Gnathostoma* sp. ; *Contracaecum* sp. ; and *Eustrongylides* sp. from new piscian hosts, from Vidarbha region of Maharashtra State, India. —*Curr. Sci.*, **48** (5) : 125-127.

235. **Naidu, T. S. V.** and **Murhar, B. M.** 1979. On the occurrence of *Spinostrongylus indicus* Lovekar, 1970, (Nematoda : Trichostrongylidae) in two microbats (new hosts) from Nagpur and a note on copulation. —*Curr. Sci.*, **48** (10) : 463-464.

236. **Naidu, T. S. V.** and **Thakare, V. K.** 1979. Studies on nematode parasites of *Belone cancilla* and *Suncus murinus* from Nagpur (M. S.), India. —*Riv. Parassit.*, **40** (3) : 281-289.

Pseudophysaloptera multipapillata n. sp. is described from the stomach of *Suncus murinus* from Nagpur, India and *Philometra pellucida* is reported from the ovaries of *Belone cancilla* (a new host record).

237. **Nair, K. K. R.** 1979. Studies on the chemical control of banana nematodes. —*Agric. Res. J. Kerala*, **17** (2) : 232-235.

The present study was undertaken to evaluate the efficiency of different nematicides for the control of banana nematodes.

238. **Nama, H. S.** and **Soni, G. R.** 1979. A new species of *Acrobeloides* associated with *Allium sativum* L. —*Indian J. Nematol.*, **9** (1) : 33-36.

239. **Nama, H. S.** and **Soni, G. R.** 1979. *Plectonchus cucumis* sp. n. (Nematoda, Panagrolaimidae) from *Cucumis melo* var. *phut*. —*Curr. Sci.*, **48** (15) : 703-704.

240. **Naqvi, Q. A., Khan, A. H.** and **Saxena, S. K.** 1979. Effect of inoculating cabbage with melilotus mosaic virus and the stunt nematode *Tylenchorhynchus brassicae* on the growth of plants and nematode population. —*Allahabad Fmr.*, **50** (2) : 133-135.

241. **Narayanaswamy, B.C.** and **Setty, K.G.H.** 1979. Addition to plant parasitic nematodes of Karnataka, India. —*Sci. Cult.*, **45** (5) : 204-205.

242. **Nath, R. P., Haidar, M. G., Akhtar, S. W.** and **Prasad, H.** 1979. Studies on the nematodes of vegetables in Bihar—1. Effect of the reniform nematode, *Rotylenchulus reniformis* on *Trichosanthes dioica*. —*Indian J. Nematol.*, **6** (2) [1976] : 175-177.

243. **Nath, R. P., Sinha, B. K.** and **Haider, M. G.** 1979. Studies on the nematodes of vegetables in Bihar—II. Combined effect of *Meloidogyne incognita* and *Ozonium texanum* var. *Parasiticum* on germination of egg plant. —*Indian J. Nematol.*, **6** (2) [1976] : 177-179.

During a survey, egg plants infested with *M. incognita* showed association with a fungus *O. texanum*.

244. **Niphadkar, S. M., Pardhan, M. H.** and **Deshpande, V. S.** 1979. Rediscovery of *Trichinella spiralis* (Owen, 1835) in domestic pigs in India. —*Curr. Sci.*, **48** (8) : 372-373.

245. **Patel, D. J.** and **Desai, M. V.** 1979. Relative tolerance of several tobacco varieties to root-knot nematodes.—*Indian J. Nematol.*, 7 (1) [1977] : 32-36.

The study indicated that root-knot resistance was partially dominant over susceptibility and additive gene action was involved in the inheritance of root-knot resistance.

246. **Patel, G. J., Shah, H. M.** and **Patel, D. J.** 1979. Screening of cowpea cultivars against root-knot nematodes.—*Indian J. Nematol.*, **7** (2) [1977] : 169-170.

247. **Phukan, P. N.** and **Sanwal, K. C.** 1979. Taxonomic studies on nematodes from Assam, India (Paratylenchidae : Tylenchida). —*Indian J. Nematol.*, **9** (1) ; 20-26.

248. **Poinar, G. O. (Jr.)** and **Bai, G.** 1979. *Panagrolaimus migophilus* sp. n. associated with *Musca domestica* (Diptera : Muscidae) in India.—*Indiaa J. Nematol.*, **9** (1) : 1-4.

The genus is being recorded for the first time as "pathogenic to Insects larvae"

249. **Prasad, D., Swamy, R. B.** and **Roy, N. K.** 1979. Evaluation of few brominated hydrocarbon and organophosphonate compounds against root-knot disease (*Meloidogyne incognita*). —*Pesticides*, **13** (7) : 51-53.

The present investigation reports the result of three brominated hydrocarbon and two organophosphonate compounds assayed against possible control of *M. incognita*.

250. **Prasad, J. S.** and **Rao, Y. S.** 1979. Effect of soil application of carbofuran in split doses on the control of the rice root nematode. —*Curr. Sci.*, **48** (12) : 547.

251. **Prasad, S. K.** and **Vijayalakshmi, K.** 1979. Effect of aldicarb and growth regulators on *Anguina tritici* and *Meloidogyne incognita* infesting wheat and egg-plant respectively. —*Indian J. Ent.*, **41** (4) : 332-338.

In this paper, the individual and interactive effects of aldicarb and growth regulators on nematodes, plant growth and also some histo-chemical changes in wheat and egg-plant against *A. tritici* and *M. incognita* respectively are presented.

252. **Rai, G. P.** and **Rana, R. S.** 1979. Effectiveness of beta-exotoxin of *Bacillus thuringiensis* var. *thuringiensis* on the ability of *Meloidogyne* sp. from brinjal (*Solanum melongena*. L.) to survive. —*J. Biosci.*, **1** (3) : 271-278.

The investigation was undertaken to study the effect of B-exotoxin of *Bacillus thuringiensis* var. *thuringiensis* on *Meloidogyne* sp. from brinjal (*Solanum melongena* L.) var. pusa purple long, and to use certain natural substrates for the growth of this bacterial culture.

253. **Rajendran, T.** and **Jayarathnam, K.** 1979. On the occurrence and effect of nematode infestation in rubber plantations in India. —*Indian J. Nematol.*, **7** (1) [1977] : 82-83.

254. **Ramana, K. V.** and **Rao, Y. S.** 1979. Spatial distribution of the lance nematode, *Hoplolaimus indicus* in rice soils. —*Indian J. Nematol.*, **6** (2) [1976] : 160-162.

In view of its importance as a pest of rice and in order to develop methods for cultural and chemical control, the spatial distribution of the nematodes in the rhizosphere of rice was investigated under different soil conditions.

255. **Ramnivas, D.** 1979. On two new species of the family Onchocercidae (Ornithofilariinae) from Indian birds.—*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 265-271.

The paper deals with two new species of the family Ornithofilariinae. *A. tuberculata* n. sp. has been described from the subcutaneous tissue from the neck region of the Indian Pitta, *Pitta brachyura*. The females of the new species were larger in size than those of the species so far described. *A. singhi* n. sp. has been described and compared with closely related species.

255a. **Rao, B. V., Ramakrishna Reddy, P., Subba Reddy, K.** and **Patnaik, B.** 1979. On the occurrence of *Stephanofilaria assamensis* var. *bubalensis* in Cuddapah district, Andhra Pradesh. —*Indian vet. J.*, **56** (3) : 250-251.

256. **Rao, C.K., Sen, T., Roychowdhury, S.P., Datta, K. K., Das, M., Krishna Rao, C.** and **Sharma, S. P.** 1979. Rural filariasis control with Diethylcarbamazine. —*J. Com. Dis.*, **10** (3) [1978] : 194-196.

The comparative effectiveness of different regiments is presented in this communication. Field trials with 72 mg. DEC per kg. body weight divided in 12 equal doses at varying intervals to microfilaria (mf) carriers and to total population were undertaken during 1972-1974 in different Bancroftian endemic communities in Andhra Pradesh, Kerala and U. P.

257. **Rao, R.** 1979. On a new genus and a new species *Amphibiogoezia spinosoma* n. g., n. sp., of the family Goeziidae Skrjabin et Karokhin, 1945 from frogs in Bangalore, India. —*Riv. Parassit.*, **40** (1/2) : 5-8.

A. spinosoma n. g., n. sp. (Goeziidae) from the intestine of *Rana cyanophlyctis* at Bangalore, India, is described and figured.

258. **Rao, V. R.** and **Singh, D. B.** 1979. Reaction of some varieties and selections of okra to *Meloidogyne incognita*. —*Indian J. Nematol.*, **7** (2) [1977] : 175.

259. **Rao, Y. S., Jena, R. N.** and **Prasad, K. S. K.** 1979. Infectivity of two isolates of *Meloidogyne graminicola* in rice. —*Indian J. Nematol.*, **7** (1) [1977] : 98-99.

260. **Ray, S.** and **Das, S. N.** 1979. *Hemicaloosia americana* n.gen. n.sp. from Orissa, India. —*J. Res. O. U. A. T.*, **8** : 131-137.

261. **Reddy, P. P.** and **Singh, D. B.** 1979. Evaluating the reaction of some species and varieties of *Citrus* and *Poncirus* to the citrus nematode.—*Indian J. Nematol.*, **8** (1) [1978] : 82-84.

262. **Reddy, P. P.** and **Singh, D. B.** 1979. Control of root-knot nematode, *Meloidogyne incognita* on tomato by chemical Bare-Root Dips. —*Indian J. Nematol.*, **9** (1) : 40-43.

263. **Roy, A. K.** 1979. Weed hosts of *Meloidogyne graminicola*. —*Indian J. Nematol.*, **7** (2) [1977] : 160-163.

264. **Roy, T. K.** 1979. Histochemical studies of hydrolytic enzymes in *Meloidogyne incognita* (Nematoda : Tylenchidae) and infected host *Lycopersicum esculentum* and their role in host-parasite relationship. —*Indian J. exp. Biol.*, **17** (12) : 1357-1362.

265. **Sahai, B. N.** and **Sinha, A. K.** 1979. Identity of *Haemonchus bispinosus* and *H. contortus* based on genetical development. —*Indian J. Anim. Sci.*, **49** (2) : 161-163.

266. **Saxena, A.** 1979. A note on the cuticle of *Aspiculuris pakistanica* (Nematoda : Oxyuridae).—*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 325-327.

267. **Saxena**, A. 1979. Digestive system of *Aspiculuris pakistanica* (Nematoda : Oxyuridae). I. Cephalic region, buccal capsule and oesophagus. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 16-21.

Morphological details of *A. pakistanica* with reference to cephalic region, buccal capsule and oesophagus regions are dealt with in detail.

268. **Sen, K.** and **Dasgupta, M. K.** 1979. Additional hosts of the root-knot nematode *Meloidogyne* spp. from India. —*Indian J. Nematol.*, **7** (1) [1977] : 74.

269. **Seshadri, A. R.** 1979. Increase in agricultural production by control of nematodes. — *Pestic. Inf.*, **4** (4) : 35-38.

270. **Shamsi, M. A.**, 1979. On the validity of *Helicotylenchus plumariae* and *H. insignis* (Nematoda : Hoplolaimidae). —*Indian J. Nematol.*, **7** (1) [1977] : 66-67.

271. **Sharma, N. K.** and **Sethi, C. L.** 1979. Interrelationship between *Meloidogyne incognita*, *Heterodera cajani* and *Rhizobium* sp. on cowpea (*Vigna sinensis* (L.) Savi). —*Indian J. Nematol.*, **6** (2) [1976] : 117-123.

Effect of the two nematodes, viz., *M. incognita* and *H. cajani*, singly and in combination on rhizobial activity of cowpea and on plant growth has been studied.

272. **Sharma, N. K.** and **Sethi, C. L.** 1979. Influence of *Meloidogyne incognita* and *Heterodera cajani* on carbohydrate content of cowpea. —*Indian J. Nematol.*, **6** (2) [1976] : 171-173.

This paper presents results obtained on the comparative effects of *M. incognita* and *H. cajani* infestation on the carbohydrate content of two cowpea varieties.

273. **Siddiqi, M. R.** 1979. Seven species in a new nematode subfamily Duosulciinae (Tylenchidae) with proposal for *Duosulcius* gen. n., *Zanenchus* gen. n. and *neomalenchus* gen. n. —*Nematologica*, **25** (2) : 215-236.

274. **Siddiqui, Z. A.**, **Khan, A. M.** and **Wajid Khan, M.** 1979. Control of *Tylenchorhynchus brassicae* by the application of oil-cakes. —*Indian J. Nematol.*, **6** (2) [1976] : 145-149.

Amendment of soil with oil-cakes of neem, groundnut, mustard and castor was effective in reducing the population of *Tylenchorhynchus brassicae* around the roots of cabbage and cauliflower, both in pot and field trials.

275. **Siddiqui, Z. A.**, **Khan, M. W.** and **Khan, A. M.** 1979. Nematode population and yield of certain vegetables are influenced by oil-cake amendments. —*Indian J. Nematol.*, **6** (2) [1976] : 179-182.

In the present studies attempts have been made to determine the effect of oil-cake amendments on the yields of certain vegetable crops and nematode populations.

276. **Singh, D. B.**, **Rao, V. R.** and **Reddy, P. P.** 1979. Evaluation of nematicide for the control of root-knot nematodes on brinjal. —*Indian J. Nematol.*, **8** (1) [1978] : 64-66.

277. **Singh, D. B.**, **Reddy, P. P.** and **Rajendran, R.** 1979. Occurrence of root-knot nematode on winged bean. — *Curr. Sci.*, **48** (10) : 445-446.

278. **Singh, D. B.**, **Reddy, P. P.** and **Rajendran, R.** 1979. Reaction of certain winged bean varieties to the root-knot nematode, *Meloidogyne incognita*. —*Indian J. Nematol.*, **9** (1) : 43-45.

279. **Singh, H.** *et al.* 1979. Biliary ascariasis. —*Indian med. Gaz.*, **113** (12) : 406-408.

280. **Singh, I.** and **Bindra, O. S.** 1979. Effect of carbofuran as seed treatment and granular soil treatment alone and in combination on nematode associated with maize. —*Indian J. Nematol.*, **8** (1) [1978] : 89-91.

281. **Singh, I. J., Chahal, V. P. S., Sakhuja, P. K.** and **Chohan, J. S.** 1979. Effect of different levels of *Meloidogyne incognita* in the presence or absence of *Rhizobium phaseoli* on *Phaseolus aureus*.—*Indian J. Nematol.*, 7 (2) [1977] : 172-174.

282. **Singh, K. P., Baghel, P. P. S.** and **Edward, J. C.** 1979. Feeding behaviour of *Aphelenchoides parietinus*. —*Indian J. Nematol.*, 7 (1) [1977] : 67-69.

283. **Singh, R. V.** and **Khera, S.** 1979. Plant parasitic nematodes from rhizosphere of vegetable crops around Calcutta, 4 (Nematoda : Hoplolaimidae).—*Indian J. Nematol.*, **9** : 95-100.

Helicotylenchus seshadrii sp. n. and *H. belurensis* sp. n. collected from the rhizosphere of Okra and sponge gourd respectively are described and illustrated.

284. **Singh, R. V.** and **Khera, S.** 1979. Pathogenicity of *Rotylenchulus reniformis* on brinjal (*Solanum melongena* L.). —*Indian J. Nematol.*, **9** : 117-124.

Investigations are undertaken to study the pathogenic effects, if any, of the nematode on brinjal (*Solanum melongena* L. var-purple round).

285. **Sinha, B. K., Nath, R. P.** and **Haider, M. G.** 1979. Studies on the nematodes of vegetables in Bihar. III. Effect of interaction of *Meloidogyne incognita* and *Ozonium texanum* var. *Parasiticum* on brinjal. —*Indian J. Nematol.*, **7** (1) [1977] : 1-7.

Root-knot nematode, *M. incognita* and fungus *O. texanum* var. *parasiticum* were found independently harmful to the brinjal plants but when they were combined the harmful effect on plant growth was reduced. Change in the galling pattern, when nematode was inoculated with fungus, was also noticed.

286. **Sitaramaiah, K.** 1979. Effect of temperature on decomposition on Margosa cake and on survival of *Tylenchorhynchus elegans*. —*Indian J. Nematol.*, **7** (2) [1977] : 167-169.

287. **Sitaramaiah, K.** and **Singh, R. S.** 1979. Response of *Meloidogyne javanica* and other nematodes to fatty acids. —*Indian J. Nematol.*, 7 (1) [1977] : 58-65.

Butyric and propionic acids inhibited egg discharge and larval hatch of *M. javanica* only at 0.1 M and 0.01 M concentrations. When acetic acid was applied to soil more larvae of *M. javanica* were found in the roots and there was greater intensity of root galls as compared to check.

288. **Sitaramaiah, K.** and **Singh, R. S.** 1979. Effect of atmosphere of amended soil on larval hatch of *Meloidogyne javanica* and its subsequent parasitic capacity. —*Indian J. Nematol.*, 7 (2) [1977] : 163-166.

289. **Sitaramaiah, K.** and **Vishwakarma, S. N.** 1979. Relative efficacy of selected non-volatile nematicides in field for control of root-knot nematodes on okra and tomato. —*Indian J. Nematol.*, **8** (1) [1978] : 32-42.

290. **Sivakumar, C. V.** and **Seshadri, A. R.** 1979. Longevity of the reniform nematode, *Rotylenchulus reniformis* in host-free soil. —*Indian J. Nematol.*, **6** (2) [1976] : 138-144.

The longevity of *R. reniformis* is desiccated and moist soil under host-free conditions has been studied.

291. **Sivakumar, C. V., Palaniswamy, S.** and **Balasubramanian, M.** 1979. Control of *Rotylenchulus reniformis* in tomato nursery. —*Indian J. Nematol.*, **7** (1) [1977] : 78-79.

Fumigant and systemic granular nematicides were evaluated for the control of *R. reniformis* in tomato nursery and the results are reported here.

292. **Sosamma, V. K., Sundararaju, P.** and **Koshy, P. K.** 1979. Effect of *Radopholus similis* on turmeric.—*Indian J. Nematol.*, **9** (1) : 27-31.

293. **Srivastava, A. S., Upadhyay, K. D.** and **Singh, B. P.** 1979. Effect of root-knot nematode, *Meloidogyne javanica* on the growth of soybean, *Glycine max*. —*Indian J. Nematol.*, **9** (1) : 38-40.

294. **Sultan, M. S.** and **Jairajpuri, M. S.** 1979. Nematodes of high altitude in India. IX. Description of two new species of *Rotylenchus* (Nematoda : Tylenchida). —*Revue Nematologie*, **2** : 191-196.

295. **Sultan, M. S.** and **Jairajpuri, M. S.** 1979. A new species of the genus *Scutellonema* Andrassy, 1958 (Nematoda : Hoplolaimidae) from Manipur. —*Curr. Sci.*, **48** (6) : 277-278.

Scutellonema imphalus sp. n. from soil around roots of bamboo from Imphal, Manipur.

296. **Sundararaju, P., Koshy, P. K.** and **Sosamma, V. K.** 1979. Plant parasitic nematodes associated with spices. —*J. Pl. Crops*, **7** (1) : 15-26.

In this review, an attempt has been made to consolidate the scattered information on nematodes of various species.

297. **Tandon, R. S.** and **Kumar, P.** 1979. Observations on histochemical changes of *Solanum melongena* roots infected with *Meloidogyne lucknowica* Singh, 1969. —*Indian J. Nematol.*, **8** (1) [1978] : 85-86.

298. **Upadhyay, K. D., Singh, G.** and **Pandey, R. C.** 1979. Relative efficacy of certain chemicals alone and in combinations against root-knot nematode, *Meloidogyne javanica* attacking tomato crop. —*Indian J. Nematol.*, **9** (1) : 36-38.

299. **Vaishnav, M. U.** and **Sethi, C. L.** 1979. Reaction of some graminaceous plants to *Meloidogyne incognita* and *Tylenchorhynchus vulgaris*. —*Indian J. Nematol.*, **7** (2) [1977] : 176-177.

300. **Vaishnav, M. U.** and **Sethi, C. L.** 1979. Pathogenicity of *Meloidogyne incognita* and *Tylenchorhynchus vulgaris* on bajra and their relationship. —*Indian J. Nematol.*, **8** (1) [1978] : 1-8.

301. **Varma, M. K.** 1979. Reaction of egg plant cultivars to *Meloidogyne incognita*. —*Indian J. Nematol.*, **7** (1) [1977] : 72-73.

302. **Varma, M. K.** 1979. A new device for rapid picking of nematodes from aqueous suspension. —*Indian J. Nematol.*, **7** (1) [1977] : 94-95.

303. **Varma, M. K.** 1979. Resistance in tomato cultivars to *Meloidogyne incognita*.—*Indian J. Nematol.*, **8** (1) [1978] : 61-62.

304. **Varma, M. K, Sharma, H. C.** and **Pathak, V. N.** 1979. Evaluation of systemic granular nematicides against *Tylenchorhynchus* spp. parasitic on cabbage.—*Indian J. Nematol.*, **8** (1) [1978] : 59-60.

305. **Varma, M. K., Sharma, H. C.** and **Mathur, J. R.** 1979. A new nematode disease of mothbean (*Vigna aconitifolia* Marechel.) in Rajasthan. —*Indian J. Pl. Prot.*, **6** (1) [1978] : 78.

306. **Venkitesan, T. S.** and **Setty, K. G. H.** 1979. Pathogenicity of *Radopholus similis* to black pepper (*Piper nigrum*). —*Indian J. Nematol.*, 7 (1) [1977] : 17-26.

307. **Venkitesan, T. S.** and **Setty, K. G. H.** 1979. Control of the burrowing nematode *Radopholus similis* (Cobb) on black pepper. —*Pesticides*, **13** (5) : 40-43.

The pathogenic effect of this nematode has been studied on black pepper by the authors.

308. **Vihan, V. S.** and **Sahni, K. L.** 1979. Efficacy of four anthelmintics in growing lambs under semiarid conditions.—*Indian J. Anim. Res.*, **13** (1) : 15-18.

The present paper reports the efficacy of four anthelmintics in one drenching against natural infection of gastrointestinal nematodes in growing lambs.

309. **Vijayalakshmi, K., Mishra, S. D.** and **Prasad, S. K.** 1979. Nematicidal properties of some indigenous plant materials against second stage juveniles of *Meloidogyne incognita* (Koffoid and White) Chitwood. —*Indian J. Ent.*, **41** (4) : 326-331.

310. **Vinayak, V. K., Chitkara, N. L.** and **Chhuttani, P. N.** 1979. Soil dynamics of hookworm larvae. —*Indian J. med. Res.*, **70** (10) : 609-614.

Rainy season was favourable season for the development and survival of larvae, the least favourable were winter months when the eggs remained dormant for a long period.

311. **Yein, B. R., Singh, H.** and **Chhabra, H. R.** 1979. Effect of pesticides and fertilizers singly and in combination on the root-knot nematode infesting mung.—*Indian J. Nematol.*, **7** (1) [1977] : 117-122.

ACANTHOCEPHALA

312. **Jain, M.** and **Gupta, N. K.** 1979. Two new species of the genus *Cleaveius* Subrahmanian, 1927 (Acanthocephala : Microcanthorhynchinidae Yamaguti, 1963). —*Proc. Indian Acad. Sci.*, **88**B(1) : 305-310.

Two new species *C. leiognathi* and *C. port-blairensis* from the marine fishes of Goa and Andaman & Nicobar Islands have been described in this paper.

Hosts (i) *Leiognathus splendens* (Cuv.) (Intestine)

(ii) A marine teleost (intestine), Port Blair

313. **Mohsin, S.** and **Farooqi, H. U.** 1979. Histochemical observations on *Pallisentis ophiocephali* (Thapar, 1930). —*Geobios*, **6** (2) : 60-63.

314. **Parshad, V. R.** and **Guraya, S. S.** 1979. Some observations on the testicular changes in the acanthocephalan, *Centrorhynchus corvi*, in natural infections of the crow, *Corvus splendens*.—*Int. J. invert. Reprod.*, **1** (4) : 263-266.

315. **Rengaraju, V., Sapkal, V. M.** and **Navlurkar, P.** 1979. Chromosomes in *Porrorchis indicus* (Syn. *Pseudoporrorchis indicus* Das 1957). —*Curr. Sci.*, **48** (9) : 415-417.

The present paper embodies the description of the chromosomes of *P. indicus* which is parasitic in the intestine of the crow pheasant, *Centropus castanopterus*.

ANNELIDA

316. **Arunachalam, S.** 1978. Some aspects of the biology of a tropical earthworm *Pontoscolese corethurus* (O. F. Muller).—*J. Bombay nat. Hist. Soc.*, **75** (1) : 110-114.

317. **Gupta, P. K.** 1979. Macrobenthos of a freshwater pond. —*Geobios*, **6** (1) : 19-20.

318. **Gupta, S. K.** 1979. Glycogen in common Indian earthworm, *Pheretima posthuma*. —*Curr. Sci.*, **48** (9) : 418-419.

The present communication describes the glycogen deposition and its utilization in various parts of the body of *Pheretima posthuma*.

319. **Julka, J. M.** 1979. First record of *Lumbricus castaneous* Savingny from India (Lumbricidae : Oligochaeta). —*J. Bombay nat. Hist. Soc.*, **76** (1) : 191-192.

320. **Julka, J. M.** 1979. Studies on the earthworm fauna of Orissa (India). 2. Megascolecidae, Octochaetidae and Microchaetidae. —*Mitt. zool. Mus. Berlin*, **54** (1) : 185-197.

321. **Kumar, K. S.** and **Sarma, D. V. R.** 1979. Faunal (Phytal) affinity in two freshwater ponds with diverse ecological stresses in Vizianagaram, India. —*Geobios*, **6** (Suppl.) : 347-348.

322. **Mishra, P. C.** and **Dash, M. C.** 1979. Evidence of interspecific intertropical earthworm. —*Trop. Ecol.*, **20** (1) : 13-16.

This paper reports the rate of respiration in four species of earthworm and the effect of interspecific interaction on respiration rates.

323. **Nagabhushanam, R.** and **Kulkarni, G. K.** 1979. Effect of dehydration through desiccation on brain neurosecretory cells of the freshwater Indian leech, *Peocilobdella viridis* (Blanchard). —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 121-125.

The investigation was undertaken to study the neurosecretory changes after exposing leeches to external stimulus such as dehydration through desiccation.

324. **Nair, V. R.** and **Selvakumar, R. A.** 1979. The ecology of chaetognaths in the estuarine system of Goa. —*Mahasagar-Bull. natn. Inst. Oceanogr.*, **12** (1) : 17-24.

Incidence, seasonal fluctuations and breeding of chaetognaths in the Mandovi-Zuari estuarine system were studied at twelve stations during the year 1971 to 1972.

325. **Sareen, M. L.** and **Kaur, T.** 1979. Studies on the prostate gland in *Eutyphoeus nicholsoni*. —*Res. Bull. Panjab Univ.*, **27** (3 & 4) [1976] : 219-221.

326. **Sareen, M. L.** and **Verma, V.** 1979. Morphological and cytochemical studies of the vitellogenesis in *Eisenia foetida* (Oligochaeta : Annelida). —*Res. Bull. Punjab Univ.*, **27** (1 & 2) [1976] : 41-49.

A detailed analysis of various oocyte organelles has been attempted.

327. **Satija, R. C.** and **Garg, D.** 1979. Histology of the central nervous system of some annelids. III. Central nervous system of *Limnodrilus hoffmeisteri*.—*Res. Bull. Punjab Univ.*, **27** (1 & 2) [1976] : 11-19.

Investigation was carried out on the central nervous system of freshwater oligochaete, *Limnodrilus hoffmeisteri*. It has a very large cerebral ganglion, paired peripharyngeal connectives, a suboesophageal ganglion and a paired ventral nerve cord.

328. **Senapati, B. K., Mishra, B. K., Mishra, V.** and **Mishra, B. K.** 1979. Earthworm distribution in pasture soils. —*Geobios*, **6** (1) : 28-29.

329. **Soota, T. D., Misra, A.** and **Chakraborty, R. K.** 1979. Polychaete fauna of Andaman and Nicobar Islands. —*Rec. zool. Surv. India*, **77** (1-4) : 55-69.

The paper deals with 24 species belonging to 16 genera and 9 families from the unnamed collections of the Zoological Survey of India. Four species form new locality records. A complete list, including the present new records, of the polychaetes, hitherto known, from the area has also been included.

330. **Srinivasarao, D.** and **Ramasarma, D. V.** 1978. Food and feeding habits of *Nephtys oligobranchi* Southern (Annelida : Polychaeta). —*Indian J. mar. Sci.*, **7** (3) : 193-195.

331. **Uthaman, M., Hemalatha, V.** and **Reddy, Y. S.** 1979. The effect of Y-BHC on the oxygen consumption of the earthworm, *Megascolex mauritii*—a chronotoxicological approach. —*Curr. Sci.*, **48** (8) : 369-370.

332. **Varma, B. R.** and **Chauhan, T. P. S.** 1979. Preference for pH of some tropical earthworms. —*Geobios*, **6** (4) : 150-153.

BRYOZOA (ECTOPROCTA)

333. **Rao, K. S.** and **Bushnell, J. H.** 1979. New structures in binding designs of freshwater Ectoprocta dormant bodies (Statoblasts). —*Acta zool.* (*Stockh*), **60** : 123-127.

The report gives a wider perspective with dormant bodies of all major phylactolaemate genera by describing the new structures observed. These were classified and discussed in the light of their germinable capabilities.

334. **Rao, K. S., Diwan, A. P.** and **Shrivastava, P.** 1979. Structure and environmental relations of sclerotized structures in freshwater Bryozoa. III. Observations on *Plumatella casmiana* (Ectoprocta : Phylactolaemata). —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 8-15.

Fine structure of the three different types of floatoblasts and the unique feature sessoblasts design of *P. casmiana* are described.

BRACHIOPODA

335. **Waterhouse, J. B.** and **Gupta, V. J.** 1979. Late Middle Permian brachiopods from Marbal Pass, Kashmir. —*Bull. Indian geol. Ass.*, **12** (1) : 1-42.

Some 16 brachiopod species showing closer similarities than normal with faunas of the Salt Range of Pakistan, are described for the first time from Kashmir.

One new species, *Waagenoconcha delectus* n. sp. is proposed.

MOLLUSCA

336. **Abeyesekera, A. M. D.** and **Breckenridge, W. R.** 1979. The nervous system of *Achatina fulica* (Gastropoda : Pulmonata : Stylommatophora). —*Ceylon J. Sci.* (*Biol. Sci.*), **13** (1-2) : 89-108.

An account of the central nervous system of *A. fulica* with some morphological and anatomical details, together with an outline of the blood supply to the central nervous system is given here.

337. **Achuthakutty, C. T., Nair, S. R. S.** and **Madhupratap, M.** 1979. Pearls of the windowpane oyster, *Placuna placenta*. —*Mahasagar—Bull. natn. Inst. Oceanogr.*, **12** (3) : 187-189.

The occurrence of large number of small pearls in the windowpane oyster, *P. placenta* collected from the Nauxim Bay of Goa, is reported here.

338. **Agrawal, H. P.** 1977. A check list of molluscs of Madhya Pradesh. —*Indian J. Zoot.*, **16** (3) : 241-248.

339. **Agrawal, H. P.** 1979. Some land molluscs of Himachal Pradesh, India Pt. I. —*Indian J. Zoot.*, **18** (2) : 131-135.

340. **Agrawal, H. P.** 1977. Growth indices of *L. acuminata* Lamarck. —*J. Anim. Morph. Physiol.*, **24** (2) : 285-291.

341. **Agrawal, H. P.** 1979. Control of the land snail, *Bensonia monticola* (Hutton) by certain pesticides.—*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 101-105.

The snail, *B. monticola* is a serious pest of a wide range of plants such as beans, morning glory, ladies finger and maize. In the present investigations the potency of five pesticides are screened for the control of this snail

342. **Alagarswami, K.** and **Victor, A. C. C.** 1979. Salinity tolerance and rate of filtration of the pearl oyster *Pinctada fucata*. —*J. mar. biol. Ass. India*, **18** (1) [1976] : 149-158.

In this paper, salinity tolerance and rate of filtration of the pearl oyster *P. fucata* were studied during 1975-77.

343. **Ansari, Z. A., Nair, A., Harkantra, S.N.** and **Parulekar, A. H.** 1978. Dimensional relationships in green mussel, *Mytilus viridis* from two environments. —*Mahasagar*, **11** (3-4) : 201-205.

344. **Appukuttan, K. K.** 1979. Trochus and Turbo fishery in Andamans. —*Seafd. Export J.*, **11** (1) : 41-44.

345. **Asif, M.** 1979. Variations in allometric growth in the shells of *Crassostrea rivularis* (Gould), *Saccostrea glomerata* (Gould) and *S. cucullata* (Born) from the coast of Karachi. —*Pakist. J. scient. ind. Res.*, **22** (1-2) : 46-49.

346. **Asif, M.** 1979. Hermaphroditism and sex reversal in the four common oviparous species of oysters from the coast of Karachi. —*Hydrobiologia*, **66** (1) : 49-55.

347. **Bhosle, N. B.** and **Matondkar, S. G. P.** 1978. Variation in trace metals in two populations of green mussel, *Mytilus viridis* L. from Goa. —*Mahasagar*, **11** (3-4) : 191-194.

348. **Biswas, S., Tyagi, D.** and **Wattal, B. L.** 1979. Utility of scavenger snails on prevention of scum and slime formation in mosquito breeding trays—preliminary observations. —*J. Com. Dis.*, **10** (3) [1978] : 191-193.

Experiments were initiated to determine the possiblity of using locally available snails for keeping the breeding water pans clean of scum and slime on the pattern of use of these animals reported by Miura.

349. **Daniel, R.** 1979. Chondrophora of the Indian Ocean. —*J. mar. biol. Ass. India*, **18** (1) [1976] : 110-121.

In this paper, details regarding the locality records, remarks on salient features, their variations in the material examined are presented. The geographical and seasonal distribution of these species in the Indian Ocean are discussed.

350. **Ghare, M. A.** 1979. Lenticeratid ammonoids from south Indian Cretaceous rocks of Trichnopoly district, Tamil Nadu. —*Biovigyanam*, **5** (2) : 165-169.

351. **Goel, H. C.** and **Parshar, B. D.** 1979. Effect of temperature on the development of *Indoplanorbis exustus* (Mollusca : Pulmonata).—*J. invert. Path.*, **33** (3) : 378-380.

352. **Grossman, M.** 1979. The shape of the shell of the chambered Nautilus. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 611-612.

353. **Hanumante, M. M., Deshpande, U. D.** and **Nagabhushanam, R.** 1979. Cytological alterations in the neurosecretory cells of the freshwater pulmonate *Indoplanorbis exustus* during shell regeneration. —*Indian J. exp. Biol.*, **17** (3) : 306-308.

354. **Hanumante, M. M., Farooqui, U. M.** and **Nagabhushanam, R.** 1979. Observations on the effect of starvation and feeding on neurosecretory cells of the freshwater bivalve, *Indonaia caerulieus*. —*Sci. Cult.*, **45** (2) : 73-75.

355. **Hussain, M.S.** 1979. Mass mortality of *Solen truncatus* (Bivalvia : Solenidae) in Tuticorin Bay, South India. —*Curr. Sci.*, **48** (24) : 1089-1090.

356. **Ittyaverah, P. J., Nair, N. R.** and **Thomas, M. J.** 1979. *Limnaea acuminata* Lamarck (Pulmonata : Limnaeidae), a pest on azolla (*Azolla pinnata*). —*Agric. Res. J. Kerala*, **17** (2) : 296.

357. **Joseph, M. M.** 1979. Shell characteristics of the spat of the two species of oysters, *Crassostrea madrasensis* (Preston) and *C. cucullata* (Born). —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 519-522.

358. **Kanjilal, S.** 1979. Jurassic *Camptonectes* (Bivalvia) from the Habo Hill, district Kutch (Gujarat), W. India. —*J. moll. Stud.*, **45** (1) : 115-124.

359. **Kapoor, V. C.** and **Khanna, A.** 1979. A list of molluscs of the Punjab. —*J. Res. Punjab agric. Univ.*, **15** (3) [1978] : 359-360.

360. Deleted.

361. **Khot, R.** and **Nagabhushanam, R.** 1979. Studies on neurosecretory phenomenon in the snail *Melanoides tuberculatus*. —*Riv. Biol.*, **72** (3-4) : 189-200.

362. **Lakshmanan, P. T.** and **Nambisan, P.N.K.** 1979. Accumulation of mercury by the mussel *Perua viridis* Linnaeus.—*Curr. Sci.*, **48** (15) : 672-674.

The rate of uptake and distribution pattern of Hg in various tissues of *P. viridis* was studied.

363. **Lakshminarayana, K. V.** and **Saha, U.** 1979. Upper Cretaceous rhyncolites from the Tiruchchirappally district (South India). —*J. Paleont.*, **53** (4) : 990-996.

364. **Lomte, V. S.** and **Barhanpurkar, S. N.** 1979. Effect of temperature, salinity and starvation on neurosecretory cells of cerebral ganglia of the freshwater mussel *Parreysia corrugata*. —*Indian J. exp. Biol.*, **17** (9) : 969-970.

365. **Mallik, T. K.** 1979. Sand collars from a Recent beach. —*Mar. Geol.*, **29** (1-4) : M17-M23, illustr.

Holocene, sand collars enclosing egg masses, structure Gastropoda. Orissa, Chandipore.

366. **Muraleedharan, V., Nair, T. S. U.** and **Joseph, K. G.** 1979. Smoke curing of mussels. —*Fishery Technol.*, **16** (1) : 29-31.

367. **Nair, A., Dalal, S. G.** and **Ansari, Z. A.** 1978. Growth of the bean clam, *Donax incarnatus* Gmelin from a sandy beach at Benaulim, Goa. —*Indian J. mar. Sci.*, **7** (3) : 197-199.

368. **Nair, N. B.** and **Dharmaraj, K.** 1979. Incidence of wood-boring molluscs in the oyster farms at Tuticorin. —*Mahasagar, Bull. natn. Inst. Oceanogr.*, **12** (2) : 109-113.

Wooden pilings heavily riddled by molluscan wood-borers, pulled out from the oyster farm at Karapad Creek in Tuticorin were examined to assess the species involved and the nature of vertical distribution.

369. **Namboodiri, P.N.** and **Sivadas, P.** 1979. Zonation of molluscan assemblage at Kavaratti Atoll (Laccadives). —*Mahasagar—Bull. natn. Inst. Oceanogr.*, **12** (4) : 239-246.

Four major biomorphological zones were identified on Kavaratti Atoll for molluscan assemblage. While 45 species were found in the intertidal rocky shore, the inner reef platform had 28, the lagoon floor 19 and the intertidal sandy beach only one. It was observed that functionally similar but unrelated species lived together in the same habitat. The species were grouped according to their dietary habits.

370. **Natarajan, P.** and **Thiagarajan, R.** 1979. Methods of shell cleaning and polishing. —*Seafd. Export J.*, **11** (6) : 19-25.

371. **Pal, S. G.** and **Dass, S.** 1979. Fine structure of the heart cells of and Indian bivalve mollusc. —*Natn. Acad. Sci. Lett.*, **2** (4) : 163-164, 1 pl.

372. **Rajan, R. K.** and **Sriramulu, V.** 1979. *In vitro* studies on the influence of optic tentacular principle in maintenance of male germ cell line in the snail *Cryptozona belangeri* (Deshayes). —*Indian J. exp. Biol.*, **17** (7) : 701-703.

373. **Raju, D. C., Mastanaiah, S., Ravi Varma, D.** and **Swami, K. S.** 1979. Rhythmic variations in the lipase activity in the slug, *Laevicaulis alte* (Ferussac, 1821). —*Curr. Sci.*, **48** (5) : 216-217.

374. **Ramasubramaniam, K.** 1979. Studies on calcium of reproductive glands and egg envelopes of the snail *Achatina fulica*. —*Indian J. exp. Biol.*, **17** (11) : 1213-1218.

375. **Ramasubramaniam, K.** 1979. Qualitative and quantitative studies on proteins of reproductive glands and egg envelopes of the snail *Achatina fulica*. —*Indian J. exp. Biol.*, **17** (11) : 1219-1223.

376. **Rao, L.M.** and **Sarma, D.V.R.** 1979. On the occurrence of *Clypeomorus clypeomorus* Jousseaume 1888, on Visakhapatnam Coast. —*Geobios*, **6** (3) : 143.

377. **Rao, L. M.** and **Sarma. D. V. R.** 1979. Reproductive biology of *Clypeomorus clypeomorus* Jousseaume. —*Geobios*, **6** (6) : 245-249.

378. **Rao, P. V., Chowdary, V. D.** and **Babu, G. R.** 1979. Effect of xiphidiocercarial infection on ethanol precipitable tissue carbohydrate levels of the snail host *Lymnaea luteola*. —*Indian J. exp. Biol.*, **17** (11) : 1230-1232.

In this paper, details regarding the locality records, remarks on salient features, their variations in the material examined are presented. The geographical and seasonal distribution of these species in the Indian Ocean are discussed.

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379. **Rao, P. V.** and **Onnurappa, J.** 1979. Qualitative analysis of sugars and their effect on tissue respiration in selected usual and unsual fresh water gastropod snail hosts of larval trematodes. —*Indian J. exp. Biol.*, **17** (3) : 294-297.

Chromatographic analysis has revealed the presence of fructose, xylose and ribose in the digestive gland of the usual host *Lymnaea luteola*, besides glucose and galactose present in body fluid.

380. **Raut, S. K.** 1979. Distribution and population of two pestiferous land snails, *Achatina fulica* Bowdich and *Macrochlamys indica* Godwin—Austen, in West Bengal. —*Bull. zool. Surv. India*, **2** (1) : 7-16.

Studies on the distribution and population status of *Achatina fulica* Bowdich and *Macrochlamys indica* Godwin—Austen have been made from W. B. Population density of the snails was estimated by counting the snails from five different square metre areas of the infested pocket and the mean was considered for actual population per square area.

381. **Reddy, Y. S., Chetty, C. S., Aruna, P., Naidu, R. C. M.** and **Swami, K. S.** 1979. Effect of ganglionic extracts on free amino acid levels in the tissues of the snail, *Pila globosa* (Swainson). —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 106-109.

The cerebral, pleuropedal and visceral ganglionic extracts from active and aestivated snails were injected into the foot of the active snail and the changes in free amino acid levels in the digestive gland and foot of the active snail were studied.

382. **Salih, K. Y. M.** 1979. Studies on the biochemical composition of the clam, *Meretrix casta* (Chemnitz) off Cochin Barmouth.—*Bull. Dept. Mar. Sci. Univ. Cochin*, **10** : 47-73.

383. **Shylaja, R.** and **Alexander, K. M.** 1979. Observations on the histology and histochemistry of the nephridium of the fresh water gastropod, *Pila virens*. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 169-176.

The study has been undertaken with a view to elaborate the salient histological and histochemical features of the kidney of the prosobranch, *Pila virens* whereby their relevance in the physiology of excretion can be elucidated.

384. **Singh, C. S. P., Agrawal, S. K.** and **Kacker, A. K.** 1979. Callovian cephalopods from the Mouwana Dome, Eastern Bela Island, District Kutch (Gujarat.) —*Bull. Indian geol. Ass.*, **12** (2) : 173-189.

Systematic description of 12 forms of cephalopods including one new species has been given.

385. **Singh, M. P., Mehrotra, P. C.** and **Kacker, A. K.** 1979. Discovery of Permian fossils from Tal Nadi section of the Garhwal Himalaya, U. P.—*Curr. Sci.*, **48** (8) : 348-349.

386. **Sivaiah, S.** and **Ramana Rao, K.V.** 1979. Effect of malathion on histogravimetric, histosomatic indices and water content in *Pila globosa* (Swainson). —*Geobios*, **6** (1) : 8-11.

387. **Starmiihlner, F.** 1979. Distribution of freshwater molluscs in mountain streams of tropical Indo-Pacific islands (Madagascar, Ceylon, New Caledonia). —*Malacologia*, **18** (1-2) : 245-255.

388. **Subba Rao, N.V.** and **Mitra, S. C.** 1979. On land and freshwater molluscs of Pune district, Maharashtra. —*Rec. zool. Surv. India*, **75** (1-4) : 1-37.

The present account gives a comprehensive picture of the molluscan fauna of the Pune district. A total of 130 species and varieties of land and freshwater molluscs are reported from the district.

389. **Vaidya, D. P.** 1979. Substratum as a factor in the distribution of two prosobranch freshwater snails, *Viviparus bengalensis* and *Melania scabra*.—*Hydrobiologia*, **65** (1) : 17.

390. **Vaidya, D. P.** and **Nagabhushanam, R.** 1979. Influence of salt concentrations on survival, body weight and blood chloride of the freshwater snail, *Indoplanorbis exustus* (Deshayes). —*Hydrobiologia*, **63** (3) : 195-198.

391. **Veeresh, G. K., Rajagopal, D.** and **Puttarudriah, M.** 1979. First record of African giant snail, *Achatina fulica* Bowdich (Mollusca : Gastropoda) as a serious pest of ornamental crops in Bangalore. —*Curr. Res. mon. Newsl.*, **8** (12) : 202-204.

The present observation revealed that the pest is fast spreading. Unless the ornamental plant buyers take every care to avoid soil contaminated with snails eggs and young ones, the pest may spread to wider area in Karnataka and other parts of the country.

ARTHROPODA

Arachnida

392. **Banerjee, B.** 1979. The mating speed in *Oligonychus gossypii* (Zacher) (Tetranchidae : Acarina). —*Int. J. invert. Reprod.*, **1** (3) : 201-204.

393. **Barman, M,** 1978. A new Mygalomorph spider of the genus *Phlogiodes* from Khasi—Jaintia Hills, India (Araneae : Theraphosidae). —*J. Bombay nat. Hist. Soc.*, **75** (1) : 168-169.

394. **Barman, M.** 1979. Studies on some spiders of the genera *Tegenaria* and *Agelena* from Khasi and Jaintia Hills, India (Araneae: Agelenidae).—*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 454-457.

395. **Barman, M.** 1979. Mygalomorph spiders of Khasi-Jaintia Hills. —*Bull. Meghalaya Sci. Soc.*, **3** (1-4) : 1-4.

396. **Basu, K. C.** 1979. On a new spider of the genus *Xysticus* Koch, 1835 (Thomisidae : Arachnida) from Nainital, India. —*J. zool. Soc. India*, **28** (1-2) [1976] : 149-150.

397. **Bhat, H. R.** 1979. Life-history of *Haemaphysalis spinigera* Neumann, 1897 (Acarina : Ixodidae). —*Indian J. Anim. Sci.*, **49** (7) : 517-522.

This paper presents the life-history of *H. spinigera* in detail as observed under laboratory conditions.

398. **Bisht, R. S.** 1979. *Limnesia lembangensis* Piersig (Acarina) on two aquatic Hydrophilidae from Bhimtal, India. —*Geobios*, **6** (2) : 89-90.

399. **Chakrabarti, D. K., Mondal, B. K.** and **Kundu, B. G.** 1979. Two new species of *Pseudotocepheus* (Acari : Otocepheidae) from West Bengal, India. —*Indian J. Acar.*, **3** (1) [1978] : 43-50.

400. **Chakrabarti, D. K., Kundu, B. G.** and **Mondal, B. K.** 1979. A new genus *Sigmonothrus* (Oribatei : Camisiidae) from Darjeeling. —*Indian J. Acar.*, **3** (2) [1978] : 58-66.

401. **Chakrabarti, D. K.** and **Roy Talukdar, A.** 1979. New species of malaconothrus and a few new records from other genera of soil oribatid mites (Acari) from the district of Cachar, Assam. —*Sci. Cult.*, **45** (2) : 79-87.

402. **Chakrabarti, S.** and **Mondal, S.** 1979. Description of two new species of Eriophyid mites (Acari : Eriophyoidea) from West Bengal, India. —*Indian J. Acar.*, **3** (2) [1978] : 71-76.

403. **Chakrabarti, S.** and **Mondal, S.** 1979. Studies on the Eriophyid mites (Acarina : Eriophyoidea) of India-II : Descriptions of three new species from West Bengal. —*Oriental Ins.*, **13** (1-2) : 47-54.

Three new Eriophyid mites, viz., *Diptilomiopus bengalensis* (Rhyncaphytoptidae) infesting *Gardenia jasminoides* Ellis., *Tegolophus indica* (Eriophyidae) infesting *Artocarpus heterophyllus* Lamk. and *Tegolophus calotropi* (Eriophyidae) infesting *Calotropis procera* Br, are described from Kalyani, West Bengal. Relationships of these new species with other known species are also discussed.

404. **Chatterjee, P. B.** and **Dutta, S.** 1979. Some predatory spiders on brown plant hopper and other rice pests.— *Int. Rice Res. Newsl.*, **4** (5) : 20.

405. **Dar, N.** and **Gupta, V.** 1979. Studies on the house dust mites of India and their role in causation of bronchial asthama and allergic rhinitis. Part 1. The Mites. —*Oriental Ins.*, **13** (3-4) : 261-298.

406. **Das, L. K.** and **Roy Chaudhuri, D. N.** 1979. *Physalis minima* (Solanaceae)— a new host plant of yellow mite, *Polyphagotarsonemus latus* (Banks). —*Sci. Cult.*, **45** (4) : 169-170.

407. **Dhar, S.** and **Kachroo, P.** 1979. Grazers' impact on soil mesofauna in temperate ecosystem. —*Geobios*, **6** (Suppl.) : 332-333.

408. **Fox, M. W., Cohen, J. A.** and **Johnsingh, A. J. T.** 1979. A preliminary examination of the parasites recovered from the Indian wild dog (*Cuon alpinus*). —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 515.

409. **Gajalakshmi, B. S., Ramaswamy, N., Thiagarajan, C.** and **Yahya, G. M.** 1979. Certain observations in electrocardiogram and enzyme variation in dogs, following scorpion venom injection. —*Indian J. Physiol. Pharmac.*, **22** (4) : 397-400.

410. **Gajbe, U. A.**, 1979. Studies on some spiders of the genus *Sosticus* from India (Araneae : Gnaphosidae). —*Bull. zool. Surv. India*, **2** (1) : 69-74.

The present paper deals with four new species of *Sosticus*. Key to the identification of the Indian species has also been given.

411. **Gajbe, U. A.** and **Bhadra, S.** 1979. *Uroctea indica* Pocock (Family : Urocteidae) as a new record from Rajasthan, India.—*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 933-934.

412. **Ghosh, A. K.** and **Bhaduri, A. K.** 1979. Studies on the oribatid mites (Acari : Oribatei) of Nagaland, India. —*Indian J. Acar.*, **3** (2) [1978] : 51-57.

413. **Gupta, S. K.** 1979. The genus *Paraphytoseius* Swirski and Shechter with a new subgenus and one new species from India. —*Bull. zool. Surv. India*, **2** (1) : 79-82.

The genus *Paraphytoseius* Swirski and Shechter is revived. *Tropicoseius*, a new subgenus under *Paraphytosius*, is erected to embrace a new species.

414. **Gupta, S. K.** 1979. A new species of blood sucking mite (Acarina) from India. —*Curr. Sci.*, **48** (11) : 507-508.

415. **Gupta, S. K.** 1979. *Tuckerella kumaonensis*, sp. nov. (Acarina : Tuckerellidae) from India. —*Oriental Ins.*, **13** (1-2) : 229-230.

Tuckerella kumaonensis, sp. nov. is described from Kumaon Hills, U. P., India.

416. **Gupta, S. K.** 1979. Mites infesting field crops in India. —*Zoologiana*, **(2)** [1978] : 54-62.

The author has made an attempt to discuss the mites infesting field crops, basing on author's own observations as well as from literature.

417. **Gupta, S. K.** and **Chattopadhyay, S.** 1979. Studies on acari associated with bird nets in Bengal, India. —*Indian J. Acar.*, **3** (2) [1978] ; 77-86.

418. **Gupta, Y. N.** and **Gupta, S. K.** 1979. On a collection of Tetranychoid mites from Madhya Pradesh, India, with a description of a new *Eotetranychus* (Acari : Trombidiformes). —*Indian J. Acar.*, **3** (2) [1978] : 87-91.

418a. **Jagannath, M. S., Pillai, K. R. S.** and **Hiregoudar, L. S.** 1979. On the occurrence of *Rhipicephalus haemaphysaloides* Supino, 1897 on an Indian elephant (*Elephas maximus*). —*Indian vet. J.*, **56** (11) : 978.

419. **Kulkarni, S. M.** 1979. Some ecological observations on trombiculid mites (Acari : Trombidioidea) in the Western Ghats near Poona, India. —*Indian J. Acar.*, **3** (1) [1978] : 17-32.

420. **Kulkarni, S. M., Mahadev, P.V.M.** and **Mishra, A. C.** 1979. Some observations on parasitisation of small mammals by trombiculid mites (Acari : Trombidioidea) in the Western Ghats near Poona, India. —*Indian J. Acar.*, **3** (1) [1978] : 1-16.

421. **Kumar, N.** and **Ruprah, N. S.** 1979. On population of *Hyalomma (Hyalomma) anatolicum excavatum*. —*Indian vet. J.*, **56** (11) : 912-915.

The studies on population of *Hyalomma (H.) anatolicum excavatum* were conducted on cattle/buffalo and off the host all the year round with respect to its seasonal incidence and occurrence at various parts of the body.

422. **Lal, L.** 1979. Biology of *Brevipalpus phoenicis* (Geijskes) (Tenuipalpidae : Acarina). —*Acarologia*, **20** (1) : 97-101.

In this paper the life-history of *B. phoenicis* was studied. It was reared in the laboratory at Jallundur, India, on *Oroxylum indicum* and *Clerodendron siphonanthus* in order to study the duration of the development stages. The life-cycle was completed in 20.02 days at an average temperature of 21.2°C and in 29.66 days at 26.6°C on *C. siphonanthus*. The duration of the different stages was more strongly affected by temperature than by the species of food plant. About 9 gnerations were reared in a year. All stages are briefly described.

423. **Lal, L.** and **Mukharji, S. P.** 1979. Biology of *Eotetranychus uncatus* (Acari : Tetranychidae) in North India.—*Indian J. Acar.*, **3** (1) [1978] : 38-42.

424. **Makar, P. V., Kharole, V. U.** and **Choudhari, K. G.** 1979. Some observations on the incidence of citrus mite on different citrus rootstocks during 1978. —*J. Maharashtra agric. Univ.*, **4** (2) : 231-232.

425. **Mondal, S.** and **Chakrabarti, S.** 1979. Studies on Eriophyid mites (Acarina : Eriophyoidea) of India. IV. Description of two new species of *Tegolophus* Keifer from West Bengal. —*Entomon*, **4** (4) : 373-377.

Two new species *T. ficusi* infesting *Ficus infectoria* Rouxb. and *T. nerii* infesting *Nerium odorum* Mill. are described from W. B. Relationship of these two species with the other known species of the genus, distribution and host-mite relationship have also been discussed.

426. **Mushtaque, M.** and **Baloch, G.M.** 1979. Possibilities of biological control of mistletoes, *Loranthus* spp., using oligophagous insects from Pakistan. —*Entomophaga*, **24** (1) : 73-82.

Twenty seven species of insects and mites are associated with *Loranthus* spp. in Pakistan of which 12 insects appear to be restricted feeders.

427. **Muthuraman, M.** 1979. Tea mites.— *Kisan Wld.*, **6** (11) : 23-25.

428. **Nadchatram, M.** 1979. Two new species of chiggers mites (Acari : Trombiculidae) from India and Indonesia.— *Oriental Ins.*, **13** (1-2) : 75-80.

Two new species, *Gahrliepia* (*Schoengastiella*) *doratanae*, sp. nov. ex *Rattus bartelsii*, *R. fulvescens* and *R. argentiventer* from West Java, Indonesia and *Neotrombicula guptai*, sp. nov., ex rodent from Uttar Pradesh, ndia are described and illustrated.

429. **Patel, B. H.** 1978. Studies of Indian Filistatid spiders (Araneae : Arachnida). —*J. Bombay nat. Hist. Soc.*, **75** (1) : 183-189.

430. **Pramanik, M. M.** and **Raychaudhuri, D. N.** 1979. A new species of *Dendrolaelaps* (Acari : Digamasellidae) from West Bengal, India. —*Indian J. Acar.*, **3** (1) : [1978] : 33-37.

431. **Puttaswamy** and **Channa Basavanna, G. P.** 1979. *Typhlodromips tentranychivorus* (Acari : Tetranychidae) at Bangalore. —*Acar. Newsl.*, No. 8 : 5.

432. **Rahman, A.** and **Roy Choudhury, G. K.** 1978. Transmission of *Babesia* infection in cattle through larvae of *Boophilus microplus*. —*Indian J. Anim. Sci.*, **48** (10) : 724-726.

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

434. **Raina, M. K., Kachroo, P.** and **Dhar, S.** 1979. Soil and litter mesofauna from Kashmir Himalayas. —*Geobios*, **6** (Suppl.) : 329-330.

435. **Raman, A.** and **Swaminathan, S.** 1979. On the histopathology of mite galls on leaves of *Pavetta hispidula* (Rubiaceae). —*Indian J. Acar.*, **3** (2) [1978] : 67-70.

436. **Rao, G. N.** and **Murthy, R. L. N.** 1979. Translaminar effect of dicofol and phosalone in the control of pink mite of tea. —*Pesticides*, **13** (3) : 35-36.

437. **Sadana, G. L.** and **Joshi, (Miss) R.** 1979. Comparative susceptibility of different varieties of citrus to the attack of phytophagous mite *Brevipalpus californicus*. —*Sci. Cult.*, **45** (10) : 413-414.

438. **Sarma, P. V.** 1979. Possibilities for integrated control of major pests of tea in India. —*Pest Artic. News Summ.*, **25** (3) : 237-245.

Major pests of tea and their natural enemies on record in India and Sri Lanka are presented with emphasis on their utility. The use of chemical pesticides can be minimised by integrating with the other available methods of control.

438a. **Singh, D.K., Jagdish, S., Gautam, O. P.** and **Dhar, S.** 1979. Infectivity of ground-up tick supernates prepared from *Theileria annulata* infected *Hyalomma anatolicum anatolicum*. —*Trop. Anim. Hlth. Prod.*, **11** (2) : 87-90.

Groups of *Theileria annulata* infected *Hyalomma anatolicum* adults pre-fed on a calf for one to 6 days were seperately ground in tissue culture medium-199, supplemented with bovine albumin powder, Fraction-V.

439. **Sreenivasan, M. A., Bhat, H. R.** and **Naik, S. V.** 1979. Experimental transmission of Kyasanur forest disease virus by *Dermacentor auratus* Supino. —*Indian J. med. Res.*, **69** (5) : 701-707.

440. **Sreenivasan, M. A., Bhat, H. R.** and **Rajagopalan, P. K.** 1979. Transmission of Kyasanur forest disease virus by partly fed ixodid ticks. —*Indian J. med. Res.*, **69** (5) : 708-713.

441. **Srivastava, K. M.** and **Singh, R. P.** 1979. Incidence of eriophyid mite *Aceria cajani C.* on red gram. —*Indian J. Ent.*, **41** (4) : 391-393.

442. **Subburam, V.** and **Reddy, T. G.** 1979. Breeding season and gestation period of the scorpion, *Heterometrus fulvipes*. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 513-514.

443. **Subburam, V.** and **Reddy, T. G.** 1979. Changes in the protein content of the maternal and embryonic tissues of the viviparous scorpion *Heterometrus fulvipes* during gestation period.—*Curr. Sci.*, **48** (19) : 853-856.

444. **Suzuki, S.** 1979. *Metagagrella koyamai* n. sp. (Opiliones, Gagrellidae) from India. — *Annotnes zool. Jap.*, **52** (2) : 142-145.

It is of interest that a male secondary character is exibited in the labrum of the new species.

445. **Tikader, B. K.** 1979. Studies on some myglomorph spiders of the families Ctenizidae and Theraphosidae from India. —*J. Bombay nat. Hist. Soc.*, **74** (2) : 306-319.

446. **Tikader, B. K.** and **Biswas, B.** 1979. Two new species of spider of the genus *Tharpyna* Koch from India (Family : Thomisidae). —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 903-905.

447. **Tikader, B. K.** and **Gajbe, U. A.** 1979. Further studies on some spiders of the genus *Zelotes* Gistel (Araneae : Gnaphosidae) from India. —*Bull. zool. Surv. India*, **2** (1) : 83-89.

Five new species of spiders of the genus *Zelotes* Gistel from Maharashtra State, India, are described in the paper. A key to the Indian species of *Zelotes* is also provided.

448. **Veeravel, R.** 1979. Brinjal pest control. —*Kisan Wld.*, **6** (8) : 33-34.

449. **Venkatesan, R. A., Sukumar, M.** and **Nandy, S. C.** 1978. Sarcoptic mange in Indian goat and ship skins and its effect on leather. —*Leath. Sci.*, **25** (11) : 457-470.

Histopathological changes in the raw goat skins due to sarcoptic mange and variations in physical and chemical properties of the affected areas of the skin and leather have been studied.

450. **Vyas, A. B.** and **Laliwala, S. M.** 1979. On the tracheal organs of spider *Oecobius putus*. —*Curr. Sci.*, **48** (8) : 368.

(b) Crustacea

451. **Achuthankutty, C. T.** and **Selvakumar, R. A.** 1979. Larval distribution of sergestid shrimp *Acetes* in the estuarine system of Goa. —*Mahasagar Bull. natn. Inst. Oceanogr.*, **12** (3) : 169-174.

In this paper the results of study made on the larval distribution of *Acetes* in the estuarine system of Goa are presented.

452. **Agarwal, P. N.** 1979. Scythian ostracodes from Khunamuh Formation, Khreuh, Kashmir Himalayas. —*Curr. Sci.*, **48** (10) : 442-443.

453. **Altevogt, R.** 1979. Proto-fiddlers and fiddlers : Pathways to waving in Indian Brachyuran Craks. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 800-809.

454. **Ambore, N.E.** and **Venkatachari, S.A.T.** 1979. Age and sex related studies on the chemical architecture of the tissues of the freshwater crab, *Barytelphusa guerini* I. Water content. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 126-131.

A detailed investigation on the chemical architecture of the tissues of the freshwater crab, *B. guerini* was undertaken. Attention was also paid to the sex of the animal to analyse the possible sex differences in the biochemical basis of ageing in the organisms.

455. **Ambore, N.E.** and **Venkatachari, S.A.T.** 1979. Age and sex related studies on the chemical architecture of the tissues of the freshwater crab, *Barytelphusa guerini* II. Cations. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 132-143.

The paper reports the cationic composition of the tissues of the freshwater crab and its variations in relation to age and sex.

456. **Amer Hamsa, K.M.S.** and **Nammalwar, P.** 1979. Description of Isopod *Cirolana parva* Hansen parasitic on the eye balls of Dolphin, *Delphinus delphis* Linnaeus with a key to the Indian species of the genus *Cirolana* Leach.— *J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 516-519.

457. **Annapurna, C.** and **Rama Sarma, D. V.** 1979. Occurrence of a new podocopan ostracod *Tanella vasishta* in the Vasishta Godavari estuary, East Coast of India. —*Curr. Sci.*, **48** (1) : 42-43.

458. **Argano, R.** and **Manicastri, C.** 1979. A new *Akermania* from Sri Lanka (Ceylon) (Crustacea, Isopoda, Armadillidae). —*Revue suisse Zool.*, **86** (1) : 61-68.

Akermania besucheti n. sp. is described from the northern part of Sri Lanka. The new species represents a gondwanian element of the isopodean fauna of the island.

459. **Babu, D. E., Shyamasundari, K.** and **Rao, K. H.** 1979. Effect of bilateral ablation of eyestalks on the brain and moulting in the crab *Menippe rumphi* Fabricius. —*Indian J. exp. Biol.*, **17** (12) : 1394-1396.

460. **Bai, K.** and **Rama Rao, K. V.** 1977. Common and edible crabs, (Crustacea, Decapoda, Brachyura) of Madras.— *Newsl. zool. Surv. India*, **3** (6) : 369-371.

461. **Bhalla, S.N.** 1979. New ostracod species from Lower Eocene Intertrappean beds, Andhra Pradesh. —*Bull. Indian geol. Ass.*, **12** (2) : 145-148.

The associated micro-faunal assemblage suggests that it inhabited a near shore, epineritic, environement having open sea connections.

462. **Chandrasekhar, T. C.** 1979. A method of processing and preservation of prawn pickle. —*Seafd. Export J.*, **11** (1) : 15-18.

463. **Costa, H. H.** 1979. The Palaemonidae of the inland waters of Sri Lanka.— *Ceylon J. Sci. (Biol. Sci.).*, **13** (1-2) : 39-64.

The present survey was undertaken by the author as an attempt to elucidate the types of prawns present in our freshwaters and in the brackish waters and to study their distribution and ecology in Sri Lanka. The paper deals mainly with the taxonomy, distribution and ecology of the species belonging to the genus *Macrobrachium*.

464. **Cressey, R.** and **Cressey, H. B.** 1979. The parasitic copepods of Indo-West Pacific lizardfishes (Synodontidae).— *Smithson. Contr. Zool.*, No. 296 : 1-71.

465. **Daniel, A.** and **Jothinayagam, J. T.** 1979. Observations on nocturnal swarming of the planktonic ostracod *Cypridina dentata* (Muller) for mating in the northern Arabian Sea. —*Bull. zool. Surv. India*, **2** (1) : 25-28.

Nocturnal swarming of the ostracod, *C. dentata*, in abundance for mating on the sea surface and the associated bioluminescense observed at ten stations in the northern Arabian Sea during the Oceanographic Expedition on INS DARSHAK from Dec. '73 to May '74.

466. **Daniel, A.** and **Sivanandam, T.** 1978. Record of the benthic Leucosiid crab, *Randallia eburnea* Alcock in the Northern Arabian Sea. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 237-238.

467. **Deb, M.** and **Nasar, S. A. K.** 1977. *Cypricercus munshi* sp. nov. (Crustacea : Decapoda) from India. —*Zool. Beitr.*, **23** : 435-457.

468. **Erri Babu, D., Hanumantha Rao, K.** and **Shyamasundari, K.** 1979. Presence of elastin and collagen in the inner lining of the oesophagus in the crab, *Xantho bidentatus* (H. M. Edwards). — —*Curr. Sci.*, **48** (5) : 224-225.

469. **Erri Babu, D., Shyamasundari, K.** and **Hanumantha Rao, K.** 1979. The structure and histochemistry of the oesophageal glands in the crab *Menippe rumphii* (Fabricius) (Crustacea : Brachyura). —*Proc. Indian Acad. Sci.*, **88**B (1) : 277-285.

The salivary glands are embeded in the connective tissue of the oesophagus in *Menippe rumphii*. Each gland is made up of four to eight conical cells with a central cavity. The cytochemical details of the gland cells have been discussed in detail.

470. **Ghate, H. V., Dodakundi, G. B.** and **Mulherkar, L.** 1979. Effect of diluted dye factory effluent on oxygen consumption of a freshwater prawn (*Macrobrachium kistnensis*). —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 22-26.

Some physiological aspects of the prawn, *M. kistnensis* when exposed to dilute dye factory effluent have been studied.

471. **Ghate, H. V.** and **Mulherkar, L.** 1979. Histological changes in the gills of two freshwater prawn species exposed to copper sulphate. —*Indian J. exp. Biol.*, **17** (8) : 838-840.

Toxicity of copper sulphate to two freshwater prawn species have been studied.

472. **Goswami, S. C.** and **Goswami, U.** 1979. Cytotaxonomical studies in family Eucalanidae (Copepoda). —*Mahasagar, Bull. natn. Inst. Oceanogr.*, **12** (2) : 103-108.

Eight species of copepods belonging to the genera *Eucalanas* and *Rhincalanus*, Eucalamidae, Calanoida, have been investigated cytologically. All the species revealed a diploid number of 20 and haploid number of 10 chromosomes during the mitotic and meiotic metaphases respectively.

473. **Hanumante, M. M., Farooqui, U. M.** and **Nagabhushanam, R.** 1979. Effect of pharmacological and endocrinological stimulations on respiration of the marine crab *Scylla serrata* Forskal. —*Indian J. exp. Biol.*, **17** (9) : 964-965.

474. **Jain, S. P.** 1979. Some recent freshwater ostracods from parts of Kutch, Gujarat.—*Bull. Indian geol. Ass.*, **12** (2): 191-202.

12 freshwater ostracod taxa belonging to 8 genera have been reported and described from mud samples, collected from freshwater ponds. These include one new species.

475. **Jayaraj, M. S.** and **Sundararajulu, G.** 1979. Effect of infection with *Sacculina* on the free amino acids of the haemolymph in a crab *Neptunus sanguinolentus*.—*Natn. Acad. Sci. Lett.*, **2** (4) : 157-158.

The effect of Infection with rhizocephalan parasites on the free amino acid concentration of the haemolymph in *Neptunus sanguinolentus* has been studied.

476. **John, S.** and **Sivadas, P.** 1979. Histological changes in the oocytes of the estuarine crab, *Scylla serrata* (Forskal) after eyestalk ablation. —Mahasagar— *Bull. natn. Inst. Oceanogr.*, **12** (1) : 11-16.

The effect of eyestalk extirpation on the development of the oocytes in *S. serrata* (Forskal), a commercially important edible crab of the estuaries, brackish and back-waters was studied and the histological changes were observed.

477. **Joseph, M. M.** 1979. Note on the attachment of the barnacle *Balanus amphitrite communis* (Darwin) on the red alga *Gracilaria corticata* J. A. G.— *Curr. Res. mon. Newsl.*, **8** (1) : 11.

478. **Kamaswamy, K.** and **Sundaram, R. K.** 1979. *Porcellio laevis* (Isopoda) as a new intermediate host for *Tetrameres mohtedai* Bhalerao and Rao, 1944.— *Indian vet. J.*, **56** (5) : 363-366.

479. **Kesavan Nair, A. K., Srinivasa Rao, P., Unnithan, G. R.** and **Kaimal, P. N. R.** 1979. Observations on the wastage of raw material and recovery of meat in the prawn processing industry. —*Fishery Technol.*, **16** (1) : 1-6.

The present study conducted during 1974-1977 aim at factors responsible for wastage and the counts of whole prawns required for a specified size grade by the processing industry.

480. **Kolwalkar, D. G.** and **Rangnekar, P. V.** 1979. Response of chromatophores to adrenalin treatment in the marine crab, *Portunus pelagicus* (Rathbun).—*Curr. Sci.*, **48** (1) : 43-44.

481. **Kulkarni, G. K., Nagabhushanam, R.** and **Joshi, P. K.** 1979. Effect of progesterone on ovarian maturation in a marine penaeid prawn *Parapenaeopsis hardwickii* (Miers, 1878). —*Indian J. exp. Biol.*, **17** (9) : 686-687.

482. **Leela Vallabhan, D.** 1979. Observations on the moulting phenomenon of an isopod, *Shaeroma walkeri*.—*Proc. Indian Acad. Sci.*, **88** B (1) : 257-264.

Moulting in isopod crustaceans occurs in two phases and the moulting of posterior half precedes the anterior. But in the present study observations were made on *Sphaeroma walkeri* in which during the cuticle in anterior half is cast off first followed by the posterior half.

483. **Maity, A. K.** and **Saxena, J.** 1979. Colour preference of *Daphnia carinata* King. —*Geobios*, **6** (5) : 193-195.

484. **Mathai, T. J.** and **Kesavan Nair, A. K.** 1979. On certain allometric relations of the spiny lobster *Panulirus polyphagus* (Herbst). —*Fishery Technol.*, **16** (2) : 83-85.

485. **Mathen, C., Mathew, A., Varma, P.R.G.** and **Thomas, F.** 1979. A method for the preparation of cooked-peeled-frozen prawns. —*Fishery Technol.*, **16** (1) : 33-35.

486. **Misra, A.** and **Ghatak, S. S.** 1979. On a new association between pea-crab *Pinnotheres cardii* Burger and the bivalve *Mactra luzonica* Deshayes in Indian waters. —*Bull. zool. Surv. India*, **2** (1) : 107-108.

487. **Mittal, P.K.** 1979. Morphological and cytochemical studies on yolk nucleus during vitellogenesis in a macruran *Panulirus homarus* (Macrura : Crustacea). —*J. mar. biol. Ass. India*, **18** (1) [1976] : 165-168.

The present work was undertaken to study the morphology and cytochemistry of the yolk nucleus during vitellogenesis in *P. homarus*.

488. **Nair, K. K. C., Gopalakrishnan, T. C., George Peter, M.** and **Rao, T.S.S.** 1978. Closed sea water circulating system for cultivation of marine and estuarine organisms in the laboratory. —*Indian J. mar. Sci.*, **7** (3) : 159-162.

Changes in the dissolved oxygen and ammonia in the water in individual rearing tanks are estimated at fixed intervals to assess the efficiency of the system.

489. **Nalini, U. P.** and **Nayeemunnisa** 1979. Physiology of low temperature acclimation : Changes in the activity levels of adenosine-triphosphatase in the different regions of the nervous system of selected poekilotherms. —*Curr. Sci.*, **48** (3) : 135-136.

The activity level of adenosine-triphosphatase exhibited a significant increase on cold acclimation in the cerebral and thoracic ganglionic pools of the crab, *Paratelphusa hydrodromus*.

490. **Narain, A. S.** and **Srivastava, P. N.** 1979. Pollution related changes in blood cell counts and blood cell clumping of the freshwater crab *Paratelphusa spinigera*. —*Indian J. exp. Biol.*, **17** (9) : 971-974.

Exposure of crabs to a medium polluted by sewage alter the number of blood cells and inhibits their clumping activity.

491. **Natarajan, P.** 1979. On the occurrence of *Conchoderma virgatum* var. *hunteri* R. Owen (Cirripedia) on the crab *Portunus sanguinolentus* Rathbun. —*Curr. Res. mon. Newsl.*, **8** (4) : 62.

492. **Natarajan, P.** 1979. On the occurrence of trypanorhynchan plerocercoid in the marine prawn, *Penaeus indicus*. —*Curr. Res. mon. Newsl.*, **8** (4) : 63.

493. **Natarajan, P.** 1979. On certain abnormalities in crabs of Karnataka Coast. —*Curr. Res. mon. Newsl.*, **8** (5) : 82-83.

494. **Natarajan, P.** 1979. Description of the unknown male of *Lernanthropus latis* Yamaguti (Copepoda : Caligidae). —*Curr. Res. mon. Newsl.*, **8** (6) : 99-101.

495. **Nayak, V. N.** and **Kakati, V. S.** 1979. Occurrence of the hermit crab *Dardanus setifer* (H. Milne-Edwards) (Decapoda, Anomura) at Karwar with a description of the first zoeal stage. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 286-291.

496. **Patel, N. M.** and **Mahyavanshi, I. N.** 1979. New records of three portunid crabs (Crustacea : Brachyura) from Gulf of Kutch. —*Sci. Cult.*, **45** (6) : 241.

497. **Punzo, F.** 1978. The effect of food deprivation and satiety on the swimming activity of an aquatic copepod *Orthocyclops modestus* (Crustacea : Copepoda). —*J. Bombay nat. Hist. Soc.*, **75** (1) : 137-142.

498. **Radhakrishnan, C. K.** and **Natarajan, R.** 1979. Nutritive value of the crab *Podophthalmus vigil* (Fabricius). —*Fishery Technol.*, **16** (1) : 37-38.

499. **Rajabai, B. S.** 1979. The breeding season of twenty marine decapods of Visakhapatnam—Waltair Coast. —*J. zool. Soc. India*, **27** (1-2) [1975] : 69-79.

500. **Ram, L.** and **Kumar, B.** 1979. A new species of *Cubaris* Brandt (Crustacea : Isopoda : Armadillidae) from India.— *Bull. zool. Surv. India*, **2** (1) : 43-47.

501. Deleted.

502. **Ramani, G. M. A.** and **Malviya, O. P.** 1979. Survey of arthropod fauna of Sagar lake. —*Geobios*, **6** (Suppl.) : 339.

503. **Reddy, Y. R.** and **Radhakrishna, Y.** 1979. A new record of *Cletocamptus deitersi* (Richard, 1895) (Copepoda : Harpacticoida) from India. —*Curr. Sci.*, **48** (1) : 450.

504. **Reuben, D. E.** 1979. Crabs summering in Lakeside hotel. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 516.

505. **Royan, J. P.** 1979. Occurrence of *Artemia* sp. in the Gulf of Kutch.— *Mahasagar-Bull. natn. Inst. Oceanogr.*, **12** (4) : 271-272.

506. **Royan, J. P.** and **Alfred, J. R. B.** 1978. Decapsulation technique of dry cysts in the Indian strain of *Artemia salina* L. —*Mahasagar*, **11** (3-4) : 207-209.

507. **Sam, S. T.** and **Krishnaswamy, S.** 1979. Effect of osmomolarity of the medium upon hatching of undried eggs of *Streptocephalus dichotomus* Baird (Anostraca, Crustacea). —*Arch. hydrobiol.*, **86** (1) : 125.

508. **Sankolli, K. N.** and **Shenoy, S.** 1979. Laboratory behaviour of a Crangonid shrimp *Pontocaris pennata* Bate and its first three larval stages. —*J. mar. biol. Ass. India*, **18** (1) [1976] : 62-70.

Both field and laboratory observations on the feigning behaviour, locomotion, moulting, feeding, etc. have been conducted on the Crangonid shrimp *P. pennata* Bate. The first three larval stages of this shrimp, as reared in the laboratory, have been described and illustrated.

509. **Santhakumari, V.** 1979. Seasonal incidence and relative abundance of associated organisms of the wood boring isopods *Sphaeroma terebrans* and *S. annandalei*.—*J. mar. biol. Ass. India*, **18** (1) [1976] : 91-98.

In the present study the relative abundance and seasonal incidence of the associated organisms of these isopods have been examined during different months of the year. The data are statistically analysed.

510. **Selvarajah, N.** and **Costa, H. H.** 1979. The distribution of Anostraca and Conchostraca (Crustacea) in the Jaffna Peninsula. —*Bull. Fish. Res. Stn. Sri Lanka*, **29** (1-2) : 79-88.

The present study reports the freshwater fauna and their distribution in the Jaffna Peninsula and determines the types of anostracans and conchostracans and their distribution in relation to ecological factors.

511. **Sharma, B. K.** 1978. A note on freshwater cladocerans from West Bengal. —*Bangladesh J. Zool.*, **6** (2) : 149-151.

512. **Siddharaju, S.** and **Sultan, K. M. M.** 1979. A note on the infestation of barnacle, *Balanus amphitrite amphitrite* (Darwin) on the prawn, *Penaeus monodon* Fabricius.—*Curr. Sci.*, **48** (5) : 225-226.

513. **Silas, E. G.** and **Muthu, M. S.** 1979. Notes on a collection of penaeid prawns from the Andamans. —*J. mar. biol. Ass. India*, **18** (1) [1976] : 78-90.

There is little information on the penaeid prawns of the inshore waters, backwater creeks and mangrove swamp areas of the Andaman Islands. The report records the occurrence of 16 species of penaeid prawns collected by one of the authors (E. G. S.) from the Middle Andamans. Thirteen out of 16 species collected, are new records for the Andaman—Nicobar Islands. The clinal differences observed in some of the species such as *Metapenaeus dobsoni* and *Parapenoeopsis cornuta* are discussed.

514. **Sinha, N. D. P.** and **Dejours, P.** 1979. Effect of wide range oxygenation on breathing and blood acid base status of crayfish *Astacus leptodactylus*. —*Indian J. exp. Biol.*, **17** (9) : 888-891.

Ventilatory requirement, ventilatory water flow rate over gills, MO_2, cutaneous O_2 uptake and blood acid-base status of *A. leptodactylus* are studied at various levels of water oxygenation from less than 10 Torr to 1500 Torr.

515. **Stephen, R.** and **Iyer, H. K.** 1979. Species composition and coexistence of calanoid copepods in the shelf waters off Cochin. —*Mahasagar—Bull. natn. Inst. Oceanogr.*, **12** (4) : 227-238.

The present paper deals with the composition and co-existence of calanoid copepods in the shelf waters off Cochin. The co-existence of 18 commonly occurring species of surface dwelling copepods is discussed in relation to habitat, tropic and hyper volume niches.

516. **Swar, D. B.** and **Fernando, C. H.** 1979. Seasonality and fecundity of *Daphnia lumholtzi* Sars in Lake Phewa, Nepal.—*Hydrobiologia*, **64** (3) : 261-268.

517. **Varghese, M. D.** and **Krishna Pillai, N.** 1979. Biology of *Mesopodopsis zeylanica* (Mysidacea)—Fecundity. —*Bull. Dept. Mar. Sci. Univ. Cochin*, **10** : 19-27.

518. **Venkatachari, S.A.T., Vasantha, N.** and **Gongotri, M. S.** 1979. Eyestalk hormone and blood chloride regulation in the feshwater crab *Barytelphusa guerini* Milne Edwards. —*Indian J. exp. Biol.*, **17** (8) : 804-805.

The blood chloride content in the crab decreased on eyestalk removal and the same recovered to the normal level on injection of eyestalk extract to eyestalkless forms.

519. **Venkataraman, K.** and **Job, S. V.** 1979. The influence of temperature on oxygen consumption of *Daphnia carinata* King (Cladocera : Daphnidae). —*Curr. Sci.*, **48** (1) : 24-25.

520. **Victor, R.** and **Fernando, C. H.** 1979. The freshwater ostracods (Crustacea : Ostracoda) of India. —*Rec. zool. Surv. India*, **74** (2) : 147-242.

The present study is largely devoted to the systematics of the freshwater ostracoda of the Indian sub-continent. It is based on a large number of collections than has hitherto been made for the region by any previous worker except Hartmann (1964). The taxonomy of all taxa of Ostracoda known from India is brought upto date and their status critically evaluated. A provisional key is given to the species.

521. **Vijayaraghavan, S.,Wafar, M.V.M.** and **Royan, J. P** 1978. Feeding experiments with the shrimp, *Metapenaeus monoceros* (Fabricius). —*Indian J. mar. Sci.*, **7** (3) : 195-197.

522. **Yousuf, A. R.** and **Qadri, M. Y.** 1979. Cladocera of Malpur Sar, Kshmir. —*J. Sci. Univ. Kashmir*, **3** (1-2) [1975] : 87-92.

(c) Myriapoda

523. **Dobroruka, L. J.** 1979. *Allothereua wilsonae* sp. n., a new centipede from Nepal (Chilopoda : Scutigeromorpha : Thereuoneminae). —*Vest cs. spol. zool.*, **43** (2) : 101-103.

New species of the genus *Allothereua* Verhoeff, 1905, i.e. *A. wilsonae* sp. n. from Nepal is described. This confirms the distribution of the genus *Allothereua* in Central Asia, first mentioned with doubt by Lignau, 1929.

524. **Jangi, B. S.** and **Dass, C.M.S.** 1979. A new form of sexual dimorphism in the Indian centipede *Cormocephalus (Cormocephalus) dentipes* Pocock (Scolopendridae) and its bearing on the taxonomy of the species. —*J. zool. Soc. India*, **27** (1-2) [1975] : 113-116.

525. **Krishnan, M.** 1978. Disconnected observations on a species of *Scolapendra*.—*J. Bombay nat. Hist. Soc.*, **75** (1) : 239-240.

526. **Shear, W. A.** 1979. Diplopoda from the Nepal Himalaya. Chordeumida with comments on the Asian chordeumid fauna. —*Senckenberg. biol.*, **60** (1/2) : 115-130.

527. **Shukla, G. S.** 1979. Free amino acids in the alimentary canal, gut contents and excreta of *Gonoplectus malayus* (Carl.) (Myriapoda).—*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 314-316.

528. **Shukla, G. S.** and **Tripathi, S. P.** 1979. Effect of antibiotic (Benzyl penicillin) on protocerebral neurosecretory activity of the millipede *Gonoplectus malayus* (Carl). —*Curr. Sci.*, **48** (9) : 414-415.

In the present work an attempt has been made to study the effect of Benzyl penicillin on the neurosecretory activity of this millipede (*G. malayus*).

529. **Siddappaji, C., Gowda, N. G.** and **Venkatarama Rao, G. N.** 1979. Millipede—a new enemy of moong crop. —*Curr. Res. mon. Newsl.*, **8** (7) : 114-116.

(d) Insecta

A. General Insect

530. **Abraham, C. C.** and **Remamony, K. S.** 1979. Pests that damage cocoa plants in Kerala. —*Indian Arec. Spices Cocoa J.*, **2** (3) : 77-81.

Survey was conducted during 1976-78 in different parts of the Kerala State to study the nature of damage and seasonal history of the insectan and non-insectan pests associated with the crop and the results are reported.

531. **Ananthakrishnan, T. N.** 1979. Microarthropods and soil ecosystem. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 625-631.

532. **Ananthakrishnan, T. N.** 1979. Insects and microclimate. —*Zoologiana*, **(2)** [1978] : 29-32.

The author has discussed about modern studies on microclimate attempts to measure the true condition in which insects and other arthropods occur.

533. **Anon.** 1979. Cotton—insect research and control—II. Genetic control.—*Pesticides*, **13** (10) : 3-4.

Research on genetic control of cotton insects has centered on the sterile insect release approach that was so successful against the screw worm fly.

534. **Anon**, 1979. Cotton—insect research and control—III. Host plant resistance. —*Pesticides*, **13** (11) : 3-6.

535. Deleted.

536. **Awasthi, V. B.** 1979. Hormonal control of metabolism in insects. —*Indian J. Zoot.*, **20** (1) : 1-37.

537. **Balasubramanian, M.** 1979. Integrated control of pests with special reference to cotton. —*Kisan Wld.*, **6** (6) : 22-24.

538. **Bansode, P. C.** 1979. Status of insecticidal resistance among field populations of stored product insects in India.—*Pesticides*, **13** (8) : 19-20.

539. **Baskaran, P.** and **Seetharaman, R.** 1979. Efficacy of certain insecticides applied through various spray systems in controlling the insect pests of rice.—*Pesticides*, **13** (12) : 6-8.

The present paper reports the field data obtained when such mixtures were tried in the field and compared with conventional low volume spray and high volume spray against the insect pests of rice.

540. **Batra, H. N.** and **Singh, R.** 1979. Assessment and evaluation of plant protection progress in the intensive agricultural programme, Pali District. —*Pesticides*, **13** (2) : 18-24.

541. **Bhalla, O. P.** and **Pawar, A. D.** 1979. A survey study of insect and non-insect pests of economic importance in Himachal Pradesh. —*Chambaghat—Solan, Himachal Pradesh, India ; Department of Entomology—Zoology, College of Agriculture.* [1977] : 80.

An extensive survey was conducted on the important insect and other animal pests in the Indian state of Himachal Pradesh. In this paper, the authors present the results of the survey, together with previous records. Many new records are reported. Data on the distribution and economic status of the pests are arranged alphabetically under phylum, class, order, family and genus for ready reference.

542. **Borle, M. N., Doiphode, S. M.** and **Deshmukh, S. D.** 1979. Efficacy of some modern synthetic insecticides against certain important pests of sorghum. —*Pesticides*, **13** (8) : 25-26.

543. **Butani, D. K.** 1979. Insect pests of citrus and their control.—*Pesticides*, **13** (4) : 15-21.

In this paper the author reported how to control the entire pest complex with minimum effort and maximum economy.

544. **Butani, D. K.** 1979. Insect pests of fruit crops and their control : jackfruit.—*Pesticides*, **13** (11) : 36-40.

545. **Chandrasekharan, A., Das, M., Kaul, S. M., Chakravarty, R.K., Krishna Rao, C.** and **Rao, C. K.** 1979. Pilot project for the control of *Brugia malayi* filariasis. II. Results of control with HCH spray. —*J. Com. Dis.*, **10** (3) [1978] : 179-190.

A pilot study for the control of *Brugia malayi* filariasis was taken up in Kerala State in an area of 86 sq. Km. and with over one hundred thousand population. The impact of HCH spray from 1966 to 1975 on different filarial indices was evaluated. A control area in the same taluk without HCH spray was also observed for comparison.

546. **Channabasavanna, G. P.** 1979. Role of insect pollinators in sunflower production. —*Curr. Res. mon. Newsl.*, **8** (1) : 1-3.

547. **Chhabra, K. S.** and **Singh, J.** 1979. Rice pests situation in Punjab during 1975. —*Indian J. Pl. Prot.*, **7** (1) : 73-76.

548. **Chowdhury, M. M. A.** and **Alam, S.** 1979. Effects of diazinon spray on rice pests and their natural enemies.—*Bangladesh J. Zool.*, **7** (1) : 15-20.

The effects of sprays containing 0.2% diazinon on the insect pests of rice and their natural enemies, besides other unidentified arthropods in rice-fields, were studied at Joydevpur, Dacca, Bangladesh, in July-October, 1976.

549. **Das, S. C.** 1979. Parasites and predators of tea pests. —*Two Bud*, **26** (2) : 72.

550. **Deshmukh, S. D., Akhare, M. D.** and **Borle, M. N.** 1979. Insecticidal control of the insect pests of castor.—*Indian J. Pl. Prot.*, **7** (1) : 66-68.

551. **Ghouri, A.S.K., Tirmazi, S.S., Rehman, H.** and **Irshad, M.** 1979. Conventional and integrated control of paddy pests in Punjab, Pakistan. —*Int. Pest Control.*, **21** (3) : 63-64.

552. **Gokulpure, R.S.** and **Mehra, B.P.** 1979. Insect visiting lac insect for honeydew. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 502-505.

553. **Grewal, G.S.** and **Singh, G.** 1979. Note on insect-pollinators of sannhemp in Punjab. —*Indian J. agric. Sci.*, **49** (10) : 822-824.

554. **Jotwani, M. G.** 1979. Increasing sorghum production by chemical control of insect pests. —*Pestic. Inf.*, **4** (4) : 25-28.

Chemical control of insect pest has been discussed.

555. **Kapur, S. P.** and **Kapoor, S. K.** 1979. Important diseases and insect-pests of citrus. —*Progve Fmg.*, **15** (12) : 28-30.

556. **Khanulkar, U. M.** and **Kokate C. K.** 1979. Insecticidal activity of volatile oils of *Blumea lacera* DC and *Blumea malcolmii* Hook F. —*Pesticides*, **13** (9) : 48.

7. **Kumar, S., Jayaraj, S.** and **Muthukrishnan, T. S.** 1979. Natural enemies of *Parthenium hysterophorus* Linn. —*J. ent. Res.*, **3** (1) : 32-35.

Based on a detailed survey in Tamil Nadu, India, the insects associated with *P. hysterophorus* Linn. are reported.

8. **Menon, M. V.** 1979. Integrated cotton pest management. Operational research project at Ganganaickenpalayam. —*Kisan Wld.*, **6** (12) : 40-41.

9. **Menon, M. V.** and **Thangavelu, K.** 1979. Survey of beneficial Arthropoda in the cotton ecosystem at Coimbatore, South India. —*Entomon*, **4** (3) : 281-284.

Twelve predators and twenty one parasites are recorded from the cotton ecosystem of Coimbatore region in South India ; of these six predators and fourteen parasites are reported for the first time on cotton pests from this region.

0. **Muthuraman, M.** 1979. Insect pests of coconut palm. —*Kisan Wld.*, **6** (2) : 39-41.

1. **Muthuraman, M.** and **Kareem, A. A.** 1979. Killer insects of sorghum. —*Kisan Wld.*, **6** (5) : 21-23.

2. **Pandey, G. P., Srivastava, J. L.** and **Verma, B. K.** 1979. Efficacy of Baythion 50% EC against insect pests of stored foodgrains. —*Pesticides*, **13** (8) : 21-24.

3. **Patil, S. P.** and **Pokharkar, R. N.** 1979. Some new records of insect pests infesting cruciferous vegetable crops in Maharashtra State. —*J. Maharashtra agric. Univ.*, **4** (2) : 222-223.

564. **Pillai, K. S.** and **Palaniswami, M. S.** 1979. Some new records of pests on cassava and intercropped groundnut.—*J. Root Crops*, **5** (1 & 2) : 69.

565. **Raghunath, T.A.V.S.** 1979. Additional records of new insect pests in Andhra Pradesh. —*Curr. Res. mon. Newsl.*, **8** (6) : 103-104.

566. **Rajendra, A.** 1979. Insect pests attacking sugarcane in Sri Lanka and the parasites and predators recorded on them. —*Ceylon J. Sci. (Biol. Sci.)*, **13** (1-2) : 29-35.

The list of insects presented in this paper is based on Fernando (1963) and Rajendra (1968) and has been prepared in order to bring together all the information collected on the various pests, with records of their parasites and predators found locally.

567. **Reddy, K. V. S.** and **Davies, J. C.** 1979. Pests of sorghum and pearl millet and their parasites and predators, recorded at ICRISAT. Centre, India, up to August, 1979. —*Patancheru, Andhra Pradesh, India ; Int. Crops Res. Inst. Semi-Arid Tropics* : 23 pp.

568. **Rote, N. B., Mehta, N. P.** and **Shah, A. H.** 1979. Chemical control of pest complex of G Cot 100 cotton under irrigated conditions. —*Pestology*, **3** (10) : 34-36.

569. **Shukla, G. S.** and **Upadhyay, V. B.** 1979. Comparative study on ingestion of food by phytophagous, saprophagous and carnivorous insects. —*Indian J. Ent.*, **41** (4) : 320-325.

570. **Singh, K.** 1979. Pre-harvest spray of malathion and DDVP for controlling the insect infestation of stored grains. —*Int. Pest Control*, **21** (3) : 66-67.

In this paper, experiments were carried out in West Bengal, India, to find an effective alternative to direct application of insecticide on harvested and stored grain (which may lead to toxic residues in the grains or impaired germination) or to fumigation for the control of insects causing damage to foodgrains during storage.

571. **Singh, U. R.** 1979. Caloric values and mineral contents of some insects of different trophic levels. —*Indian J. Ent.*, **41** (4) : 379-384.

The caloric and mineral determinations, reported in this paper, have been done for fourteen and five insect species, respectively representing different habitats and feeding habits.

572. **Sinha, M. M., Yadav, R. P.** and **Kumar, A.** 1979. Multi-directional approach for pest-management in arhar (*Cajanus cajan*) in Bihar. —*Pesticides*, **13** (11) : 14-16.

The extent of damages caused by various borers during the past four years is reported here.

573. **Survlivelu, T., Chelliah, S.** and **Balasubramanian, G.** 1978. Evaluation of granular insecticides and seed treatment formulations for the control of insect pests of black gram. —*Madras agric. J.*, **65** (10) : 693-694.

574. **Vaithilingam, C., Balasubramanian, M.** and **Baskaran, P.** 1979. K-induced crop resistance against certain insect pests of paddy-I. Sap sucking insects. —*Indian J. Pl. Prot.*, **7** (1) : 82-88.

The work was undertaken to study the effect of enhanced dose of potash on the incidence of certain important insect pests in the case of paddy.

575. **Veeravel, R.** 1979. Important storage pests and their control. —*Pestic. Inf.*, **5** (3) : 20-21.

576. **Venkateswarlu, B.** 1979. Thuricide—a microbial insecticide. —*Sci. Reptr.*, **16** (3) : 196-197.

577. **Visalakshi, A., Santhakumari, K., Nalina Kumari, T.** and **Mohandas, N.** 1979. Residues of systemic insecticides used for rice pest control in rice grain and straw. —*Entomon*, **4** (4) : 383-384.

578. **Yadav, P. R.** and **Gupta, D. S.** 1979. Pests of cucurbit vegetable crops and their control. —*Fmr. Parl.*, **14** (9) : 19-20.

B. Insect Orders

(i) Collembola

579. **Mitra, S. K., Hazra, A. K.** and **Sanyal, A. K.** 1977. Ecology of Collembola at the Eden Gardens, Calcutta. —*Ecol. Bull.*, **25** : 539-544.

(ii) Odonata

580. **Bhaduri, A. S.** 1979. Dragonflies. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 505.

581. **Kumar, A.** 1979. Studies on the life history of Indian dragonflies, *Pseudagrion rubriceps* Selys (Coenagrionidae : Odonata). —*Rec. zool. Surv. India*, **75** (1-4) : 371-381.

Life history of *P. rubriceps* Selys has been studied in the field and the laboratory. Specimens are reared from egg to adult. The principal changes in external morphology in different instars and the characters which are helpful in distinguishing various instars are described in detail.

582. **Kumar, A.** 1979. On the occurrence of multivoltine generations in some Indian dragonflies. —*Sci. Cult.*, **45** (3) : 126-127.

The author studied three nymphal generations (multivoltine) in some of the dragonflies at Dehra Dun Valley.

583. **Kumar, A.** and **Prasad, M.** 1978. On a new species of *Agriocnemis* Selys, 1869 (Coenagriidae : Odonata) with description of its larva from Dehra Dun Valley, India. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 174-179.

584. **Lahiri, A. R.** 1979. Odonata (Insecta) from different states of North Eastern India. —*Oriental Ins.*, **13** (1-2) : 119-132.

A list of 33 Odonate species and subspecies collected in either, or all the states of Assam, Arunachal Pradesh, Manipur and Mizoram in North East India is given including descriptions of *Megalestes lieftincki*, sp. nov. and the isochrome female of *Neurothemis tullia tullia* (Drury).

585. **Mathavan, S.** 1979. Effect of running water on predatory behaviour of the dragonfly nymph *Pantala flavescens* (Odonata). —*Entomon*, **4** (2) : 117-119.

This paper reports the effects of standing and running water on the predatory efficiency of the dragonfly nymph *P. flavescens*.

(iii) Orthoptera

586. **Ali, S.** 1979. Chromosomes of the house cricket *Acheta domesticus* (Gryllidae : Orthoptera). —*Indian J. exp. Biol.*, **17** (10) : 1038-1040.

587. **Arora, P.** and **Rao, S.R.V.** 1979. Insect sex chromosomes. II. Mitomycin induced aberrations in the X-chromosome of *Gryllotalpa fossor* (Scudder). —*The Nucleus*, **22** (1) : 23-27.

588. **Banerjee, S.** 1979. A histochemical study on the control of lipid metabolism in the fat body of *Poecilocerus pictus* (Orthoptera : Acrididae). —*Curr. Sci.*, **48** (24) : 1091-1092.

589. **Batra, H. N.** 1979. Preliminary field trials of seed extracts of neem tree (*Azadirachta indica*) against gregarious locust hoppers in Rajasthan desert.— *F. A. O. Pl. Prod. Prot. Div. Desert Locust Project, Progress Report*, no. AGP/DL/TS/**20** : 41-42.

590. **Bradoo, B. L.** and **Bradoo, R. K.** 1979. Record of *Myrmecophila albicincta* var. *concolor* Chopard (Orthoptera). —*Curr. Sci.*, **48** (11) : 509-510.

591. **Chandra, H.** and **Ahluwalia, P. J. S.** 1979. Predation of desert locust (*Schistocerca gregaria* Forsk.) by a tenebrionid beetle, *Pimelia indica* Sen. —*F.A.O. Pl. Prod. Prot. Div., Desert Locust Project, Progress Report*, no. AGP/DL/TS/**20** : 40.

592. **Das, S. C.** and **Borthakur, M.** 1979. Brown grasshopper—a new pest of tea. —*Two Bud*, **26** (1) : 43.

593. **Delvi, M. R.** and **Pandian, T. J.** 1979. Ecological energetics of the grasshopper *Poecilocerus pictus* in Bangalore fields. —*Proc. Indian Acad. Sci.*, **88B** (1) : 241-256.

The structure and biomass of *P. pictus* population in four fields in Bangalore were estimated by direct observation method. Results on the density of *P. pictus*, the survivorship curve of the grasshopper and the growth of the population are reported.

594. **Majeed, Q.** and **Aziz, S. A.** 1979. Biometric observations on the maturation of gonads in *Gastrimargus transversus* Thunb. (Orthoptera : Acrididae) under controlled temperature and humidity conditions. —*J. ent. Res.*, **3** (1) : 46-52.

This contribution reports the changes in gonads during maturation and breeding of *G. transversus* Thunb. under constant ecological conditions which may be helpful in estimating the maturity of population.

595. **Majumdar, K., Chatterjee, C.** and **Ray-Chaudhuri, S. P.** 1979. Uridine incorporation in constitutive heterochromatin in grasshopper. —*The Nucleus*, **22** (3) : 149-152.

596. **Manna, G.K.** 1979. Chromosome dynamics in Grylloidea. —*The Nucleus*, **22** (3) : 163-174.

597. **Narula, J.S.** 1979. A comparative study of the head capsules of *Acheta domestica* L., *Gymnogryllus erythrocephalus* (Serville) and *Loxoblemmus arietulus* Saussure (Orth., Gryllidae).—*Entomologist's mon. Mag.*, **114** [1978] : 9-15.

The head capsule of *A. domesticus*, *G. erythrocephalus* and *L. arietulus* are described in details.

598. **Natarajan, K., Mathur, K. C.** and **Rajamani, S.** 1979. *Euscyrtus concinnus* De Haan (Gryllidae : Orthoptera), a new pest of rice. —*Curr. Sci.*, **48** (5) : 218.

599. **Pillai, K. S.** and **Saradamma, K.** 1979. A new record of the cricket *Euscyrtus concinnus* Hanu (Eneopterinae). —*Int. Rice Res. Newsl.*, **4** (2) : 15-16.

600. **Rajasekarasetty, M. R.** and **Kumaraswamy, K. R.** 1979. Gamma ray induced bridges in the chromosome of *Poekilocerus pictus* (Acrididae : Orthoptera). —*The Nucleus*, **22** (1) : 6-11.

601. **Ramasamy, K.** and **Ramalingam, N.** 1979. Formation of corpus luteum in the field cricket *Plebeiogryllus guttiventris* (Walk.). —*Curr. Sci.*, **48** (6) : 272-273.

The mode of formation of corpus luteum by follicle cells in *P. guttiventris* has been described.

602. **Raziuddin, M., Khan, T. R.** and **Singh, S. B.** 1979. Neuropilar neurosecretory fibres in the grasshopper, *Poekilocerus pictus* (Fabr.) and the cockroach, *Periplaneta americana* L. —*Zool. Anz.*, **202** : 209-218.

Neuropilar neurosecretory fibres of *P. pictus* and *P. americana* (Dictyoptera) are described.

603. **Raziuddin, M., Khan, T. R.** and **Singh, S. B.** 1979. Studies on the neuroendocrine system of the grasshopper, *Poekilocerus pictus* (Fabr.). IV. Histo-morphology of the corpus allatum in the adult insect. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 61-66.

The corpora allata of *P. pictus* are ovoid and histologically solid glands with indistinct boundaries. Three types of nuclei have been distinguished in the gland parenchyma.

604. **Sharma, V. N.** and **Dutta, S. K.** 1979. Studies on the haemocytes of *Chrotogonus trachypterus trachypterus* Blach. and *Acrida exalata*. —*Res. Bull. Panjab Univ.*, **27** (1 & 2) [1976] : 1-9.

The object of the study was to determine the various types of haemocytes, the total haemocyte count, the count different of haemocytes and to study the morphology and cytology of different types of haemocytes. It is to be noted that the differential counting of haemocytes was not done owing to the lack of enough material at the time of undertaking the present study.

605. **Siddiqi, J.** and **Khan, Z.** 1979. Food preference of *Hieroglyphus nigrorepletus* Bol. —Geobios, **6** (4) : ?

606. **Singh, A.** 1979. A new species of *Azarea* Uvarov, 1926 from north west India (Orthoptera, Acrididae, Gomphocerinae). —*Ent. Ber.*, **39** : 60-62.

A. indica n. sp. is described and illustrated from Punjab, India.

607. **Singh, A.** 1979. A new species of *Brachycrotaphus* Krauss (Orthoptera : Acrididae : Truxalinae) from North-West India. —*Entomon*, **3** (2) [1978] : 277-280.

608. **Sinha, K. M.** 1979. Sound producing organs of a cave-cricket, *Kempiola shankari* (Sinha & Agarwal, 1977) (Orthoptera : Phalangopsidae). —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 243-248.

The morphology of the sound-producing organs of the cave-cricket, *K. shankari* has been studied in detail.

609. **Venkatesh, M.** 1979. The Tharparkar desert locust campaign of 1962 : a case study in man's exploitation of meteorological opportunities. —*Indian J. Ent.*, **41** : 203-222.

The importance of meteorological factors in facilitating both the increase of locust populations and the means of controlling them is discussed.

(iv) Dermaptera

610. **Biswas, S.** and **Lahiri, A. R.** 1979. First records of earwigs (Insecta : Dermaptera) from Manipur. —*Bull. Meghalaya Sci. Soc.*, **3** (1-4) : 23-28.

611. **Srivastava, G. K.** 1979. Intraspecific diversity in Dermaptera. —*Proc. Symp. Intraspecific Var.* (*Spec. Publ. No. 1.*) *zool. Surv. India*, Calcutta, 1977 : 53-70.

Here an attempt has been made to provide an overall picture of various types of variations occurring intraspecifically, citing a few examples in each case.

612. **Srivastava, G. K.** 1979. On two new species of the genus *Paradohrnia* Shiraki (Dermaptera : Eudohrniinae) from India. —*Ceylon J. Sci.* (*Biol. Sci.*), **13** (1-2) : 23-27.

In the present paper two new species are described which can be separated from the only known species of the genus, viz. *P. ornaticapitata.*

613. **Srivastava, G. K.** 1979. A new Indian *Allodahlia* Verhoeff. (Dermaptera : Forficulidae). —*Entomologist's mon. Mag.*, **114** (1372-1375) [1978] : 231-233.

614. **Srivastava, G. K.** 1979. Notes on a collection of Dermaptera (Insecta) from Manipur (India) with the description of two new species. —*J. zool. Soc. India*, **27** (1-2) [1975] : 101-111.

(v) Dictyoptera

615. **Babu, K. S.** and **Subhashini, K. B.** 1979. Studies on giant fibre system in sixth abdominal ganglion of the cockroach *Periplaneta americana* L. —*Indian J. exp. Biol.*, **17** (9) : 979-981.

616. **Chakko, T. V.** and **Sarojini, S.** 1979. Histochemical studies on fat body proteins in relation to oogenesis and embryogenesis in the viviparus cockroach *Nauphoeta cinerea* (Olivier). —*Indian J. exp. Biol.*, **17** (8) : 797-799.

The natuer and pattern of the distribution of proteins in the fat body of *N. cinerea* were studied histochemically.

617. **Datta, S.** and **Majhi, S.** 1979. Studies on absorption of radioactive glycine and leucine : Sectional analysis of gut of the cockroach *Periplaneta americana* (Linn.). —*Indian J. exp. Biol.*, **17** (11) : 1273-1275.

618. **Mishra, N. K.** and **Srivastava, A.** 1979. Glycine induced neurosecretory activity in ventral ganglia of the cockroach *Periplaneta americana* (Linn.). —*Indian J. exp. Biol.*, **17** (12) : 1296-1298.

619. **Roth, L. M.** 1979. A taxonomic revision of the Panesthiinae of the world. II. The genera *Salganea* Stal, *Microdina* Kirby and *Caeparia* Stal (Dictyoptera : Blattaria : Blaberidae). —*Aust. J. Zool., Suppl. Ser.*, No. 69 : ?

Descriptions, keys and distribution are given for 42 species (20 new) and four subspecies (two new) of *Salganea*, and four species (2 new) of *Caeparia*.

620. **Srivastava, L. K., Baquer, N. Z.** and **Habibulla, M.** 1979. Effect of pp'DDT on hexokinase and AT pase in nervous system of cockroach, frog and rat. — *Indian J. exp. Biol.*, **17** (11) : 1204-1207.

621. **Vijayalakshmi, S., Rajaram Reddy, G., Pavan Kumar, T.** and **Sasira Babu, K.** 1979. Effect of x-rays on circadian rhythmicity of glycogen content in the cockroach, *Periplaneta americana* L. — *Entomon*, **4** (1) : 7-12.

X-irradiation at sublethal and lethal doses caused an elevatory effect on glycogen content in the central nervous system and coxal muscles of the cockroach.

622. **Vijayalakshmi, S., Mohan, M. P.** and **Sasira Babu, K.** 1979. X-ray-dose and post-irradiation effects on the activity of acetyl and butyryl cholinesterases in *Periplaneta americana* L. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 276-283.

An attempt has been made to investigate the effects of X-ray dosage and changes during post-irradiation period (PIP) on ACh content and the activity of cholinesterases in the cockroach, *P. americana* L.

(vi) Isoptera

623. **Agarwal, V. B.** 1979. Swarming behaviour in nature and colony formation under laboratory conditions in *Odontotermes microdentatus* Roonwal & Sen Sharma and *Odontotermes obesus* (Rambur) (Isoptera : Termitidae). —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 385-388.

624. **Akhtar, M. S.** and **Ali, S. S.** 1979. Wood preferences and survival of *Coptotermes heimi* (Wasmann) and *Odontotermes obesus* (Rambur) (Isoptera). —*Pakist. J. Zool.*, **11** (2) : 303-314.

Development of incipient colonies of *C. heimi* (Wasm.) and *O. obesus* (Rambur) in blocks of different timbers was studied in Pakistan.

625. **Bose, G.** 1979. A new species from India of the termite-genus *Procryptotermes* Holmgren (Kalotermitidae), with a description of the hitherto unknown imago of *P. dhari* Roonwal and Chhotani. —*Bull. zool. Surv. India*, **2** (1) : 53-59.

The author has described a new species from Tamil Nadu and also discussed the affinities of the new species with *P. dhari* and *P. hunsurensis*.

626. **Chhotani, O. B.** and **Bose, G.** 1979. Nesting behaviour and nests of Indian termites.—*Zoologiana*, (2) [1978] : 16-28.

In the present contribution, the nesting behaviour of Indian termites is discussed and the nests of some common Indian species are described.

627. **Chhotani, O. B.** and **Das, B. C.** 1979. Variability in size and morphometric analysis of the soldier caste in *Heterotermes indicola* (Wasmann) (Rhinotermitidae : Heterotermitinae). —*Proc. Symp. Intraspecific Var. (Spec. Publ. No. 1) zool. Surv. India, Calcutta*, 1977 : 47-52.

During the course of the study of some collections of *H. indicola*, it was observed that the so called two types of soldiers i. e. major and minor were linked up by intermediates and a morphometric analysis of the soldier cast was undertaken to ascertain whether dimorphism really occurred in the soldier of *H. indicola* or not.

628. **Maiti, P. K.** 1979. First record of the genus *Bulbitermes* Emerson (Termitinae : Nasutitermitinae) from India, with the description of a new species. —*Proc. zool. Soc. Calcutta*, **30** : 25-29.

628a. **Maiti, P. K.** 1979. The composition and geographical origin of the termite (Isoptera) of the Greater Nicobar Islands, Indian Ocean. —*Proc. zool. Soc. Calcutta*, **30** : 135-139.

629. **Mishra, S. C.** 1978. Neoteny in *Microcerotermes beesoni* Snyder (Isoptera : Termitidae). —*J. Indian Acad. Wood Sci.*, **9** (1) : 72.

630. **Mishra, S. C.** 1979. Studies on deterioration of wood by insects. IV. Digestibility components by the termite *Neotermes bosei* Snyder (Isoptera : Kalotermitidae). —*Mater. Organismen*, **14** (4) : 269-277.

Studies on deterioration of wood by insects was carried out and the digestibility and digestion of major wood components by *Neotermes bosei* (Snyder) was examined.

631. **Mishra, S. C.** and **Sen-Sarma, P. K.** 1979. Seasonal fluctuations of colony composition, nest population and foraging in *Nasutitermes dunensis* Chatterjee and Thakur. —*Indian J. Ent.*, **41** (4) : 360-365.

In this paper, data on seasonal fluctuations of colony composition, nest population and foraging have been presented in respect of *N. dunensis*.

632. **Mishra, S. C.** and **Sen Sarma, P. K.** 1979. Studies on deterioration of wood by insects. III. Chemical composition of faecal matter, nest material and fungus comb of some Indian termites.—*Mater. Organismen*, **14** (1) : 1-14.

633. **Mishra, S. C.** and **Sen-Sarma, P. K.** 1979. Studies on deterioration of wood by insects. V. Influence of temperature and relative humidity on wood consumption and digestibility in *Neotermes bosei* Snyder (Insecta : Isoptera : Kalotermitidae). —*Mater. Organismen*, **14** (4) : 279-286.

Laboratory studies were carried out in India on the effects of temperature and relative humidity on wood consumption and digestibility in the pseudoworkers of *N. bosei* (Snyder).

634. **Parihar, D. R.** 1979. Seasonal incidence of termite injury in the desert part of the Rajasthan State. —*Geobios*, **6** (Suppl.) : 340-341.

635. **Roonwal, M. L.** 1979. Termite damage to Railway coaches in India (*Coptotermes heimi*). —*Indian J. For.*, **2** (4) : 307-310.

636. Deleted.

637. **Roonwal, M. L.** and **Rathore, N. N.** 1979. Egg-wall sculpturing and micropylar apparatus in some termites and their evolution in the Isoptera. —*J. zool. Soc. India*, **27** (1-2) [1975] : 1-17.

638. **Roonwal, M. L., Verma, S. C.** and **Thakur, M. L.** 1979. Evolution and systematic significance of wing microsculpturing in termites (Isoptera), V. Families Mastotermitidae, Termopsidae, Hodotermitidae and Stylotermitidae.—*Proc. Indian natn. Sci. Acad.*, (*B*), **45** (2) : 115-128.

639. **Roonwal, M. L., Verma, S. C.** and **Thakur, M. L.** 1979. Evolutions and systematic significance of wing microsculpturing in termites (Isoptera). VI. Family Rhinotermitidae. —*Proc. Indian natn. Sci. Acad.*, (B) **45** (4) : 332-353.

640. **Sarma, J. S., Tandon, P. L., Thakur, R. S.** and **Chadha, K. L.** 1979. Comparision of physicochemical characteristics of the soils of termite galleries and the surrounding soil in mango orchards. —*Indian J. agric. Sci.*, **49** (11) : 892-895.

The investigation was carried out on 20 mango trees selected at random from 3 orchards at Golakum, Lucknow for studying the physicochemical characteristics of the soil of termite galleries in relation to the surrounding orchard soil.

641. **Sen-Sarma, P. K.** and **Thakur, M. L.** 1979. Termites of Tripura (Insecta : Isoptera). —*Indian For. Rec.* (*N. S.*) (*Ent.*), **13** (1) : 1-65, 11 pls.

Tripura had remained a terra incognita from termite point of view till the senior author made extensive collections in 1971. 25 species of termites under 16 genera, of which 5 are new to science have been recorded.

642. **Thakur, M. L.** 1978. Imago caste of *Neotermes megaoculatus megaoculatus* Roonwal et Sen-Sharma (Isoptera : Kalotermitidae) from Kumaon Hills, Uttar Pradesh. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 143-147.

643. **Thakur, M. L.** 1978. New species of termite genus *Neotermes* Holmgren (Isoptera : Kalotermitidae) from Kerala, S. India. —*J. Indian Acad. Wood Sci.*, **9** (1) : 56-61.

644. **Thakur, M. L.** and **Sen-Sarma, P. K.** 1979. Revision of termite genus *Heterotermes* Frogatt (Isoptera : Rhinotermitidae : Heterotermitinae) from the Indian region.—*Indian For. Rec.* (*N. S.*) (*Ent.*), **13** (2) : 1-27.

The species of the genus *Heterotermes* belong to one of the economically most important group of subterranean termites.

645. **Varma, R. V.** 1979. Sternal gland and mechanism of trail-laying in the termite *Postelectrotermes nayari* (Isoptera : Kalotermitidae). —*Entomon*, **4** (3) : 229-236.

In *P. nayari*, the sternal gland is seen as an epidermal thickening on the fifth abdominal sternite below the fourth abodominal ganglion.

646. **Verma, A. N., Kashyap, R. K., Bhanot, J. P.** and **Khurana, A. D.** 1979. Effect of seed treatment and soil application of aldrin and BHC on germination, termite damage and yield of barley.—*Indian J. Ent.*, **41** (2) : 164-169.

647. **Verma, R. V.** 1979. Corpora allata of *Postelectrotermes nayari* (Isoptera : Kalotermitidae). —*Curr. Sci.*, **48** (15) : 699.

648. **Verma, S. C.** and **Thakur, R. K.** 1978. New species of *Nasutitermes* Dudley (Isoptera : Termitidae : Nasutitermitinae) from Corbett National Park, U. P. —*J. Indian Acad. Wood Sci.*, **9** (1) : 50-55.

(vii) Psocoptera

649. **Ray, K.K.** 1979. Psocoptera of Calcutta and environs (West Bengal : India).—*Rec. zool. Surv. India*, **75** (1-4) : 353-359. This paper deals with seventeen species of Psocoptera from Calcutta and environs of which seven are new records to India.

(viii) Mallophaga

(Phthiraptera)

650. **Khan, M. H.** 1979. Control of poultry lice with some newer insecticides.—*Indian vet. J.*, **56** (9) : 739-743.

651. **Lakshminarayana, K. V.** 1979. Intraspecific variations in insects with special reference to the chewinglice (Phthiraptera).—*Proc. Symp. Intraspecific Var. (Spec. Publ. No. 1) Zool. Surv. India, Calcutta*, 1977 : 41-46.

652. **Lakshminarayana, K. V.** 1979. A synoptic list of Mallophaga *sens. lat.* (Phthiraptera : Insecta) from India and adjacent countries together with host and regional indices. —*Rec. zool. Surv. India*, **75** (1-4) : 39-201.

The author has published a complete check list of all the species of Mallophaga so far known from India and its adjacent countries. It also includes hosts and regional indices.

653. **Lakshminarayana, K. V.** 1979. Role of asymmetry in the speciation of certain lice (Phthiraptera : Insecta). —*Bull. zool. Surv. India*, **2** (1) : 29-34.

It has been recognized that, asymmetry plays a considerable part in animal speciation, particularly in insects. This aspect has been examined in certain "chewing-lice" infesting birds.

(ix) Hemiptera

654. **Abraham, C. C.** and **Ambika, B.** 1979. Effect of leaf and kernel extracts of neem on moulting and vitellogenesis in *Dysdercus cingulatus* Fabr. (Heteroptera : Pyrrhocoridae). —*Curr. Sci.*, **48** (12) : 554-555.

655. **Agarwal, R. A.** and **Katiyar, K. N.** 1979. An estimate of losses of seed kapas and seed due to bollworms on cotton in India. —*Indian J. Ent.*, **41** (2) : 143-148.

656. **Ahmad, I.** 1979. Quantitative effects of HMAC : 1.6-hexamethylene bis-(1-azaridine carboxamide) on sterility of *Dysdercus cingulatus* Fabr. —*Curr. Sci.*, **48** (10) : ?

657. **Ahmad, I., Khan, N. A.** and **Yasmeen, N.** 1979. An account of *Coccosterphus* (Membracoidea : Centrotinae) from Bangladesh. —*Oriental Ins.*, **13** (1-2) : 219-228.

C. bengalensis is described as new and 3 species are newly recorded from Bangladesh and are redescribed with reference to their shape of frontoclypeus and male and female genitalia. A key to all the presently known species of *Coccosterphus* Stal is given and in the light of the above characters their zoogeography and phylogeny are briefly discussed.

658. **Ahmad, I.** and **Yasmeen, N.** 1979. New species and records of the *Tricentrus projectus* group (Homoptera : Membracidae : Tricentrini) from Pakistan, Azad Kashmir and Bangladesh, with phylogenetic considerations. —*Pacif. Insects*, **20** (2-3) : 257-278.

659. **Alam, S., Alam, M. S.** and **Karim, A. N. M. R.** 1979. Rice mealybug outbreak in Bangladesh, 1979. —*Int. Rice Res. Newsl.*, **4** (5) : 20-21.

660. **Ambika, B.** and **Abraham, C. C.** 1979. Bio-ecology of *Helopeltis antonii* Sign. (Miridae : Hemiptera) infesting cashew trees. —*Entomon*, **4** (4) : 335-342.

The bionomics and morphometrics of *Helopeltis antonii* a major pest of cashew in Kerala has been studied in the laboratory conditions.

661. **Ambrose, D. P.** and **Livingstone, D.** 1979. Impact of mating on the oviposition pattern and hatchability in *Acanthaspis pedestris* Stal. (Reduviidae : Acanthaspidinae). —*Entomon*, **4** (3) : 269-275.

A. pedestris Stal., a reduviid of scrub jungle of the Palghat gap, manifests wide range of ecotypic specializations.

662. **Avasthi, R. K.** 1979. A new species of *Peliococcus* Borchsenius from India (Homoptera : Pseudococcidae). —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 905-908.

663. **Avasthi, R. K.** and **Shafee, S. A.** 1979. A new species of *Cerostegia* De Lotto (Homoptera : Coccidae) from Ajmer (India). —*Curr. Sci.*, **48** (1) : 36-37.

664. **Azim, M. N.** and **Shafee, S. A.** 1979. Indian species of the genus *Nezara* Amyot and Serville (Hemiptera : Pentatomidae). —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 507-511.

665. **Balasubramanian, G.** 1979. Prediction of leafhopper population in upland cotton in relation to plant characters. —*Indian J. agric. Sci.*, **49** (12) : 970-973.

666. **Balasubramanian, G.** and **Gopalan, M.** 1979. Changes in acids content of American cotton varieties in relation to resistance to the leafhopper, *Amrasca biguttula biguttula* Ishida. —*Sci. Cult.*, **45** (10) : 414-416.

667. **Balasubramanian, G., Gopalan, M.** and **Subramaniam, T. R.** 1978. Nonpreference and antibiosis components of resistance in American cotton to the leaf hopper, *Amrasca biguttula biguttula* Ishida. —*Madras agric. J.*, **65** (11) : 709-714.

The results of the study indicated the discriminating behaviour of leaf hopper for the cotton varieties for feeding.

668. **Basu, R. C.** and **Raychaudhury, D. N.** 1978. Study on aphids from Eastern India. The genera *Acyrthosophon* Mordv., *Metopolophum* Mordv. and *Rhodobium* —*Proc. zool. Soc. Calcutta*, **28** : 115-131.

669. **Behura, B.K., Dash, M.M.** and **Agarwal, U.** 1979. Colour preference of the common yellow aphid *Aphis nerii* Fonsc. (Aphididae : Homoptera). —*J. zool. Soc. India*, **27** (1-2) [1975] : 175-176.

670. **Bhumannavar, B. S.** and **Thontadarya, T. S.** 1979. Varietal response of safflower (*Carthamus tinctorius* L.) to the aphid, *Dactynotus compositae* Theobald (Aphididae : Homoptera). —*Curr. Res. mon. Newsl.*, **8** (8) : 134-136.

In this investigation 25 varities of safflower were screened at Regional Research Station, University of Agricultural Sciences, Dharwad, to know the resistance to aphid, if any.

671. **Bhumannavar, B. S.** and **Thontadarya, T. S.** 1979. Effectiveness of different insecticides against safflower aphid, *Dactynotus compositae* Theobald (Hemiptera : Aphididae) on safflower in Karnataka. —*Pesticides*, **13** (9) : 28-30.

Six different insecticides were selected for study to test their efficacy in controlling the aphid under field conditions.

672. **Bhumannavar, B. S., Thontadarya, T. S.** and **Govindan, R.** 1979. Parasitization of the safflower aphid *Dactynotus compositae* Theobald by an endoparasite, *Pseudendaphus* sp. (Diptera : Cecidomyiidae). —*Curr. Res. mon. Newsl.*, **8** (10) : 173-174.

673. **Bisht, R. S.** and **Bhatnagar, S. P.** 1979. Some insects, mammals and birds feeding on *Lantana camara* Linn. in Kumaon. —*Indian J. Ent.*, **41** (2) : 196-197.

674. **Brar, R. S.** and **Bains, S. S.** 1979. Population dynamics of *Pyrilla perpusilla* Walker and mortality factors.—*Indian J. Ecol.*, **6** (1) : 110-121.

The data on the population of *Pyrilla* and its natural enemies collected from nine sugarcane fields around Ludhiana during 1976 to 1977-78 have been used to prepare age-specific life tables to determine the role of various mortality factors acting during various generations of the pest.

675. **Chatterjee, P. B.** and **Choudhuri, D. K.** 1979. Biology of *Eoeurysa flavocapitata* —a delphacid insect pest on sugarcane in India. —*Entomon*, **4** (3) : 263-267.

In view of growing economic importance of *E. flavocapitata* as a pest of sugarcane, studies on the biology of this insect were undertaken.

676. **Chaudhuri, S. A., Ray, G. L.** and **Mukherjee, A.B.** 1979. Operational research on the control of brown planthopper in boro paddy. —*Int. Rice Res. Newsl.*, **4** (5) : 21.

677. **Daniel, M.** and **Kumar, T. P.** 1979. Storage pests of arecanut—a survey.—*J. Pl. Crops*, **7** (1) : 36-41.

Arecanut in storage is damaged by many pests including fungi. The results of a survey on the pests of stored arecanut, carried out in Mangalore (Karnataka), are given here along with a review of the literature. Four storage insects, a parasite and a predatory bug are reported here as new records. *Coccotrypes carpophagus* was the most serious pest. Twenty one pests have been recorded so far.

678. **Das, S. M.** and **Bisht, R. S.** 1979. Ecology of some Hemiptera and Coleoptera of Kumaon lakes. —*Indian J. Ecol.*, **6** (1) : 35-40.

The aquatic Hemiptera and Coleoptera of Nainital and Bhimtal lakes were recorded regularly during different months. Their sesaonal abundance has been discussed in relation to physico-chemical parameters of water of these two lakes located in a cold region.

679. **Datta, B.** 1979. Study of Indian Fulgoridae.—*Eos, Madr.*, **53** (I & II) : 9-24.

680. **Datta, B.** and **Ghosh, L. K.** 1979. On *Eoeurysia flavocapitata* Muir (Homoptera : Delphacidae) from India. —*Bull. zool. Surv. India*, **2** (1) : 99-100.

681. **Datta, B., Ghosh, L. K.** and **Das, B. N.** 1978. Studies on Oriental Membracidae (Homoptera). —*Eos, Madr.*, **52** [1976] : 97-119.

682. **Deshmukh, S. D.** and **Akhare, M. D.** 1979. Response of early and dwarf varieties of sunflower to jassids. —*Indian J. Pl. Prot.*, **7** (1) : 64-65.

683. **Devanesan, S., Jacob, A., Kuruvilla, S.** and **Mathai, S.** 1979. Infection of *Nephotettix virescens* (Stal.) (Cicadellidae : Hemiptera) by *Fusarium equiseti* (Corda) Sacc. —*Entomon*, **4** (3) : 304-305.

660. **Ambika, B.** and **Abraham, C. C.** 1979. Bio-ecology of *Helopeltis antonii* Sign. (Miridae : Hemiptera) infesting cashew trees. —*Entomon*, **4** (4) : 335-342.

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662. **Avasthi, R. K.** 1979. A new species of *Peliococcus* Borchsenius from India (Homoptera : Pseudococcidae). —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 905-908.

663. **Avasthi, R. K.** and **Shafee, S. A.** 1979. A new species of *Cerostegia* De Lotto (Homoptera : Coccidae) from Ajmer (India). —*Curr. Sci.*, **48** (1) : 36-37.

664. **Azim, M. N.** and **Shafee, S. A.** 1979. Indian species of the genus *Nezara* Amyot and Serville (Hemiptera : Pentatomidae). —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 507-511.

665. **Balasubramanian, G.** 1979. Prediction of leafhopper population in upland cotton in relation to plant characters. —*Indian J. agric. Sci.*, **49** (12) : 970-973.

666. **Balasubramanian, G.** and **Gopalan, M.** 1979. Changes in acids content of American cotton varieties in relation to resistance to the leafhopper, *Amrasca biguttula biguttula* Ishida. —*Sci. Cult.*, **45** (10) : 414-416.

667. **Balasubramanian, G., Gopalan, M.** and **Subramaniam, T. R.** 1978. Nonpreference and antibiosis components of resistance in American cotton to the leaf hopper, *Amrasca biguttula biguttula* Ishida. —*Madras agric. J.*, **65** (11) : 709-714.

The results of the study indicated the discriminating behaviour of leaf hopper for the cotton varieties for feeding.

668. **Basu, R. C.** and **Raychaudhury, D. N.** 1978. Study on aphids from Eastern India. The genera *Acyrthosophon* Mordv., *Metopolophum* Mordv. and *Rhodobium* —*Proc. zool. Soc. Calcutta*, **28** : 115-131.

669. **Behura, B.K., Dash, M.M.** and **Agarwal, U.** 1979. Colour preference of the common yellow aphid *Aphis nerii* Fonsc. (Aphididae : Homoptera). —*J. zool. Soc. India*, **27** (1-2) [1975] : 175-176.

670. **Bhumannavar, B. S.** and **Thontadarya, T. S.** 1979. Varietal response of safflower (*Carthamus tinctorius* L.) to the aphid, *Dactynotus compositae* Theobald (Aphididae : Homoptera). —*Curr. Res. mon. Newsl.*, **8** (8) : 134-136.

In this investigation 25 varities of safflower were screened at Regional Research Station, University of Agricultural Sciences, Dharwad, to know the resistance to aphid, if any.

671. **Bhumannavar, B. S.** and **Thontadarya, T. S.** 1979. Effectiveness of different insecticides against safflower aphid, *Dactynotus compositae* Theobald (Hemiptera : Aphididae) on safflower in Karnataka. —*Pesticides*, **13** (9) : 28-30.

Six different insecticides were selected for study to test their efficacy in controlling the aphid under field conditions.

672. **Bhumannavar, B. S., Thontadarya, T. S.** and **Govindan, R.** 1979. Parasitization of the safflower aphid *Dactynotus compositae* Theobald by an endoparasite, *Pseudendaphus* sp. (Diptera : Cecidomyiidae). —*Curr. Res. mon. Newsl.*, **8** (10) : 173-174.

673. **Bisht, R. S.** and **Bhatnagar, S. P.** 1979. Some insects, mammals and birds feeding on *Lantana camara* Linn. in Kumaon. —*Indian J. Ent.*, **41** (2) : 196-197.

674. **Brar, R. S.** and **Bains, S. S.** 1979. Population dynamics of *Pyrilla perpusilla* Walker and mortality factors.—*Indian J. Ecol.*, **6** (1) : 110-121.

The data on the population of *Pyrilla* and its natural enemies collected from nine sugarcane fields around Ludhiana during 1976 to 1977-78 have been used to prepare age-specific life tables to determine the role of various mortality factors acting during various generations of the pest.

675. **Chatterjee, P. B.** and **Choudhuri, D. K.** 1979. Biology of *Eoeurysa flavocapitata* —a delphacid insect pest on sugarcane in India. —*Entomon*, **4** (3) : 263-267.

In view of growing economic importance of *E. flavocapitata* as a pest of sugarcane, studies on the biology of this insect were undertaken.

676. **Chaudhuri, S. A., Ray, G. L.** and **Mukherjee, A.B.** 1979. Operational research on the control of brown planthopper in boro paddy. —*Int. Rice Res. Newsl.*, **4** (5) : 21.

677. **Daniel, M.** and **Kumar, T. P.** 1979. Storage pests of arecanut—a survey.—*J. Pl. Crops*, **7** (1) : 36-41.

Arecanut in storage is damaged by many pests including fungi. The results of a survey on the pests of stored arecanut, carried out in Mangalore (Karnataka), are given here along with a review of the literature. Four storage insects, a parasite and a predatory bug are reported here as new records. *Coccotrypes carpophagus* was the most serious pest. Twenty one pests have been recorded so far.

678. **Das, S. M.** and **Bisht, R. S.** 1979. Ecology of some Hemiptera and Coleoptera of Kumaon lakes. —*Indian J. Ecol.*, **6** (1) : 35-40.

The aquatic Hemiptera and Coleoptera of Nainital and Bhimtal lakes were recorded regularly during different months. Their sesaonal abundance has been discussed in relation to physico-chemical parameters of water of these two lakes located in a cold region.

679. **Datta, B.** 1979. Study of Indian Fulgoridae.—*Eos, Madr.*, **53** (I & II) : 9-24.

680. **Datta, B.** and **Ghosh, L. K.** 1979. On *Eoeurysia flavocapitata* Muir (Homoptera : Delphacidae) from India. —*Bull. zool. Surv. India*, **2** (1) : 99-100.

681. **Datta, B., Ghosh, L. K.** and **Das, B. N.** 1978. Studies on Oriental Membracidae (Homoptera). —*Eos, Madr.*, **52** [1976] : 97-119.

682. **Deshmukh, S. D.** and **Akhare, M. D.** 1979. Response of early and dwarf varieties of sunflower to jassids. —*Indian J. Pl. Prot.*, **7** (1) : 64-65.

683. **Devanesan, S., Jacob, A., Kuruvilla, S.** and **Mathai, S.** 1979. Infection of *Nephotettix virescens* (Stal.) (Cicadellidae : Hemiptera) by *Fusarium equiseti* (Corda) Sacc. —*Entomon*, **4** (3) : 304-305.

684. **Devi, S., Rao, K., Thakur, S. S.** and **Devi, S.** 1979. A study on the morphology of spiracles and structural changes during development of a pentatomid bug *Tessaratoma javanica* (Thunberg).—*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 27-31.

The respiratory organs of *T. javanica* consist of nine pairs of spiracles. The morphological aspects of the spiracles are described.

685. **Devi, S., Rao, K., Thakur, S. S.** and **Devi, S.** 1979. Morphological studies on the tracheal system of a pentatomid bug, *Tessaratoma javanica* (Thunberg). —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 32-39.

686. **Dhaliwal, H. S.** and **Goma, B. D.** 1979. Seasonal abundance of various insect pests on cauliflower seed crop in the lower hills at Solan. —*Indian J. Ecol.*, **6** (1) : 101-109.

Seasonal fluctuations in the population of six insects injurious to seed cauliflower were studied under midhill conditions at Solan (72.2°E, 31°N, 1550 m. altitude) during 1973-74.

687. **Dworakowska, I., Singh, S.** and **Nagaich, B. B.** 1979. Two new species of *Dikraneura* Hardy (Auchenorrhyncha, Cicadellidae, Typhlocybinae) from India with remarks on the genus. —*Entomon*, **4** (3) : 289-293.

Two new species viz. *D. zlata* from Jaintia Hills and *D. grisea* from Simla are described. Three Palaearctic groups of species of the genus *Dikraneura* Hardy are distinguished and diagnostic features for the groups are given.

688. **Gandhi, J. R.** 1979. Acceptance of different extracts and purified chemicals by adults of *Oxycarenus hyalinipennis* Costa and *Dysdercus fasciatus* Dallas.—*Indian J. Ent.*, **41** (2) : 155-159.

689. **Gandhi, J. R.** 1979. Growth and longevity of *Oxycarenus hyalinipennis* Costa on different seeds. —*Indian J. Ent.*, **41** (2) : 184.

690. **Ganguly, G.** and **Ray, R. K.** 1979. Propagation of 'Ranginee' and 'Kusumi' strains of lac insect *Kerria lacca* (Kerr) on a new host-plant *Calliandra lambertiana* (D. Don) Benth. (Mimosoidae). —*J. zool. Soc. India*, **28** (1-2) [1976] : 153-154.

691. **Ghauri, M. S. K.** 1979. Whitebacked planthopper attacks before introduction of new rice varieties in Pakistan. —*Int. Rice Res. Newsl.*, **4** (5) : 11.

692. **Ghosh, A. K.** 1978. First record of *Neomyzus circumflexus* (Buckton) (Aphididae) on young pine seedlings (*Pinus kesiya*). —*Entomon*, **3** (1) : 117-118.

693. **Ghosh, M. R.** 1979. Comparative efficacy of some systemic insecticides in controlling mustard aphid *Lipaphis erysimi* (Kalt.) and notes on some related problems. —*Pesticides*, **13** (10) : 9-12.

The present paper indicates that the major pest of mustard i. e. the aphid can be very successfully controlled by systemic insecticides.

693a. **Ghosh, M. R., Basu, R. C.** and **Raychaudhuri, D. N.** 1978 Studies on the aphids (Homoptera : Aphididae) from Eastern India. 35. Three new genera and four new species from N. E. India. —*Oriental Ins.*, **11** (4) : 579-586.

694. **Ghosh, M. R.** and **Raychaudhuri, D. N.** 1979. Diurnal rhythm of settling of aphids (Aphidae : Homoptera) at Kalimpong, West Bengal. —*Entomon*, **4** (2) : 157-161.

The present report is based on the catch of aphids in a yellow pan water trap placed 15 cm above ground on a cultivated terrace at Kalimpong during 1970-71.

695. **Ghosh, M. R.** and **Raychaudhuri, D. N.** 1979. Aphids (Homoptera : Insecta) of Darjeeling district and Sikkim—Altitudinal distribution, seasonal occurrence and host—plant relationships of Aphidinae (Tribes Macrosiphini and Pterocommatini). —*Entomon*, **4** (3) : 245-254.

Survey of aphids in the Darjeeling district, W. B. and Sikkim revealed the existence of 136 species under tribe Macrosiphini and only one species under tribe Pterocommatini of Aphidinae.

696. **Govindan, R., Kumar, C.T.A., Rangaswamy, H. R.** and **Thimmaiah, G.** 1979. Efficacy of certain systemic insecticides of the population density of castor jassid, *Sundapteryx biguttula biguttula* Ishida (Hemiptera : Cicadellidae).—*Curr. Res. mon. Newsl.*, **8** (10) : 178-179.

697. **Ittyavirah, P. J., Nair, K. P. V.** and **Thomas, M. J.** 1979. Effect of potash application on the incidence of brown plant hopper. —*Agric. Res. J. Kerala*, **17** (1) : 118-119.

698. **Jacob, M.** and **Prabhu, V. K. K.** 1979. Effects of two juvenile hormone analogues on embryonic neuroendocrine system of *Dysdercus cingulatus* (Heteroptera : Pyrrhocoridae). —*Entomon*, **4** (2) ; 205-208.

699. **Jamal, A., Ahmad, A., Inam, A.** and **Adhami, N.** 1979. Changes in carbohydrate, protein and nucleic acid levels of *Solanum melongena* Linn. leaves under pathogenic effect of *Urentius sentis* D. —*Indian J. Ent.*, **41** (2) ; 185-187.

700. **Janaiah, C., Chari, N.** and **Venkat Reddy, P.** 1979. Glycogen and total proteins in flight muscles and lateral scent glands of *Tessaratoma javanica* Thunberg (Pentatomidae : Hemiptera). —*Entomon*, **4** (1) : 65-66.

The high content of glycogen in lateral scent glands of *T. javanica* is of the order of 952 Ug/100 mg, hence, a high value as compared to its flight muscles, indicating carbohydrate metabolism. The total protein content is 17% in lateral scent glands and 20% in flight muscles of *T. javanica*.

701. **Janaiah, C., Rao, P. S., Chari, N., Reddy, P. V.,** and **Subba Rao, Y. V.** 1979. Chemical composition of the scent glands of adults and nymphs of the bug *Tessaratoma javanica*. Thunberg. —*Indian J. exp. Biol.*, **17** (11) : 1233-1235.

702. **Joseph, D.** and **Balakrishnan, S.** 1979. White fly—new enemy of cardamom. —*Kisan Wld.*, **6** (2) : 45.

703. **Joshi, S. L.** 1979. Groundnut insect pests inventory in Khumaltar, Lalitpur. —*J. nat. Hist. Mus.*, **3** (1-4) : 95-100.

The frequency of occurrence of 28 insect pests is seen higher around mid-August in comparison to other parts of the months.

704. **Judson, P., Rao, B. K., Thakur, S. S.** and **Revathy, D.** 1979. Effect of Precocene II on reproduction of the bug *Dysdercus similis* (F.) (Heteroptera).—*Indian J. exp. Biol.*, **17** (9) : 947-949.

705. **Kameswara Rao, P., Ramakrishnan, U.** and **Ghai, S.** 1979. Description of *Austroagallia afganistanensis* sp. nov. (Agallidae : Homoptera). —*Curr. Sci.*, **48** : 655-656.

706. **Kareem, A. A., Thangavel, P.** and **Balasubramanian, M.** 1979. Control of white aphid on chilli. —*Kisan Wld.*, **6** (6) : 42.

707. **Karim, A. N. M. R.** and **Pathak, M. D.** 1979. An alternative biotype of green leafhopper in Bangladesh. —*Int. Rice Res. Newsl.*, **4** (6) : 7-8.

The populations of *Nephotettix virescens* (Dist.) on rice in Bangladesh are considered to be a distinctly different biotype from those in the Philippines.

708. **Kaushik, S. C.** 1979. Skeleto-musculature of the head capsule of *Belostoma indicum* (Lep. & Serv.) (Heteroptera : Belostomatidae). —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 67-85.

Anatomical and morphological peculiarities of the head capsule of *B. indicum* have been studied in detail.

709. **Kaushik, S. C., Kumar, G.** and **Gupta, P. K.** 1979. Functional anatomy of the male reproductive organs of *Coridus janus* Fabr. (Heteroptera—Dinidorinae : Pentatomidae) with special reference to bulbous ejaculatorius. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 211-219.

This paper reports the details of the male reproductive organs in *C. janus* Fabr. with special reference to bulbous ejaculatorius.

710. **Kormilev, N. A.** and **Heiss, E.** 1979. New Aradidae from Ceylon and Malaya in the British Museum (N. H.) (Heteroptera). —*Oriental Ins.*, **13** (1-2) : 155-162.

Axapisocoris brachypterus, gen. et sp. nov., *A. secundus* sp. nov. and *Carventus micropterus* sp. nov. ; all from Sri Lanka ; and *Chrysodaspis malayensis*, sp. nov., from Malaya, are described.

711. **Koul, C.** and **Saxena, B. P.** 1979. A trisaccharide as a reserve sugar in the red cotton bug, *Dysdercus koenigii* (Heteroptera). —*Acta ent. Bohemoslovaea*, **76** (2) : 85-92.

The sugar content of adults of *D. koenigii* (F.) feeding on cotton seed, holly hock or okra was studied in India. Raffinose and not trehalose was found to be the reserve sugar. The results indicate that enzymes participate in the raffinose metabolism.

712. **Koya, K. M. A., Rawther, T. S. S., Sathiamma, B.** and **Kurian, C.** 1979. Evaluation of six granular insecticides for the control of arecanut spindle bug, *Carvalhoia arecae* Miller and China in the field. —*Pesticides*, **13** (8) : 50-51.

713. **Krishnananda, N.** and **Agarwal, R. A.** 1979. Sources of resistance to jassid, *Amrasca devastans* Distant in cotton. —*Indian J. Ent.*, **41** (2) : 177-180.

714. **Kulkarni, P. P.** and **Kacker, P. K.** 1979. Chromosomes of four species of aphids (Homoptera : Aphididae). —*Bull. zool. Surv. India*, **2** (1) : 1-2.

Chromosomes of four species of aphids were studied and their morphometric analysis was carried out.

715. **Kumar, D., Singh, A. P.** and **Chauhan, R. S.** 1979. Comparative toxicity of 9 insecticides for control of *Dysdercus koenigii* Fabr., (Homoptera : Pyrrhocoridae). —*Balwant Vidyapeeth J. agric. scient. Res.*, **18** (2) [1976] : 117-121.

716. **Kurl, S. P.** and **Misra, S. D.** 1979. A preliminary report on aphid fauna of Jodhpur. —*Geobios*, **6** (6) : 286-287.

717. **Kurl, S. P.** and **Misra, S. D.** 1979. Biology of laboratory—reared mustard aphid, *Lipaphis erysimi*. —*Geobios*, **6** (2) : 81-84.

718. **Lahiri, A. R.** and **Biswas, S.** 1979. On a collection of psyllids (Homoptera : Psyllidae) from Shillong, Khasi Hills. —*Bull. zool. Surv. India*, **2** (1) : 61-67.

Five Psyllid species have been recorded for the first time from Meghalaya, India and a new Psyllid genus *Cryptotrioza* with *C. mathuri* sp. nov. as type species has been described from the state.

719. **Lakra, R. K., Kharub, W. S.** and **Singh, Z.** 1979. Comparative efficacy of some banding materials against mango mealy bug, *Drosicha mangiferae* Green in Haryana. —*Indian J. Ent.*, **41** (2) : 170-176.

720. **Lal, O. P.** 1979. Relative susceptibility of some cucumber and squash varieties to melon aphid, *Aphis gossypii* Glov. —*Indian J. Pl. Prot.*, **6** (1) [1978] : 76-77.

721. **Madan, Y. P.** and **Singh, R. A.** 1979. Natural control of sugarcane leafhopper, *Pyrilla perpusilla* Wlk. —*J. Res. Haryana agric. Univ.*, **9** (4) : 337-339.

722. **Mahal, M. S.** and **Singh, B.** 1979. Population build up of cotton jassid and index of its injury as a measure of resistance in okra. —*Indian J. Ecol.*, **6** (1) : 74-81.

For understanding the inheritance of resistance in okra to the cotton jassid, the sources of resistance in different varieties and crosses have been highlighted on the basis of pest population and injury to the host.

723. **Maity, S. P.** and **Chakrabarti, S.** 1979. Aphids (Homoptera : Aphididae) of North West India—III : Records of new aphids from Garhwal Himalaya.—*Sci. Cult.*, **45** (4) : 160-162.

So far 13 species of aphids were known from the area through the works of the said workers. These aphids were found together with the plants—from which they have been collected by the authors.

723a. **Majeed, Q.** and **Aziz, S.A.** 1979. Application of Dyar's law to different hopper instars of *Gastrimargus transversus* Thunb. —*Indian J. Ent.*, **41** : 240-243.

Based on a study of lepidopteran larvae, Dyar's Law states that the rate of growth of successive instars takes place as a regular geometric progression.

724. **Mall, S. B.** 1979. Histomorphology of the digestive organs of *Bagrada cruciferarum* Kirkaldy (Heteroptera : Pentatomidae). —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 284-295.

The present paper deals with morphology and histology of digestive organs of *B. cruciferarum* Kirkaldy, a widely distributed pentatomid bug on cruciferous plants.

725. **Mandal, P. K., Agarwala, B. K.** and **Raychaudhuri, D. N.** 1979. New aphids (Homoptera : Aphididae) from Sikkim, North East India. —*Entomon*, **4** (2) : 189-195.

Two new species belonging to subfamilies Callipterinae and Aphidinae are described from Sikkim for the first time.

726. **Mandal, P. K., Chatterjee, M.** and **Raychaudhuri, D.N.** 1979. Two new species and three new records of aphids (Homoptera : Aphididae) from Sikkim, Northeast India. —*Entomon*, **4** (1) : 77-80.

Two new species of *Eutrichosiphum* are described from Sikkim and three species of *Eutrichosiphum* are recorded for the first time from the state.

727. **Manjunath, T.M.** and **Channabasavanna, G. P.** 1979. Control of brown plant hopper. —*Indian Fmg.*, **29** (8) : 45-47.

728. **Mann, G. S., Singh, D.** and **Bhatt, A.S.** 1979. Chemical control of *Pterochloroides persicae* (Cholod.), a sporadic pest of peach and almond in Punjab.—*Indian J. agric. Sci.*, **49** (11) : 895-897.

729. **Mathai, S., Kuruvilla, S.** and **Jacob, A.** 1979. *Syncephalastrum racemosum* Cohn Ex Schroeter, an entomogenus fungus of rice leafhopper *Cicadella spectra* (Dist.).—*Entomon*, **4** (2) : 215.

730. **Mathur, R. N.** 1979. Biology of *Tingis (Caenotingis) bessoni* Drake. —*Indian For. Bull.*, No. 276 : 1-6.

Life-history and habits of *Tingis (Caenotingis) bessoni*, its nature of attack and economic importance have been dealt with in this paper.

731. **Mehra, B. P., Naqvi, A. H.** and **Sah, B. N.** 1979. Note on the emergence of dimorphic males of the lac insect. —*Indian J. agric. Sci.*, **49** (1) : 57-60.

The paper deals with the study to find out if both the forms have a common mother.

732. **Misra, S. S., Verma, K. D.** and **Singh, N.** 1979. Control of aphid, *Macrosiphum rosaeformis* (Das) infesting roses. —*Pesticides*, **13** (2) : 43-44.

733. **Muraleedharan, D.** and **Prabhu, V. K. K.** 1979. Effect of quality of food on midgut invertase activity in the red cotton bug *Dysdercus cingulatus* Fabr. —*Indian J. exp. Biol.*, **17** (11) : 1262-1263.

734. **Muraleedharan, D.** and **Prabhu, V. K. K.** 1979. Role of the median neurosecretory cells in secretion of protease and invertase in the red cotton bug, *Dysdercus cingulatus*. —*J. Insect Physiol.*, **25** (3) : 237-240.

735. **Murugesan, S., Parameswaran, S.** and **Balasubramanian, M.** 1979. Efficacy of five different synthetic pyrethroids in the control of bollworms and aphids on cotton. —*Pesticides*, **13** (10) : 15-17.

736. **Muthu, M.** 1979. Chemical control of tea mosquito bug on cashew. —*Kisan Wld.*, **6** (9) : 28.

737. **Nagarkatti, S., Sankaran, T.** and **Manjunath, T. M.** 1979. Natural control of the tea scale *Florinia theae* Green (Coccoidea, Diaspididae) in Assam. —*Prot. Ecol.*, **1** (3) : 179-184.

738. **Nair, C. R. M.** and **Prabhu, V. K. K.** 1979. Effect of starvation, mating, ovariectomy and juvenile hormone analogue on indirect flight muscle histolysis in *Dysdercus cingulatus*. —*Entomon*, **4** (3) : 285-288.

A brief report on the influence of mating, starvation, ovariectomy and JH analogue Kinoprene (ZR 777) on flight muscle histolysis in *D. cingulatus* is given.

739. **Narayanaswamy, P.** and **Baskaran, P.** 1979. Relationship between incidence of brown planthopper and rice stem rot pathogen. —*Int. Rice Res. Newsl.*, **4** (5) : 18.

740. **Nawale, R. N.** and **Jadhav, L. D.** 1978. Bionomics of tur pod bug *Clavigralla gibbosa* Sphinola (Coreidae : Hemiptera). —*J. Maharashtra agric. Univ.*, **3** (3) : 275-276.

741. **Palaniswami, M. S.** and **Pillai, K. S.** 1979. New record of mealybugs—*Pseudococcus citriculus* Green and *Rhizoecus* sp. as pests of elephant foot yam under storage. —*J. Root Crops*, **5** (1 & 2) : 62.

742. **Palaniswami, M. S., Pillai, K. S.** and **Abraham, K.** 1979. Note on the occurrence and nature of damage by the scale-insect, *Aspidiella hartii* Ckll (Diaspididae : Homoptera) on different edible Dioscorea. —*J. Root Crops*, **5** (1 & 2) : 65-66.

743. **Pareek, B. L.** and **Noor, A.** 1979. Field evaluation of some insecticides against sucking pests of potato. —*Entomon*, **4** (2) : 133-136.

The present study made an attempt to evaluate the relative efficacy of six insecticides for the control of aphids, leaf hoppers and white flies infesting potato in Rajasthan.

744. **Patel, R. K.** 1979. Unusual outbreak of aphids on pulses in Madhya Pradesh. —*J. N. K. V. V. Res. J.*, **10** (2) [1976] : 182.

745. **Peswani, K. M., Jain, H. K., Agnihotri, N. P., Bose, B. N., Saxena, A. N.** and **Pandey, S. Y.** 1979. Persistence of disulfoton and phorate against the cotton jassid, *Amrasca devastans* Distant. —*J. ent. Res.*, **3** (1) : 84-86.

Treatment of cotton seed variety PS-10 and Americana nectaridess with phorate and disulfoton @ 0.15 kg. a. i. per hectare was as effective as granular treatment with the same insecticides @ 1.5 kg. a. i. per hectare against jassid, *A. devastans*, the treatment remaining effective up to 40 days after sowing.

746. **Pillai, K. G., Kalode, M. B.** and **Rao, A. V.** 1979. Effects of nitrogen levels, plant spacings and row orientation on the incidence of the brown plant hopper of rice. —*Indian J. agric. Sci.*, **49** (2) : 125-129.

The paper reports the results of an experiment conducted to study the build-up of brown plant hopper population and its possible impact on the grain yield of rice.

747. **Polhemus, J. T.** 1979. Aquatic and semiaquatic Hemiptera of Sri Lanka from the Austrian Indo-Pacific Expedition, 1970-71. —*Bull. Fish. Res. Stn. Sri Lanka*, **29** (1-2) : 89-113.

748. **Poonamma, K. N., Kurian, C.** and **Koya, K. M. A.** 1979. Record of *Rhinocoris fuscipes* (Fabr.) (Heteroptera : Reduviidae) as a predator of *Myllocerus curvicornis* (F.) (Coleoptera : Curculionidae), the ash weevil pest of the coconut palm. —*Agric. Res. J. Kerala*, **17** (1) : 91-92.

749. **Pophaly, D. J., Rao, T. B.** and **Kalode, M. B.** 1979. Biology and predation of the mirid bug, *Cyrtorhinus lividipennis* on plant and leaf hoppers in rice. —*Indian J. Pl. Prot.*, **6** (1) [1978] : 7-14.

Experiments were made on the biology and biocontrol potentiality of the mirid bug under green house and field conditions.

750. **Prasad, N. K. K., Halappa, G., Vajranabhaiah, S. N.** and **Prasad, P. K. K.** 1979. A note on the incidence of tobacco bug, *Nesidiocoris tenuis* Reuter, on VFC tobacco. —*Curr. Res. mon. Newsl.*, **8** (1) : 17.

751. **Rai, P. S.** and **Chandrasekhar, H. T.** 1979. The natural enemy complex of rice brown plant hopper. —*Curr. Res. mon. Newsl.*, **8** (2) : 23-24.

752. **Rajendran, B.** and **Gopalan, M.** 1979. Note on the insecticidal properties of certain plant extracts. —*Indian J. agric. Sci.*, **49** (4) : 295-297.

The effect of the extracts of *Acorus calamus* Linn., *Allium sativum* Linn., *Datura stramonium* Linn. and *Ocimum sanctum* Linn. on causing mortality in *Dysdercus cingulatus* Fabr. (Heteroptera : Pyrrhocoridae), *Spodoptera litura* Fabr. (Lepidoptera : Noctuidae) and *Pericallia ricini* Fabr. (Lepidoptera : Arctiidae) have been reported in this communication.

753. **Rao, P. K.** and **Ramakrishnan, U.** 1979. Two new species of *Macropsis* (Homoptera : Cicadellidae : Macropsinae) from Northern India. —*Oriental Ins.*, **13** (3-4) : 307-310.

754. **Rao, P. K., Ramakrishnan, U.** and **Ghai, S.** 1979. A new species of *Balocha* (Homoptera : Cicadellidae) from Delhi. —*Entomon*, **4** (3) : 295-297.

Balocha bifurcata sp. nov. (Cicadellidae) is figured and described from Delhi on the trees of Jamun (*Eugenia jambulana*).

755. **Rao, P. N.** 1979. Biochemical mechanisms of resistance of cotton to *Empoasca devastans*, Dist. —*Andhra agric. J.*, **25** (3 & 4) [1978] : 82-89.

756. **Rao, P. R. M.** and **Rao, P. S. P.** 1979. Note on the relative toxicity of new insecticides to the adults of rice brown planthopper. —*Indian J. agric. Sci.*, **49** (11) : 904-905.

757. **Rao, P. R. M.** and **Rao, P. S. P.** 1979. Note on the use of *Bacillus thuringiensis* and extracts of *Eclipta alba* (Linn.) Hassk. and *Azadirachta indica* A. Juss. for the control of rice brown planthopper. —*Indian J. agric. Sci.*, **49** (11) : 905-906.

758. **Rao, S.V., Rao, C.S.** and **Rao, B.H.K.** 1979. Control of sugarcane scale insect *Melanaspis glomerata* Green through soil application of disulfoton granules. —*Indian J. Pl. Prot.*, **6** (1) [1978] : 63-66.

759. **Rao, Y. R. V. J.** and **Rao, V. N.** 1979. Bionomics of *Andrallus spinidens* (Fab.), a predator on some insect pests of rice. —*J. ent. Res.*, **3** (1) : 106-108.

Behaviour, host range, and life cycle of *A. spinidens* (Fab.) were studied.

760. **Rataul, H. S.** and **Misra, S. S.** 1979. Potato pests and their control. —*Pesticides*, **13** (7) : 27-38.

This article deals with identification, nature of damage, life history and control measures for important pests and vectors inflicting severe losses to this crop.

761. **Raychaudhuri, D. N., Dutta, S., Agarwala, B. K., Raha, S. K.** and **Raychaudhuri, D.** 1979. Some parasites and predators of aphids in northeast India and Bhutan-II. —*Entomon*, **4** (2) : 163-166.

This paper reports some parasites and predators of aphids from northeast India.

762. **Regupathy, A.** and **Paranjothi, G.** 1979. Evaluation of insecticides and white halo fungus *Cephalosporium lecanii* Zimm. against banana aphid *Pentalonia nigronervosa* Coq. —*Pesticides*, **13** (9) : 35-37.

763. **Revathy, D., Rao, B. K., Thakur, S. S.** and **Raj, N. S.** 1979. Effectivity of an insect growth regulator, Hydroprene on the cotton stainer *Dysdercus koenigii* F. —*Indian J. exp. Biol.*, **17** (9) : 945-947.

The effect of insect growth regualtor, Hydroprene was tested on the cotton stainer *D. koenigii*.

64. **Sabesan, S.** and **Ramalingam, N.** 1979. Effects of endosulfan on the medical neurosecretory cells of adult male *Odontopus varicornis* (Dist.) (Pyrrhocoridae : Heteroptera). —*Entomon*, **4** (3) : 223-227.

Injection of LD 50 doses of endosulfan into the young adult male *Odontopus varicornis* has produced marked changes in the structure and the secretory activities of medial neurosecretory cells.

65. **Sabesan, S.** and **Ramalingam, N.** 1979. Effect of endosulfan on the midgut epithelium of the adult *Odoniopus varicornis* (Dist.) (Hemiptera : Pyrrhocoridae). —*Curr. Sci.*, **48** (7) : 324-325.

66. **Saini, R. S.** and **Singh, R. S.** 1979. Skeletal system of the thorax of *Ranatra sordidula* Dohrn (Hemiptera : Nepidae).—*Proc. natn. Acad. Sci. India*, (B) **47** (4) [1977] : 254-262.

67. **Saivaraj, K., Kumaraswami, T.** and **Jayaraj, S.** 1979. Evaluation of certain newer insecticides for the eontrol of green peach aphid, *Mysus persicae* Sulz. on chillies. —*Pesticides*, **13** (1) : 20-21.

68. **Samal, P.** and **Misra, B. C.** 1979. Notes on the egg parasites of the brown plant hopper *Nilaparvata lugens* (Stal.) in Orissa.—*Oryza*, **15** (1) [1978] : 96-98.

The authors present general notes on *Anagrus* sp., *Oligosita* sp. and *Tetrastichus* sp., which are egg parasites of the rice pest *Nilaparvata lugens* (Stal) in the Indian state of Orissa. Brief descriptions of the adults are given.

769. **Sandhu, G. S.** and **Sohi, A. S.** 1979. Chemical control of kachnar tingid bug, *Cysteochila ablusa* Drake, a serious pest of *Bauhinia* spp. with high volume and ultra-low-volume spraying.—*Indian J. Ent.*, **41** (2) : 160-163.

770. **Satija, R.C., Sumal, K.** and **Atwal, S.S.** 1979. A comparative study of the corpora pedunculata in *Chimarrhometra orientalis*, *Velia currens* and *Ptilomera laticaudata* (Heteroptera). —*Res. Bull. Panjab Univ.*, **28** (1-2) [1977] : 49-53.

The corpora pedunculata in *C. orientalis*, *V. currens* and *P. laticaudata* is a well developed organ consisting of a globular calyx, a stalk, a foot, an alpha and a much-branched beta lobe.

771. **Sethi, G. R., Prasad, H.** and **Singh, K. M.** 1979. Incidence of insect pests of sunflower, *Helianthus annuus* Linnaeus in relation to plant growth and agroclimatic conditions. —*Indian J. Ecol.*, **6** (1) : 88-92.

The incidence of insect pests on two varieties of sunflower under a set of agroclimatic condition has been studied in the summer irrigated crop.

772. **Shah, A. H., Patel, M. B., Patel, G. M.** and **Purohit, M. S.** 1979. Field evaluation of different insecticides for the control of sugarcane leaf hopper *Pyrilla perpusilla* on sugarcane.—*Indian J. Pl. Prot.*, **7** (1) : 56-58.

773. **Shukla, K. K.** 1979. Occurrence of a new insect, small brown plant hopper, *Laodelphax striatellus* (Fallen) in India. —*Curr. Sci.*, **48** (12) : 548.

774. **Singh, B., Kanta, U.** and **Sandhu, G. S.** 1979. Sources of resistance to the cereal jassid, *Zygnidia manaliensis* (Singh), in maize germplasm. —*J. Res. Punjab agric. Univ.*, **15** (3) [1978] : 350-352.

775. **Singh, O. P.** and **Gangrade, G. A.** 1979. Biology of a reduviid predator, *Rhinocoris fuscipes* Fabricius on the larvae of *Diacrisia obliqua* Walker (Lepidoptera : Arctiidae). —*J. N. K. V. V. Res. J.*, **10** (2) [1976] : 158-160.

776. **Singh, O. P.** and **Nema, K. K.** 1979. Mustard aphid and its control. —*Kisan Wld.*, **6** (11) : 20-21.

777. **Singh, S. P.** and **Rao, N. S.** 1979. Preliminary studies on the control of *Coccus viridis* with the soil application of certain granulated systemic insecticides on potted Coorg mandarius.—*Indian J. Pl. Prot.*, **7** (1) : 11-14.

Soil application of granular systemic insecticides was tried at Horticultural Experiment Station, Chathalli, on potted plants of Coorg mandarius for the control of *C. viridis* and the findings are presented herein.

778. **Singh, T.** 1979. Ovulation and corpus luteum formation in *Dysdercus fasciatus* (Signoret) Heteroptera (Pyrrhocoridae). —*Indian J. For.*, **2** (2) : 146-152.

Ovulation and corpus luteum formation has been studied in *D. fasciatus*.

779. **Singh, T. K., Raychaudhuri, D.** and **Raychaudhuri, D. N.** 1979. Three new species of Greenideinae from Manipur state (India). —*Entomon*, **4** (4) : 361-365.

Three new species of the subfamily Greenideinae are described from Manipur (India). Systematic position of the new species is discussed.

780. **Singh, Y. P., Awasthi, B. K., Ram, S.** and **Nigam, P. M.** 1979. Control of wheat aphids, *Rhophalosiphum maidis* Fitch. with some new insecticides.—*Indian J. Ent.*, **41** (4) : 390-391.

781. **Slater, J. A.** 1979. The systematics, phylogeny and zoogeography of Blissinae of the world (Hemiptera, Lygaeidae).—*Bull. Am. Mus. nat. Hist.*, **165** (1) : 1-180.

Slaterellinae Drake and Davis is placed as a junior synonym of Blissinae. *Blissus navis* Slater is transferred to *Capodemus*, *Macropes tinctus* Distant to *Cavelerius* and *Dimorphopterus aleocharoides* Jakovlev *Ischnodemus*. *Neoblissus* Bergroth is placed as a junior synonym of *Blissus* Burmeister. *Pseudoblissus* is erected as a new genus to contain *Blissus trispinosus* Slater.

782. **Sohi, A. S.** 1979. Keys to the tribes and Indian species of Dikraneurini of subfamily Typhlocybinae (Homoptera, Cicadellidae). —*J. Res. Punjab agric. Univ.*, **15** (2) [1978] : 182-186.

Key to the tribes of Typhlocybinae and key to the Indian species of Dikraneurini have been discussed.

783. **Sohi, A. S.** and **Dworakowska, I.** 1979. New species of *Alebroides* Matsumura from India and Tibet (Auchenorryncha, Cicadellidae, Typhlocybinae). —*Entomon*, **4** (4) : 367-372.

Alebroides haedus sp. n. from Tibet and *A. clavatus* sp. n., *A. falcatus* sp. n., *A. fumosus* sp. n., *A. montanus* sp. n. and *A. luteus* sp. n., from India are described and figured. A key to the species of *Alebroides* from India and Tibet is also included.

784. **Srivastava, K. M.** and **Singh, R. P.** 1979. Upsurge of *Clavigralla gibbosa* Spinola on red gram in Uttar Pradesh. —*Indian J. Ent.*, **41** (4) : 395-396.

785. **Subba, J. R.** 1979. Efficacy of insecticides in controlling wooly aphid *Eriosoma lanigerum* Hausman on apple (*Malus pumila* Mill.) at Lachung. —*Pesticides*, **13** (2) : 27-28.

786. **Takagi, S.** 1979. A further study on the *horii*-group of *Fiorinia* (Homoptera : Coccoidea : Diaspididae). —*Ins. matsum.*, n. s. **16** : 1-32, 8 tabs., 22 figs.

787. **Tandon, N.** 1979. Embryology of the red cotton bug *Dysdercus cingulatus* (Fabricius) (Pyrrhocoridae : Heteroptera : Insecta). IV—On the process of gastrulation, mesoderm and coelom formation with a description of the circulatory, reproductive and muscular system. —*J. zool. Soc. India*, **27** (1-2) [1975] : 37-55.

788. **Tandon, P. L. and Bhalla, O. P.** 1979. Field evaluation of insecticides against cabbage aphid. —*Punjab hort. J.*, **19** (1 & 2) : 93-97.

789. **Tewari, G. C.** and **Tripathi, G. M.** 1979. Sugarcane scale insect and its control. —*Indian Fmg.*, **29** (2) : 19 & 21.

790. **Thakur, A. K., Kashyap, N.P., Hameed, S. F.** and **Suri, S. M.** 1979. Unusual occurrence of rice hispa on rice in Himachal Pradesh, India. —*Int. Rice Res. Newsl.*, **4** (6) : 7.

An outbreak of *Dicladispa armigera* (Ol.) on rice occurred in August 1979 at Nagrota, Baijinath and Palampur in the Kangra Valley, Himachal Pradesh, India and their control measure was discussed.

791. **Thangavelu, K.** 1979. The pest status and biology of *Spilostethus pandurus* (Scopoli) (Lygaeidae : Heteroptera).—*Entomon*, **4** (2) : 137-141.

The present investigations report the incidence of *S. pandurus* as a pest of *Sesamum* and attempts have been made to study the host preference and bio-ecological aspects.

792. **Upadhyay, K. D., Awasthi, B. K., Ram, S., Pandeyan, V.** and **Mathur, Y. K.** 1979. Effect of combined use of urea, and insecticides against aphid and yield of barley. —*Pesticides*, **13** (11) : 12-13.

793. **Varma, A.** and **Kishore, R.** 1979. Records of two new predators on the vector of grassy shoot disease. —*Indian J. Ent.*, **41** (4) : 388.

794. **Varshney, R. K.** 1979. Aspects of intraspecific diversity in relation to the *Lacca* complex of Indian lac insect (Homoptera : Tachardiidae). —*Proc. Symp. Intraspecific Var. (Spec. Publ. No. 1), zool. Surv. India, Calcutta* 1977 : 1-12.

An attempt is made in this article to present and discuss in brief the intraspecific variations in the structure and behaviour of this species complex.

795. **Venkataswamy, V.** and **Kalode, M. B.** 1979. Biology of brown plant hoppers on different plant species. —*Pestology*, **3** (10) : 26-29.

796. **Venugopal, M. S.** and **Subramaniam, T. R.** 1979. Biochemical changes in the red cotton bug, *Dysdercus cingulatus* F. due to treatments with oxytetracycline and sulphanilamide. —*Entomon*, **4** (2) : 121-124.

The influence of oxytetracycline and sulphanilamide on the biochemical variations in the nymph and adult of *D. cingulatus* was studied.

797. **Verma, G. D., Mahto, D. N.** and **Haque, M. N.** 1979. Loss in grain yield due to aphids and other pests on certain varieties of barley grown in north Bihar. —*Sci. Cult.*, **45** (9) : 370-371.

798. **Verma, S.** and **Pant, N. C.** 1979. Movement of phorate in soil and its residues and residual toxicity. —*Indian J. Ent.*, **41** (2) : 110-116.

799. **Verma, S. K., Pathak, P. K., Singh, B. N.** and **Lal, M. N.** 1979. Indian biotypes of the brown planthopper. —*Int. Rice Res. Newsl.*, **4** (6) : 7.

800. **Verma, S. K., Pathak, P. K., Singh, B. N., Lal, M. N.** and **Pant, G.B.** 1979. Susceptibility of promising rice cultivars to whitebacked plant hopper. —*Int. Rice Res. Newsl.*, **4** (2) : 8.

801. **Viraktamath, C. A.** 1979. *Jogocerus* gen. nov. and new species of idiocerine leafhoppers from southern India (Homoptera : Cicadellidae). —*Entomon*, **4** (1) : 17-26.

802. **Viraktamath, C. A.** 1979. Four new species of *Idioscopus* (Homoptera : Cicadellidae) from Southern India. —*Entomon*, **4** (2) : 173-181.

Four new species from the states of Karnataka and Kerala are described and illustrated. A key to the Indian species of *Idioscopus* is also provided.

803. **Viraktamath, C. A.** and **Dworakowska, I.** 1979. Indian species of *Singapora* (Homoptera : Cicadellidae : Typhlocybinae). —*Oriental Ins.*, **13** (1-2) : 87-91.

Singapora karnatakana, sp. nov. is described from Biligirirangan Hills, Karnataka. Illustrations of *S. karnatakana*, *S. shinshana* (Matsumura) and *S. indica* (Ramakrishnan and Menon) along with a key to the known species are also given.

804. **Vyas, T. P.** and **Vyas, M.** 1979. Method of sectioning the yolky, chorionated, oocytes and embryonic stages of insects. —*Natn. Acad. Sci. Lett.*, **2** (8) : 315-316.

805. **Wadnerkar, D. W., Gaikawad, B. B.** and **Thombre, U. T.** 1979. New record of an alternate host plant of red cotton bug, *Dysdercus* koenigii (Fab.). —*Indian J. Ent.*, **41** (2) : 185.

806. **Zaidi, Z. A.** and **Khan, M. A.** 1979. Changes in the total protein level of the haemolymph of *Dysdercus cingulatus* Fbr. (Hemiptera : Pyrrhocoridae) as related to metamorphosis and age.—*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 182-187.

The total haemolymph proteins of *D. cingulatus* was reviewed as related to metamorphosis and age.

(x) Thysanoptera

807. **Ananthakrishnan, T. N.** 1979. Biosystematics of Thysanoptera. —*Ann. Rev. Ent.*, **24** : 159-183.

808. **Ananthakrishnan, T. N.** 1979. Diversity indices in relation to intrapopulation variation in two species of mycophagous tubuliferan Thysanoptera. —*Proc. Symp. Intraspecific Var. (Spec. Publ. No. 1) Zool. Surv. India, Calcutta.* 1977 : 19-26.

Here an assessment of the magnitude of these variations resulting from studies of sizeable populations is made for a proper recognition of the patterns of variation so as to enable a better understanding of the limits of diversity of the concerned species.

809. **Ananthakrishnan, T. N.** and **Swaminathan, S.** 1979. On the population trends of *Aneurothrips priesneri* Bhatti (Insecta : Thysanoptera) from the leaf galls of *Cordia obliqua*. —*Bull. zool. Surv. India*, **2** (1) : 91-94.

Populations of *Aneurothrips priesneri* Bhatti inducing galls on the leaves of *Cordia obliqua* Willd., (Boraginaceae) have been studied in relation to the gall development.

810. **Gowda, G., Ramaiah, E.** and **Reddy, C. V. K.** 1979. *Scirtothrips dorsalis* (Hood) (Thysanoptera : Terebrantia : Thripidae), a new pest on cashew (*Anacardium occidentale* L.).—*Curr. Res. mon. Newsl.*, **8** (7) : 116-117.

811. **Kudo, I.** 1979. Some Panchaetothripinae Thysanoptera from Southeast Asia.—*Oriental Ins.*, **13** (3-4) : 345-355.

812. **Nair, C. K., Zachariah, P. K., George, K. V.** and **Nair, M.R.G.K.** 1979. Field evaluation of newer insecticides for control of cardamom thrips *Sciothrips cardamomi* (Ramk). —*Pesticides*, **13** (8) : 49-50.

813. **Patil, N. G.** and **Dethe, M. D.** 1979. Chemical control of chilli thrips and mites. —*Pestology*, **3** (10) : 30-31.

814. **Raman, A.** and **Ananthakrishnan, T.N.** 1979. Developmental morphology of the leaf galls of *Maytenus senegagalensis* (Lam.) Excell. (Celastraceae) induced by *Alocothrips hadracerus* (Karny) (Thysanoptera : Insecta).—*Proc. Indian Acad. Sci.*, (B) **88** (2) : 103-107.

815. **Regupathy, A.** and **Kumaresan, D.** 1979. Thrips on cardamom. —*Kisan Wld.*, **6** (5) : 30.

816. **Sidhu, A. S.** and **Dhawan, A. K.** 1979. Chemical control of thrips (*Thrips tabaci*) on cotton. —*Pesticides*, **13** (2) : 39.

817. **Thakre, S. M., Tikar, D. T.** and **Borle, M. N.** 1979. Efficacy of some insecticides in the control of thrips on chilli. —*Pesticides*, **13** (6) : 31-32.

818. **Veer, V.** 1979. A new record of internal parasite of *Gynaikothrips flaviantennatus* (Moulton) from India. —*Curr. Sci.*, **48** (12) : 558.

819. **Verma, K. L.** 1979. Apple blossom thrips and their control. —*Pesticides*, **13** (1) : 32-33.

(xi) Neuroptera

820. **Ghosh, S. K.** 1979. A new record of a species of *Spilosmylus* (Neuroptera : Osmylidae) from India. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 506.

(xii) Coleoptera

821. **Ahmad, M.** and **Hossain, M. B.** 1979. Notes on weevils (Curculionidae : Coleoptera) of the Bangladesh Agricultural University Area, Mymensingh. —*Bangladesh J. Zool.*, **7** (1) : 61-66.

A one-year survey study of economically more important curculionids was undertaken and 31 species, representing 24 genera under 16 subfamilies were identified and listed in the paper.

822. **Anand, R. K.** 1979. Beetle pests—taxonomy and control 1. Meloidae. —*Pesticides*, **13** (6) : 37-40.

This article leads to more intensive investigations on the biology and ecology of economically important species and thus help in controlling successfully.

823. **Anon**, 1979. Some facts about fireflies. —*Loris*, **15** (2) : 65.

824. **Arora, G. L.** and **Dhillon, D.** 1979. The reproductive system in *Myllocerus maculosus* Desb. (Coleoptera : Curculionidae). —*Res. Bull. Panjab Univ.*, **28** (1-2) [1977] : 61-67.

The male reproductive system of *M. maculosus* consists of a pair of yellow, ovoid testes, a pair each of vesicula seminales and vasa deferentia, and a median looped ejaculatory duct.

825. **Arora, G. L.** and **Singal, S. K.** 1979. A new species of *Conicobruchus* from Kashmir (Coleoptera : Bruchidae). —*Oriental Ins.*, **13** (1-2) : 55-59.

Conicobruchus alpina, sp. n., is described from Kashmir, comparing it with the other known species. A key to the four Indian species is given.

825a. **Arumugam, R.** and **Muthukrishnan, C. R.** 1979. Development of stored grain insects in mechanically damaged wheat grain. —*Indian J. agric. Sci.*, **49** (8) : 609-612.

The investigation was undertaken to study the relationship between mechanically damaged grain and the development of stored grain insects, viz. *Sitophilus oryzae* Linn., *Rhizopertha dominica* Fabr. and *Cadra cautella* (Walker).

826. **Awasthi, B. K., Pandey, V., Nigam, P. M.** and **Singh, Y. P.** 1979. Relative resistance of different rice varieties to *Sitophilus oryzae* Linnaeus. —*Indian J. Ent.*, **41** (4) : 385-387.

827. **Awate, B. G., Naik, L. M.** and **Gajare, B. P.** 1979. Relative efficacy of certain insecticides against flea beetle (*Chaetocnema*) on radish. —*J. Maharashtra agric. Univ.*, **4** (1) : 43-44.

828. **Bisht, R. S.** and **Das, S. M.** 1979. Sex-ratio and sexual dimorphism in *Hyphoporus aper* Sharp. —*Geobios*, **6** (4) : 180-181.

829. **Biswas, S.** 1979. Studies on the Scarab beetles (Coleoptera : Scarabaeidae) of North Eastern India : A new species and notes on other Indian species of subgenus *Strandius*, genus *Onthophagus*. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 911-913.

830. **Bodhade, S. N.** and **Borle, M. N.** 1979. *Malia azadirachta* Dharek as an antifeedant to red pumpkin beetles *Rephidopalpa foveicallis* on cucurbits. —*Pesticides*, **13** (1) : 37.

831. **Borah, B.** and **Chahal, B. S.** 1979. Development of resistance in *Trogoderma granarium* Everts to phosphine in Punjab. —*Pl. Prot. Bull. (F. A. O.)*, **27** : 77-80.

832. **Borikar, P. S.** and **Tayde, D. S.** 1979. Resistance in sorghum to *Sitophilus oryzae* Linn. —*Proc. Indian Acad. Sci.*, **88B** (1) : 273-276.

An attempt was made in this paper to screen out some promising varieties of sorghum resistance to *Sitophilus oryzae*.

833. **Budhraja, K., Rawat, R. R.** and **Singh, O. P.** 1979. Feeding behaviour of *Dicladispa armigera*. —*Int. Rice Res. Newsl.*, **4** (6) : 15-16.

834. **Chatterji, S. M.** and **Das, L. K.** 1979. Relative toxicity of some important insecticides to adults of the jute stem weevil, *Apion corchori* Marshall (Coleoptera : Curculionidae). —*J. ent. Res.*, **3** (1) : 81-83.

Relative toxicity of sixteen insecticides to the jute stem weevil, *A. corchori* Marshall adults was determined.

835. **Chawla, R. P., Kalra, R. L., Joia, B. S., Udeaan, A. S.** and **Bindra, O. S.** 1979. Toxicity and residues of iodofenphos as influenced by its distribution in stored wheat. —*Indian J. Ent.*, **41** (2) : 121-125.

836. **Chowdhuri, A. N.** and **Verma, K. L.** 1979. Note on the evaluation of insecticides and fungicides as antifeedants for the control of damage by defoliating beetles of apple. —*Indian J. agric. Sci.*, **49** (7) : 566-567.

837. **Chundurwar, R. D.** and **Karanjkar, R. R.** 1979. Relative susceptibility of some sorghum cultivars to rice weevil *Sitophilus oryzae*. L. —*Res. Bull. Marathwada agric. Univ.*, **3** (7) : 86-87.

838. **Dabi, R. K., Gupta, H. C.** and **Sharma, S. K.** 1979. Relative susceptibility of some cowpea varieties to pulse beetle, *Callosobruchus maculatus* Fabricius. — *Indian J. agric. Sci.*, **49** (1) : 48-50.

839. **Dhaliwal, G. S.** and **Singh, J.** 1979. Effects of spacing on rice hispa incidence. —*Int. Rice Res. Newsl.*, **4** (2) : 19.

The incidence of *Dicladispa armigera* (Ol.) in rice plots with different plant spacings was studied in Punjab, India. Three spacings (10×10 cm, 20×15 cm and 30×30 cm) were investigated.

840. **Dhaliwal, G. S.** and **Singh, J.** 1979. Efficacy of some spray formulations for the control of rice hispa, *Dicladispa armigera* Oliver. —*Pesticides*, **13** (5) : 32-34.

The present study aims at finding out the efficacy of some more insecticides for the control of this insect.

841. **Dhaliwal, G. S.** and **Singh, J.** 1979. Efficacy of some spray formulations for the control of rice hispa, *Dicladispa armigera* Oliver. —*Pesticides*, **13** (9) : 50-51.

842. **Dhingra, S., Sarup, P.** and **Agarwal, K.N.** 1979. Synergistic activity of some nontoxic chemicals in mixed formulations with pyrethrum against the adults of *Cylas formicarius* Fabricius. —*J. ent. Res.*, **3** (1) : 96-103.

Nine non-toxic chemicals were separately used in the mixed formulations with pyrethrum and evaluated against the sweet potato weevil *C. formicarius*, tolerant to DDT in nature.

843. **Dutt, N.** and **Ghatak, S. S.** 1979. Sterile male technique in the control of jute stem weevil, *Apion corchori* Marsh. (Coleoptera : Apionidae). —*J. ent. Res.*, **3** (1) : 60-76.

The selection of appropriate chemosterilant for use of sterile male technique in the control of *A. corchori* was studied critically.

844. **Dutt, N.** and **Maiti, B.** 1979. Ovipositor length in *Odoiporus longicollis* Oliv. (Coleoptera : Curculionide) as a criterion for selection of site for oviposition in cultivated species of banana. —*J. ent. Res.*, **3** (1) : 91-95.

845. **Ghorpade, K. D.** 1979. *Ballia eucharis* (Coleoptera : Coccinellidae) breeding on Cicadellidae (Homoptera) at Shillong.— *Curr. Res. mon. Newsl.*, **8** (7) : 113.

846. **Ghorpade, K. D.** 1979. On the association of some Coccinellidae (Coleoptera) with spider nests. —*Curr. Res. mon. Newsl.*, **8** (6) : 105-106.

847. **Ghorpade, K. D.** 1979. On some Coccinellidae (Coleoptera) attracted to light in India. —*Curr. Res. mon. Newsl.*, **8** (7) : 113-114.

848. **Ghosh, M. R.** and **Chattopadhyay, M.** 1979. Incidence and intraspecific phenomenon of *Henosepilachna vigintioctopunctata* (Fabricius) (Coccinellidae : Coleoptera).—*Sci. Cult.*, **45** (6) :253-254.

849. **Gunathilagaraj, K.** and **Kumaraswamy, T.** 1979. Screening of egg plants for resistance to *Epilachna vigintioctopunctata* F. —*Sci. Cult.*, **45** (2) : 60-61.

850. **Hazarika, L. K.** and **Farooqi, S. I.** 1979. Qualitative estimation of free amino acids in the developmental stages of *Callosobruchus maculatus* Fab. and *C. chinensis* Linn.—*Indian J. Ent.*, **41** (4) : 371-374.

851. **Hossain, M.** and **Verner, P. H.** 1979. Larvae of three species of *Sitophilus* (Coleoptera : Curculionidae), —*Bangladesh J. Zool.*, **7** (1) : 45-51.

Descriptions of the mature larvae of *S. granarius* (L.) *S. oryzae* (L.) and *S. zeamais* Motsch. are given. A key to distinguish these species is provided and the important characters have been illustrated.

852. **Jacob, A., Kuruvilla, S., Philip, B. P.** and **Asari, P. A. R.** 1979. *Fusarium moniliforme* var. *subglutinans* Wollenw. & Reink., pathogenic to the spotted beetle *Epilachna vigintioctopunctata* F. —*Agric. Res. J. Kerala*, **16** (2) [1978] : 262-263.

853. **Jacob, M.** and **Prabhu, V. K. K.** 1979. Morphogenetic abnormalities caused by treatment of eggs of *Dysdercus cingulatus* with JH analogues. —*Curr. Sci.*, **48** (11) : 505-506.

The study summarises the changes in the external and internal organization of the embryos after treatment of the eggs of a pyrrhocorid bug, *D. cingulatus* with JH analogues.

854. **Kailey, J. S., Datta, T.** and **Kalsi, P. S.** 1979. Evaluation of terpenoids and their derivatives as pesticides : activity of dehydrocostus lactone against *Callosobruchus maculatus*. —*Pesticides*, **13** (11) : 43.

855. **Kaothekar, B. R., Deshpande, S. V.** and **Kaunsale, P. P.** 1979. Population intensity of larval and pupal stages of the white grub (*Holotrichia serrata* Fa.) in an endemic area. —*Res. Bull. Marathwada agric. Univ.*, **3** (9) : 119-121.

856. **Karnavar, G. K.** 1979. Special sensitivity and behavioural response of diapause larvae of *Trogoderma granarium*. —*Entomon*, **4** (2) : 209-211.

857. **Kem, T. R.** 1979. Cross-resistance chracteristics of phosphine-resistant strain of *Tribolium castaneum* (Herbst) to contact insecticides. —*J. ent. Res.*, **3** (1) : 38-41.

858. **Lobl, I.** 1979. Die Scaphidiidae (Coleoptera) Siidindiens. [The Scaphidiidae (Coleoptera) from Southern India]. —*Revue Suisse Zool.*, **86** (1) : 77-129.

The present paper is a review of the Scaphidiidae of the South Indian states Madras and Kerala.

859. **Madge, R. B.** 1979. Taxonomic notes on *Apatetica* Westwood (Coleoptera : Silphidae) with a review of the species with black elytra. —*Oriental Ins.*, **13** (3-4) : 311-321.

860. **Mann, J. S.** and **Singh. J. P.** 1979. Female reproductive system and genitalia of genus *Lema* (Criocerinae : Chrysomelidae : Coleoptera). —*Entomon*, **4** (1) : 89-94.

Female reproductive system and external genitalia of nine species of the genus *Lema* have been described.

861. **Maruthi Ram, G., Kishen Rao, B., Thakur, S. S.** and **Judson, P.** 1979. Juvenile hormone—like activity of the pygidial secretion of *Anthia sexguttata* (F.)(Carabidae : Coleoptera).—*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 93-100.

862. **Mishra, M. S., Haque, C.** and **Singh, L. B.** 1979. Host preferance of cucurbit plants by the blister beetle (*Zonabris phalarata* Pall). —*Allahabad Fmr.*, **50** (2) : 109-111.

863. **Mishra, R. C., Gupta, P. R.** and **Dogra, G. S.** 1979. Biology of the galerucid, *Oides scutellata* Hope (Coleoptera : Chrysomelidae), a pest of grapevine. —*Entomon*, **4** (1) : 51-55.

Life history of *O. scutellata* Hope, recorded for the first time on grapevines, was studied. The insect has two generations on grapevines and the larva passes through three instars. Characters and duration of different post-embryonic stages are given.

864. **Mishra, R. K., Saxena, R. C., Yadava, C. P. S.** and **Dadheech, L. N.** 1979. Laboratory evaluation of some insecticides against adults of *Rhinyptia laeviceps* Arrow. —*Pesticides*, **13** (2) : 50.

865. **Mittal, I. C.** 1979. A new Indian species of *Oxyadoretus* Arrow (Col., Scarabaeidae). —*Entomologist's mon. Mag.*, **114** (1372-1375) [1978] : 225-226.

Two species of *Oxyadoretus* have been recorded from southern India (Arrow, 1971). The present species from north-west India differs from allied species mainly in the structure of the genitalia.

866. **Mittal, I. C.** and **Yadava, P. S.** 1979. Role of coprophagous beetles in nutrient cycling. —*Geobios*, **6** (2) : 70-73.

867. **Mohamed, U. V. K.** and **Murad, H.** 1979. Observations on protein content in the haemolymph and malpighian tubules of *Mylabris pustulata* (Thunb.) (Coleoptera) in relation to feeding and starvation. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 40-43.

In *M. pustulata*, total protein content of haemolymph in normally fed adults remains constant while the malpighian tubules exhibit an increase after brief feeding period. During starvation, the protein level drops in both the tissues.

868. **Mohamed Said, M. S.** 1979. The blister beetles (Meloidae) of Sri Lanka. —*Ceylon J. Sci.* (*Biol. Sci.*), **13** (1-2) : 203-252, 53 figs.

A numerical comparison of the meloid fauna of Sri Lanka and India, zonal distribution of Sri Lankan Meloidae and seasonal distribution of the genus *Mylabris* in Sri Lanka are discussed and taxonomy of the family is also given here.

869. **Mukherjee, A. K.** and **Sengupta, T.** 1979. On the coleopterous subfamily Languriinae from India. —*Rec. zool. Surv. India*, **75** (1-4) : 327-338.

The paper deals with twentyfour species of the family Languriidae from different parts of India.

870. **Murthy, K. S.** and **Ahmed, M. A.** 1979. Effect of some chemical characters and their relationship with the number of adults of rice weevil, *Sitophilus oryzae* emerged from different sorghum varieties. —*Andhra agric. J.*, **25** (3 & 4) [1978] : 90-94.

871. **Murugesan, S., Parameswaran, S.** and **Balasubramanian, M.** 1979. Field evaluation of some insecticidal treatments for control of cotton stem weevil, *Pempherulus affinis* (Fst.). —*Entomon*, **4** (1) : 41-44.

Field experiments were conducted on the control of cotton stem weevil, *P. affinis* with MCU. 5 cotton using granular insecticides and spray formulation insecticides. The results revealed

that a single application of any one of the granular insecticides one week after sowing around the plants or spraying four times on 15th, 30th, 45th and 60th day of sowing was effective in minimising the stem weevil infestation.

872. **Naik, L. K., Devaiah, M. C.** and **Govindan, R.** 1979. Parasitization of redgram bud weevil, *Ceuthorrhynchus asperulus* Faust by *Diaparsis* sp. (Hymenoptera : Ichneumonidae). —*Curr. Res. mon. Newsl.*, **8** (12) : 214-215.

873. **Nasiruddin, M.** and **Islam, M. A.** 1979. *Verania discolor* Fabricius (Coleoptera : Coccinellidae) —an effective predator on different species of aphids. —*Bangladesh J. Zool.*, **7** (1) : 69-71.

874. **Pajni, H. R.** and **Bansal, R. K.** 1979. First report on the Chrysomelid fauna of Chandigarh. —*Res. Bull. Punjab Univ.*, **28** (1-2) [1977] : 55-59.

60 species of family Chrysomelidae, belonging to 9 subfamilies and 39 genera, were collected from Chandigarh during July 1972 to June 1973 and studied.

875. **Pajni, H. R.** and **Bhateja, B. R.**, 1979. Second report on the Curculionid fauna of Chandigarh (Coleoptera). —*Res. Bull. Panjab Univ.*, **27** (1 & 2) [1976] : 125-127.

876. **Pajni, H. R.** and **Jabbal, A.** 1979. Induction of sterility in *Zabrotes subfasciatus* (Boh.) (Bruchidae : Coleoptera) by the use of gamma radiation. —*Curr. Sci.*, **48** (13) : 604-606.

877. **Pajni, H. R., Jit, I.** and **Prem Lata** 1979. A report on Tenebrionidae (Coleoptera) of Chandigarh.—*Res. Bull. Panjab Univ.*, **27** (1-2) [1976] : 123-124.

878. **Pajni, H. R.** and **Jit, S.** 1979. Some observations on the biology of *Callosobruchus analis* (Fabr.) (Bruchidae : Coleoptera). —*Res. Bull. Panjab Univ.*, **27** (3 & 4) [1976] : 142-146.

The present report embodies detailed observations on the biology of *C. analis* a serious pest of stored pulses in northern India.

879. **Pajni, H. R.** and **Jit, S.** 1979. Some observations on the oviposition of *Callosobruchus analis* (F.) (Bruchidae : Coleoptera). —*Res. Bull. Panjab. Univ.*, **28** (1-2) [1977] : 93-98.

Observations made on the oviposition of *C. analis* reveal that the seeds selected by the insect for egg-laying in order of preference were *Phaseolus lunatus*, *P. mungo*, *Vigna sinensis* etc.

880. **Pajni, H. R.** and **Singal, S. K.** 1979. Third report on the Curculionid fauna of Chandigarh (Coleoptera). —*Res. Bull. Panjab Univ.*, **28** (1-2) : 107-109.

The present report includes 59 addl. species, which are referable to 3 families, 21 subfamilies and 37 genera.

881. **Pajni, H. R., Singal, S. K.** and **Bhateja, B. R.** 1979. A study of female genitalia in the families Curculionidae, Brentidae and Attelabidae (Coleoptera : Curculionoidea). —*Res. Bull. Panjab Univ.*, **28** (1-2) [1977] : 69-83.

The present report includes observations on the structure of the female genitalia in 79 species of Curculionoidea referable to families Curculionidae, Brentidae and Attelabidae.

882. **Pandey, G. P., Srivastava, J. L.** and **Varma, B. K.** 1979. Differences in resistance to malathion in *Sitophilus oryzae* Linn. and *Tribolium castaneum* (Herbst) occurring in different regions in India. —*Indian J. agric. Sci.*, **49** (10) : 810-812.

An investigation was taken up to assess the degree of resistance of *Sitophilus oryzae* Linn. and *Tribolium castaneum* (Herbst) collected from different parts of India against malathion, the recommended insecticide for treatment of godowns.

883. **Pandit, N. C., Som, D.** and **Chatterji, S. M.** 1979. *Beauveria bassiana* (Bals.) Vuill., as a pathogen of *Nisotra orbiculata* (Mots.) infesting mesta, *Hibiscus cannabinus* L. —*J. ent. Res.*, **3** (1) : 111-113.

884. **Pillai, G. B.** 1979. Pest control in cashew. —*Indian Fmg.*, **28** (12) : 25, 27 & 28.

In India, cashew is now known to be infested by more than 60 species of insects during different stages of its growth and development.

885. **Raghunath, T. A. V. S.** 1979. *Commelina* sp. an alternate host for *Raphidopalpa foveicollis* (Lucas) (Gelerucidae : Coleoptera). —*Curr. Res. mon. Newsl.*, **8** (6) : 97.

886. **Rajendran, R.** and **Ramalingam, N.** 1979. Studies on the neurosecretory cells in the brain of the adult female *Mylabris balteata* Pallas (Coleoptera-Polyphaga). —*Curr. Sci.*, **48** (23) : 1023-1025.

The paper deals with the distribution and morphology of the neurosecretory cells in the brain of the adult female, *M. balteata*.

887. **Ram Kishore, Saxena, A. P.** and **Singh, V.** 1979. New record of a weevil on potato in India. —*J. Indian Pot. Ass.*, **6** (2) : 133.

888. **Ray, A.** 1979. Autoradiographic studies on RNA synthesis in trophocytes and germinal vesicle of *Menochilus sexmaculatus* F. (Coleoptera, Coccinellidae). —*Entomon*, **4** (1) : 1-5.

Autoradiographic studies of RNA synthesis in trophocytes and germinal vesicle of *M. sexmaculatus* suggest that there are two clear sources of RNA which are utilised during the euplasmic growth of oocytes—one from the nurse cells and other from the germinal vesicle.

889. **Roy, A. K.** and **Pujari, K. C.** 1979. Infection of banana leaf beetle by *Beauveria bassiana*. —*Curr. Sci.*, **48** (3) : 115-116.

During April-May 1977, a large number of banana leaf beetle infesting banana in the horticultural orchard, Assam, were found to be infected by a white muscardine fungus causing death of the pest.

890. **Roy, P.** and **Jana, A. K.** 1979. Bioassay of relative toxicity of some —organophorus insecticides against adults of *Tribolium castaneum*. —*Indian J. Pl. Prot.*, **7** (1) : 102-103.

891. **Saha, G. N.** 1979. Revision of Indian blister beetles (Coleoptera : Meloidae : Meloinae). —*Rec. zool. Surv. India*, **74** (1) : 1-146.

892. **Saha, S. K.** and **Sen Gupta, T.** 1979. Aspects of intraspecific variation in *Chlaenius bimaculatus* Dejean (Carabidae : Chlaeniini : Coleoptera). —*Proc. Symp. Intraspecific Var.* (*Spec. Publ. No. 1*) *zool. Surv. India*, Calcutta, 1977 : 27-40.

Here a redescription of the species with detailed observation on distribution is given.

893. **Saha, S. K.** and **Sengupta, T.** 1979. On a collection of Indian *Chlaenius* Bonelli (Chlaenuae : Carabidae : Coleoptera) in Museum d' Historie naturelle de Geneve with description of three new species. —*Revue suisse Zool.*, **86** (2) : 419-425.

894. **Santhakumari, K., Nalinakumari, T.** and **Nair, M. R. G. K.** 1979. New record of a pest of brinjal. —*Entomon*, **4** (2) : 215-216.

895. **Sengupta, T.** 1979. On the genus *Mimemodes* (Rhizophagidae : Coleoptera) with description of new species from India. —*J. zool. Soc. India*, **28** (1-2) [1976] : 65-73.

896. **Sengupta, T.** and **Mukherjee, A. K.** 1979. On the Coleopterous subfamily Languriinae from India. —*Rec. zool. Surv. India*, **75** (1-4) : 327-328.

897. **Shantappa, P. B., Viswanath, B. A.** and **Sulladmath, V. V.** 1979. Red palm weevil, *Rhynchophorus ferrugineus* from the inland plantations of Karnataka. —*Curr. Res. mon. Newsl.*, **8** (2) : 32.

898. **Sharma, J. P., Singh, O. P.** and **Singh, K.** 1979. Oviposition and development of *Sitophilus oryzae* (Linn.) in relation to the grain of various high yielding varieties of paddy and the environmental conditions. —*Indian J. Ecol.*, **6** (1) : 122-133.

Studies on the oviposition and development of *S. oryzae* on ten varieties of paddy were carried out at various combinations of temperatures (180°, 25° and 30°C) and relative humidities 45, 60, 75, 80 and 90 per cent.

899. **Sharma, K. C.** 1979. Notes on some predaceous insects, preying on the apple wooly aphid, *Eriosoma lanigerum* (HSM) in Kathmandu valley. —*J. nat. Hist. Mus.*, **3** (1-4) : 31-34.

The present paper enlists ten difierent types of coccinellid beetles and one Neuroptera from wooly aphid. Ranges of other aphid hosts are also given.

900. **Shirgur, G. A.** 1979. Observations on wettability and cuticle permeability of some of the freshwater predatory beetles, bugs and odonatan naiads for eradication from fish nurseries, using a non-ionic surfactant, Hyoxid 1011.— *J. Anim. Morph. Physiol.*, **26** (1 & 2) : 1-9.

Trial of Hyoxid 1011 on different species of 3 groups of insects was investigated.

901. **Shukla, G. S.** and **Upadhyay, V. B.** 1979. Observations on presence of X —Glucosides in *Catharsius molossus* (L.) (Coleoptera : Scarabaeidae). — *Comp. Physiol. Ecol.*, **4** (1) : 41-42.

Paper deals with the presence of X—glucosidases in the gut of *C. molussus*.

902. **Shukla, G. S., Verma, O. P.** and **Upadhyay, V. B.** 1979. Record of *Dactylosternum hydrophilioides* (Macleay) (Coleoptera : Hydrophilidae) from Gorakhpur, India. —*Indian J. Ent.*, **41** (4) : 398.

903. **Sidhu, A. S., Dhawan, A. K.** and **Singh, K.** 1979. Testing of new chemical for control of cotton pests. —*Pesticides*, **13** (11) : 7-11.

Experiments were conducted for two years with the recommended and new insecticides for the control of cotton pests during 1975-76 and 1976-77.

904. **Sidhu, D. S.** and **Kang, H. K.** 1979. Metabolic reserves and pool size of free amino acids during metamorphosis of *Callosobruchus maculatus* (F.) (Coleoptera : Bruchidae). —*Entomon*, **4** (1) : 57-59.

At pupation of *C. maculatus* (F.) 20 mg/mg and 25 ug/mg of the fresh body weight is composed of total lipids (TL) and glycogen respectively. During mid and late pupal development, TL decline but glycogen remains constant. On emergence both glycogen and free amino acid show a slight increase, whereas TL further decline.

905. **Singh, A. R., Raodeo, A. K.** and **Borikar, P. S.** 1979. Behaviour of sorghum lines against *Sitophilus oryzae* Linn.—*Res. Bull. Marathwada agric. Univ.*, **3** (8) : 106-107.

906. **Singh, D. S., Dhingra, S., Saxena, V. S., Srivastava, V. S., Sircar, P.** and **Lal, R.** 1979. Relative resistance of aphid predator, *Coccinella septempunctata* Linn. to insecticides. —*Indian J. Ent.*, **41** (2) : 149-154.

907. **Singh, J. P.** 1979. The development of gonads in the early embryos of *Coccinella septempunctata* L. (Coleoptera : Coccinellidae). —*Agra Univ. J. Res.*, **27** (2) [1978] : 85-90.

The present paper is an attempt to describe in detail the germ cells in *C. septempunctata* L. from the preblastodermic stage to the formation of the gonads prior to hatching.

908. **Singh, J. P.** and **Garg, R.** 1979. Oenocytes and their fate during the post-embryonic stages of *Epilachna vigintioctopunctata* Fabr. (Coleoptera : Coccinellidae). —*Entomon*, **4** (3) : 237-243.

There are two generations of oenocytes *E. vigintioctopunctata* Fabr., viz., the large larval oenocytes and small imaginal oenocytes, both in the vicinity of thoracic and abdominal spiracles but also found scattered among the fat cells.

909. **Singh, J. P., Ambika** and **Mann, J. S.** 1979. On the reproductive system of *Coccinella septumpunctata* —I (Coccinellidae : Coleoptera). —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 243-251.

An attempt is made to work out the reproductive system of a coccinellid, the lady bird beetle, *C. septempunctata* L. —an economically important insect.

910. **Singh, S., Odak, S. C.** and **Singh, Z.** 1979. Persistent toxicity of different insecticides on gram to the pulse beetle *Callosobruchus chinensis* Linn. —*Pesticides*, **13** (2) : 29-31.

911. **Singh, T.** 1979. A key to the North-West Indian Bruchidae (Col.). —*Entomologist's mon. Mag.*, **113** (1360-63) [1977] : 219-231.

39 species have been collected from North-West India, belonging to the nine genera. The adult morphology was studied and 36 external morphological characters were selected including the genitalia for the keys of subfamilies, genera and species.

912. **Singh, T., Kaur, I.** and **Saini, M. S.** 1979. Biology of *Zabrotes subfasciatus* (Boh.) (Bruchidae : Coleoptera). —*Entomon*, **4** (2) : 201-203.

913. **Subbaratnam, G. V.** and **Perraju, A.** 1979. Chemical control of *Dicladispa armigera* Oliver in rice nursery. —*Andhra agric. J.*, **25** (1 & 2) [1978] : 61-62.

914. **Taneja, V. K., Chawla, D. S.** and **George, M.** 1979. A note on the rate of egg production in *Tribolium castaneum*. —*Indian J. Anim. Sci.*, **49** (7) : 594-596.

The rate of egg production in virgin and mated females, and the role of males, if any, on the rate of egg production were studied.

915. **Vats, L. K.** 1979. Alimentary canal in Bruchid larvae (Bruchidae : Coleoptera). —*Res. Bull. Panjab Univ.*, **27** (1-2) [1976] : 103-106.

916. **Vats, L. K.** 1979. On the larvae of *Conicobruchus* Decelle (Bruchidae : Coleoptera). —*Res. Bull. Panjab Univ.*, **27** (1-2) [1976] : 111-113.

917. **Verma, S. K.** 1979. Field control of *Rhinyptia* spp. (Coleoptera : Rutelidae) adults using fentin compounds. —*Ann. Arid Zone*, **18** (4) : 274-275.

918. **Yadav, J.S., Pillai, R.K.** and **Bhardwaj, S. C.** 1979. Chromosome studies on two species of family Meloidae (Coleoptera). —*Res. Bull. Punjab Univ.*, **28** (1-2) [1977] : 35-38.
Cytological details have been studied in *Mylabris pustulata* and *M. phalerata*. The diploid number of chromosomes is 22, with the X yp male sex chromosomes mechanism typical of most Coleoptera.

919. **Yadav, J. S.** and **Pillai, R. K.** 1979. Chromosome studies of six species of Coccinellidae (Coleoptera : Insecta) from Haryana (India). —*The Nucleus*, **22** (2) : 104-109.
Structural configurations and behaviour pattern of mitotic and meiotic chromosomes in six species of Coccinellidae belonging to six genera and two subfamilies Epilachninae and Coccinellinae have been investigated.

920. **Yadav, T. D.** 1979. Fate of malathion residues on seven pulse seeds. —*Indian J. Ent.*, **41** (2) : 126-133.

(xiii) Strepsiptera

921. **Chaudhuri, P. K.** and **Dasgupta, S. K.** 1979. New species of *Halictophagus* and *Triozacera* [Strepsiptera from West Bengal, India]. —*Oriental Ins.*, **13** (1-2) : 133-137.
Two new species of Strepsiptera, viz., *Halicotophagus orientalis*, (Halicotophagidae) and *Triozocera pugiopennis* (Menegeidae) are described from West Bengal, India.

(xiv) Siphonaptera

922. **Bai, M. K.,** and **Prasad, R. S.** 1979. Role of dietary components in vitellogenesis in the rat fleas *Xenopsylla cheopis* and *X. astia* (Siphonaptera).—*Ent. exp. appl.*, **26** : 80-84.

923. **Prasad, R. S.** 1979. A comparative study of the digestive enzymes of two vectors of plague. —*J. Com. Dis.*, **11** (2) : 94-96.

924. **Vasanthakumari, S.** and **Prasad, R. S.** 1979. Digestive enzymes in rat fleas. —*Entomologist's mon. Mag.*, **114** (1372-1375) [1978] : 199-200.

(xv) Diptera

925. **Alfred, J. R. B.** and **Michael, R. G.** 1979. Biosystematics and ecology of Indian Chironomidae.—*Bull. Meghalaya Sci. Soc.*, **3** (1-4) : 5-12.

926. **Awasthi, M. D., Handa, S. K., Dixit, A. K.** and **Bhattacharjee, N. S.** 1979. Dissipation of carbaryl residues in/on soybean crop. —*Indian J. Ent.*, **41** (2) : 181-183.

927. **Balaraman, K., Bheemarao, U. S.** and **Rajagopalan, P. K.** 1979. Isolation of *Metarrhizium anisoliae*, *Beauveria tenella* and *Fusarium oxysporum* (Deuteromycetes) and their pathogenecity to *Culex fatigans* and *Anopheles stephensi*.—*Indian J. med. Res.*, **70** (11) : 718-722.

928. **Banerjee, K.** *et. al.* 1979. Isolation of Japanese encephalitis virus from mosquitoes collected in Bankura district (W. Bengal) during October 1974 to December 1975. —*Indian J. med. Res.*, **69** : 201-205.

929. **Batra, C. P., Reuben, R.** and **Das, P. K.** 1979. Day-time resting places of *Anopheles stephensi* Liston in Salem (Tamil Nadu). —*Indian J. med. Res.*, **69** (4) : 583-588.

930. **Beri, S. K.** 1979. Larval morphology of two species of Agromyzidae (Diptera). —*Indian J. For.*, **2** (4) : 298-300.

The paper deals with the descriptions of immature stages of *Cerodontha (Poemyza) cornigera* (de Meij.) and *Carinagromyza heringi* Sasakawa. Notes on the biology are also included.

931. **Borikar, P. S.** and **Wadnerkar, D. W.** 1979. Losses to tur, *Cajanus cajan* Linn. by *Agromyza obtusa* Malloch. —*Sci. Cult.*, **45** (9) : 366-367.

932. **Chandrahas, R. K.** and **Rajagopalan, P. K.** 1979. Mosquito breeding and the natural parasitism of larvae by fungus, *Coelomomyces* and a mermithid nematode *Romanomermis* in paddy fields in Pondicherry. —*Indian J. med. Res.*, **69** (1) : 63-70.

933. **Chandramohan, N., Uthamasamy, S.** and **Kumaraswami, T.** 1979. Insecticidal control of the rice gall midge *Orseolia oryzae* (Wood-Mason) and the rice leaf folder *Cnaphalocrocis medinalis* (Guenee). —*Pesticides*, **13** (3) : 20.

934. **Das, P. K.** 1979. Effect of pesticidal application on the rice gall midge parasite, *Platygaster oryzae*. —*Oryza*, **15** (1) [1978] : 102-104.

The toxicity of various insecticide treatments to *P. oryzae* and their effects have been observed.

935. **Das, P. K., Reuben, R.** and **Batra, C. P.** 1979. Urban malaria and its vectors in Salem (Tamil Nadu) : natural and induced infection with human plasmodia in mosquitoes. —*Indian J. med. Res.*, **69** (March) : 403-411.

In Salem, Tamil Nadu, India, *Anopheles stephensi* was the only mosquito found to be naturally infected with *Plasmodium*.

936. **Das, S. K., Roy, P.** and **Dasgupta, B.** 1979. The diurnal activity of *Chrysomya rufifacies* Macquart (Diptera : Calliphoridae) in Calcutta, India. —*Oriental. Ins.*, **13** (1-2) : 149-154.

The diurnal activity of *Chrysomya rufifacies* Macquart was studied with fish baited in Calcutta. This species showed a bimodal and unimodal diel periodicity curve in summer and winter respectively. Highest period of activity was recorded at high temperature and low relative humidity. Light intensity plays an important role in the diel activity. Males were more heliophilic and less thermophilic than the females.

937. **Datta, M.** 1979. A new species of horsefly (Diptera : Tabanidae) from Bhutan. —*Bull. zool. Surv. India*, **2** (1) : 75-77.

Hybomitra bhutanensis, sp. nov. from Bhutan is described and illustrated.

938. **Datta, M.** and **Dasgupta, B.** 1978. Studies on the sex ratio of five species of black flies (Diptera : Simuliidae) from Darjeeling, West Bengal.—*Indian J. Ent.*, **38** (4) : 329-332.

939. **Datta, M.** and **Dasgupta, B.** 1978. Host preference of black flies (Diptera : Simuliidae) of Darjeeling and West Bengal. —*Proc. zool. Soc. Calcutta*, **28** : 147-153.

940. **Dumbre, R. B.** and **Sankpal, V.B.** 1979. Reaction of some rice cultures to gall-midge *Orseolia oryzae* (Wood-Mason) Mani (Diptera : Cecidomyiidae). —*Pesticides*, **13** (5) : 35-36.

Eleven rice cultures were tested for their reaction to gall midge using randomized block design under field conditions during 1976-1977.

941. **Dwivedi, Y. N.** 1979. Description of two new species of subgenus *Drosophila* (Drosophilidae : Diptera) from Darjeeling, India.—*Proc. Indian Acad. Sci.*, **88**B(1) : 299-304.

Two new species, *D. guptai* and *D. ramamensis*, belonging to the *histrio* group are described from Darjeeling. Their toxonomic relationships, based on the morphology and male genital structures, are established.

942. **Dwivedi, Y. N.** and **Gupta, J. P.** 1979. Three new drosophilids (Diptera : Drosophilidae) from north east India. —*Entomon*, **4** (2) : 183-187.

Three new species representing three different genera of the family Drosophilidae are described from Ramam, Darjeeling and Shillong.

943. **Dwivedi, Y. N., Singh, B. K.** and **Gupta, J. P.** 1979. Further addition to the Indian fauna of Drosophilidae. —*Oriental Ins.*, **13** (1-2) : 61-74.

Taxonomic account of seven species of Drosophilidae is given. Three of them are described as new, while the remaining four species are recorded for the first time from India. Indian species of Drosophilidae excluding the genus *Drosophila* are listed and key to genera and species are provided.....

944. **Dwivedy, A. K.** 1979. Effect of altered phospholipid head groups on the distribution of cholesterol in the housefly (*Musca domestica*) larvae. —*Insect Biochem.*, **9** (3) : 273-278.

945. **Evenhuis, N. L.** 1979. New genus of Anthracinae (Diptera : Bombyliidae) from India. —*Pacif. Insects.*, **20** (4) : 362-364.

946. **Garg, A. K., Sriharan, S.** and **Sethi, G. R.** 1979. Comparative suitability of tinda (*Squash melon*) and pumpkin as larval diet for the development of melonfly, *Dacus cucurbitae* Coquillett (Diptera : Trypetidae). —*Pesticides*, **13** (2) : 45-48.

Food preference of melonfly for oviposition and development of different stages of fruitfly in tinda and pumpkin have been observed by the authors.

947. **Gawande, R. B., Bhimanwar, R. M.** and **Borle, M. N.** 1979. Relative efficacy of some organosynthetic insecticides against important pests of hybrid sorghum variety CSH 1. —*Indian J. Ent.*, **41** (2) : 139-142.

948. **Geethabai, M.** *et al.* 1979. Host parasite relationship of *Nosema algerae*, a parasite of mosquitoes. —*Indian J. med. Res.*, **70** (10) : 620-624.

949. **Gowda, G.** and **Ramaiah, E.** 1979. Incidence of *Dacus dorsalis* Hendel (Diptera : Tephritidae) on cashew (*Anacardium occidentale* L.).—*Curr. Res. mon. Newsl.*, **8** (6) : 98-99.

950. **Guha, D. K.** and **Chaudhuri, P. K.** 1979. A new species of genus *Cryptochironomus* Kieffer (Chironomidae, Diptera) from India. —*Bull. zool. Surv. India.*, **2** (1) : 95-97.

Gupta, H. C. L., Kushwaha, K. S. and **Kavaolia, V. S.** 1979. Estimation of aldrin/dieldrin by bio-assay and spectrophotometric methods. A review of methodology. —*Pesticides*, **13** (7) : 43-45.

Gupta, J. N. and **Verma, A. N.** 1979. Relative efficacy of insecticides, as contact poisons, to the adults of melon fruitfly, *Dacus cucurbitae* Coquillet. —*Indian J. Ent.*, **41** (2) : 117-120.

Gupta, J. P. and **Singh, B. K.** 1979. Two new species of *Drosophila* (Diptera : Drosophilidae) from Shillong, Meghalaya. —*Entomon*, **4** (2) : 167-172.

An account is given of seven species representing the subgenus *Drosophila*, out of which two are described as new while *D. annulipes* and *D. fuscicostata* are recorded for the first time from India.

Hati, A. K., Tandon, N., Chatterjee, B. D. and **De, P. K.** 1979. Isolation of *Vibrio parahaemolyticus* from *Musca domestica vicina* and *Chrysomyia megacephala* in Calcutta. —*Rec. zool. Surv. India*, **75** (1-4) : 339-341.

Husainy, Z. H. 1979. Observations on *Anopheles* (*Cellia*) *acenitus* Donitz, 1902 (Diptera : Culicidae) in Bastar district, Madhya Pradesh.—*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 304-311.

Jadhav, R. B. and **Jadhav, L. D.** 1979. Studies on the relative susceptibility of hybrids and varieties to shootfly, (*Atherigona soccata* Rond.). —*J. Maharashtra agric. Univ.*, **4** (1) : 44-49.

Field screening of 45 and 27 entries in Kharif and Rabi seasons of 1976-77 against *A. soccata* was undertaken and studied.

957. **Jagtap, A. B., Awate, B. G.** and **Naik, L. M.** 1979. Chemical control of stem fly *Ophiomyia phaseoli* Tryon (Agromyzidae—Diptera) infesting French bean (*Phaseolus vulgaris* Linn.) in Maharashtra. —*J. Maharashtra agric. Univ.*, **4** (1) : 83-84.

958. **Jha, A. P., Mishra, D. N.** and **Pandey, B. N.** 1979. Alcohol dehydrogenase polymorphism in *Drosophila ananassae*. —*Curr. Sci.*, **48** (16) : 742-743.

The present work reports on the ADH isoenzymes in the adult flies of *Drosophila ananassae* with alteration of the substrates.

959. **Jha, A. P., Misra, D. N.** and **Pandey, B. N.** 1979. Alcohol dehydrogenase isoenzymes in *Drosophila* species hybrids. —*Indian J. exp. Biol.*, **17** (7) : 647-649.

960. **Joseph, A. N. T.** 1979. The Brunetti types of Tipulidae (Diptera) in the collection of the Zoological Survey of India. Part XIII. The genera *Molophilus*, *Styringomyia* and *Toxorhina*. —*Oriental Ins.*, **13** (1-2) : 29-39.

Eight species of eriopterine craneflies described by Brunetti under the genera *Molophilus* Curtis, *Erioptera* Meigen, *Styringomyia* Loew, *Conithorax* Brunetti and *Toxorhina* Loew are re-examined and illustrated wherever possible, their affinities discussed and correct generic positions assigned. It is found that *Molophilus* (*Molophilus*) *kempi* Alexander is a synonym of *M.* (*M.*) *assamensis* Brunetti.

961. **Joseph, A. N. T.** and **Parui, P.** 1979. New and little known Indian Asilidae (Diptera) III. Key to Indian *Clephydroneura* Becker with description of eight new species. —*Ent. scand.*, **10** (1) [1978] : 33-41.

962. **Joseph, A. N. T.** and **Parui, P.** 1979. A new species of *Pseudomerodontina* Joseph and Parui (Dipt., Asilidae) from South India. —*Entomologist's mon. Mag.*, **114** (1368-1371) [1978] : 103-105.

The genus *Pseudomerodontina* 1976 was erected by the authors of *P. jayaraji* from South India.

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964. **Joseph, A. N. T.** and **Parui, P.** 1979. Intraspecific diversity in *Clephydroneura brevipennis* Oldroyd, *Episyrphus balteatus* (De Geer) and *Orthellia coerulea* (Widemann) (Diptera). —*Proc. Symp. Intraspecific Var. (Spec. Publ. No. 1) zool. Surv. India, Calcutta 1977* : 13-18.

On of the most difficult and at the same time equally interesting problems of taxonomy is intraspecific variations or plasticity of species. In this paper intraspecific variation exibited by the three species of flies belonging to three different families are dealt with.

965. **Joshi, G. C., Bhatnagar, V. N., Chakravarty, R. K.** and **Wattal, B. L.** 1979. Susceptibility of *Culex pipiens fatigans* larvae to Tempeplos (abate). —*J. Com. Dis.*, **11** (1) : 44-45.

966. **Joshi, G. C., Wattal, B. L.** and **Bhatnagar, V. N.** 1979. Efficacy of larvivorous fish *Poecilia reticulatus* (Peters) for the control of *Culex pipiens fatigans* Wied in a rural area of Delhi. —*J. Com. Dis.*, **10** (4) [1978] : 238-243.

967. **Jotwani, M. G., Kishore, P., Sukhani, T. R.** and **Srivastava, K. P.** 1979. Relative efficacy of carbofuran seed treatment and granular formulation of systemic insecticides for the control of sorghum shootfly. —*Pesticides*, **13** (2) : 40-42.

968. **Kapoor, V. C., Agarwal, M. L.** and **Grewal, J. S.** 1979. Three new records of fruit flies from India along with a note on the wing variation of *Sphenella sinensis* Schiner (Diptera : Tephritidae). —*J. nat. Hist. Mus.*, **3** (1-4) : 147-148.

969. **Kapoor, V. C., Agarwal, M. L.** and **Grewal, J. S.** 1977. Zoogeography of Indian Tephritidae (Diptera). —*Oriental Ins.*, **11** (4) : 605-621.

Tephritidae, commonly called fruit flies, are of great economic importance since the majority of them are serious pests of fruits, vegetables and ornamental plants. Only 139 species belonging to 58 genera, 11 tribes and 4 sub families have so far been reported from India in comparison to over 4000 species from the world.

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Twelve species of fruit flies are reported from Nepal including nine records and one new species.

971. **Kaul, H. N.** and **Geevarghese, G.** 1979. Comparative study of ovitrap and single larva survey methods for the surveillance of *Aedes aegypti*. —*Indian J. med. Res.*, **69** (1) : 71-74.

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This paper describes the inheritance of another eye colour mutant "rosy-eye" (Wro), an allele of "white-eye" (W), in *A. stephensi*.

76. **Khole, V.** 1979. State of hydration in post-embryonic stages of some blowflies (Calliphoridae : Diptera). —*Curr. Sci.*, **48** (6) : 273-274.

The functional potentialities of species, specific water in relation to developmental rates and physiological processes have been dealt with.

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78. **Khole, V.** 1979. Studies on metabolism in relation to post embryonic development of some calliphorid flies (Diptera : Insecta). —*Entomon*, **4** (1) : 61-63.

The close relation between the size of the species and their corresponding duration of growth and differentiation has been noticed in some selected flies. Metabolic rates per unit weight were found to be much higher in all metamorphic stages of smaller species.

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980. **Krishnamurthy, N. B.** and **Vijayan, V. A.** 1979. Effect of 2, 4-Dichloro-1-Naphthol on the rate of development and viability in *Drosophila melanogaster*. —*Entomon*, **4** (2) : 105-109.

The present findings have shown that this polycyclic hydrocarbon not only prolongs the rate of development but also interferes with viability.

981. **Krishnamurthy, N. B., Vijayan, V. A.** and **Vasudev, V.** 1979. Preliminary observations on the influence of age and male sex on fecundity in *Drosophila melanogaster*. —*Curr. Sci.*, **48** (13) : 604.

982. **Kulshrestha, A. K.** 1979. First record of the genus *Pentapedilum* Kieffer from India (Diptera : Chironomidae). —*Oriental Ins.*, **13** (3-4) : 303-306.

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The mouth parts of *S. hearseiana* are typically of the muscoid type and divisible into basiproboscis, mediproboscis and distiproboscis. The basiproboscis contains internally the cibarial

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pump and salivary pump whereas the mediproboscis contains the prepharyngeal food canal and the boat-shaped hypopharynx with the opening of the salivary duct at its distal end.

984. **Kumar, Y.** 1979. External morphology of the head capsule of *Sphyracephala hearseiana* Westwood (Diopsidae : Diptera). —*Entomon*, **4** (2) : 143-148.

The present paper deals with the detailed morphology of the head capsule of *S. hearseiana* Westwood.

985. **Lakhotia, S. C.** 1979. Bands and condensed chromatin as sites of transcription in polytene chromosomes of *Drosophila*. —*Indian J. exp. Biol.*, **17** (3) : 239-248.

The question of involvement of DNA of bands and other condensed chromatin masses in transcription in polytene chromosomes of salivary glands of *Drosophila* larvae has been analysed by electron microscopy.

986. **Mathur, K.K., Bhatnagar, V.N., Wattal, B. L.** and **Sharma, R. S.** 1979. Laboratory and field evaluation of phenthoate as a larvicide against *Anopheles stephensi* and *Anopheles culicifacies*. —*J. Com. Dis.*, **10** (3) [1978] : 151-156.

Two formulations of phenthoate viz. 50% emulsion concentrate and 5% granules were evaluated as larvicides against *A. stephensi* in laboratory and *A. culicifacies* under field conditions.

987. **Mishra, R. K.** 1979. Bionomics of apholate resistant and normal strain of *Musca domestica*. —*Z. angew. Ent.*, **88** (2) : 222-225.

988. **Mittal, O. P.** and **Dev, V.** 1979. A photomap of the salivary gland chromosomes of *Anopheles stephensi* Liston (Culicidae : Diptera). —*Cytobios*, **19** (75/76) [1977] : 151-157.

A photomap of the banding patterns of the salivary gland chromosomes of *A. stephensi* List., that is the first of its kind, was prepared. The salivary chromosome complement consists of 5 arms, the shortest of which represents the telocentric X-chromosome, and the remaining 4 the autosomal arms. A comparision was made of the banding pattern of this species with other species of the subgenus *Cellia*.

989. **Mogal, B. H., Mali, A. R., Rajput, S. G.** and **Pawar, K. L.** 1979. Emergence of sroghum midge (*Contarinia sorghicola* Coq.) from diapausing larvae. —*J. Maharashtra agric. Univ.*, **4** (3) : 323.

990. **Mogal, B. H., Mali, A. R., Rajput, S. G.** and **Pawar, K. L.** 1979. Laboratory studies on alternate hosts for sorghum midge (*Contarinia sorghicola* Coq.). —*J. Maharashtra agric. Univ.*, **4** (3) : 324.

991. **Mohiuddin, S., Qureshi, S. A., Parveen, R.** and **Butt, M. A.** 1979. Laboratory evaluation of substituted aryl isothiocyanates against *Aedes aegypti* (L.). —*Pakist. J. scient. ind. Res.*, **22** (4) : 190-193.

992. **Mote, U. N.** 1979. Effect of few insecticides alone and in combination with agricultural spray oil on the control of whitefly (*Bemisia tabaci* Gennadius) population and incidence of leaf curl virus. —*Indian J. Pl. Prot.*, **6** (1) [1978] : 19-22.

993. **Mukherjee, A. S.** and **Mandal, S. K.** 1979. Characterisation of functional mutations in *Drosophila* : Role of RNA, protein and repair synthesis. —*Indian J. exp. Biol.*, **17** (12) : 1374-1376.

994. **Nandi, B. C.** 1979. Flesh flies (Diptera : Sarcophagidae) in the Agricultural Research Institute, New Delhi. —*Oriental Ins.*, **13** (1-2) : 189-200.

995. **Nandi, B. C.** 1979. Genus *Iranihindia* Rohdendorf from India with descriptions of two new species (Diptera : Sarcophagidae). —*Oriental Ins.*, **13** (1-2) : 201-217.

996. **Nayar, J. L.** 1977. Abdominal teratology in *Eristalis tenax* (Linnaeus) from Libya and India (Diptera : Syrphidae). —*Oriental Ins.*, **11** (4) : 639-642.

Extreme variations in the abdominal pale markings in 9 specimens of *Eristalis tenax* (Linn.) from Libya and India are discussed.

997. **Neal, L. E.** 1979. A new genus of Anthracinae (Diptera : Bombyliidae) from India. —*Pacif. Insects*, **20** (4) : 362-364.

A new genus, *Meganthrax*, represented by the type-species, *Meganthrax bipunctatus*, is described and illustrated.

998. **Osmani, Z., Anees, I.** and **Sighamony, S.** 1979. Juvenile hormone like activity of methyl eugenol. —*Pesticides*, **13** (10) : 5-8.

The present paper shows that methyl eugenol (MEU) also is able to mimic JH activity. The most important chemicals are the substances which mimic insect juvenile hormones (JH) in inhibiting molting, metamorphosis, fertility, fecundity and embryonic development of insects.

999. **Pandya, A. P.** 1979. Phlebotomid sandflies of Surat, Gujarat State. —*Indian J. med. Res.*, **70** (12) : 957-959.

1000. **Pandya, A. P.** 1979. *Aedes aegypti* and *Aedes vittatus* in Surat city, Gujarat. II. Larval habitats. —*Indian J. Prev. social Med.*, **10** (3) : 119-122.

An intensive survey carried out from June 1972 to September 1975 to determine the nature and larval habitats and their role in the ecology of these species is reported.

1001. **Pandya, A. P.** 1979. *Aedes aegypti* and *Aedes vittatus* in Surat city, Gujarat. I. Distribution and density.—*Indian J. Prev. social Med.*, **10** (3) : 115-118.

The study revealed that the distribution of *A. aegypti* depends on nature of houses and water storage practises.

1002. **Pillai, K. B., Nair, N. R.** and **Thomas, M. J.** 1979. Tolerance of some rice varieties to whorl maggot damage. —*Agric. Res. J. Kerala*, **17** (2) : 297.

1003. **Pjotr Oosterbroek**, 1979. The western Palaearctic species of *Nephrotoma* Meigen, 1803 (Diptera, Tipulidae) Part 2. —*Beaufortia*, **28** (No. 346) : 57-111.

Part 2 of this study deals with the western Palaearctic species of the crocata group. *N. scalaris terminalis* was discussed from the materials collected from U. S. S. R., Mongolia, China, India, Pakistan, Afghanistan and Iran.

1004. **Prakash, H. S.** and **Reddy, G. S.** 1979. Developmental variability in the acid and alkaline phosphatase activities in *Drosophila rajasekari*. —*Indian J. exp. Biol.*, **17** (8) : 801-803.

By employing the technique of polyacrylamide gel electrophoresis the changing pattern of acid and alkaline phosphatases was studied in *D. rajasekari*.

1005. **Prakash, H. S.** and **Reddy, G. S.** 1979. A new species of the *Takahashii* subgroup of genus *Drosophila* (Diptera : Drosophilidae). —*Entomon*, **4** (1) : 73-76.

A new species *Drosophila jagri*, a member of the *Takahashi* subgroup of the *melanogaster* species group, collected from Western Ghats is described. The taxonomic status and relations are discussed.

1006. **Prakash, R.** and **Gill, K. S.** 1979. Genetics of esterase variation in six *Drosophila* species. —*Indian J. exp. Biol.*, **17** (11) : 1201-1203.

1007. **Prakash, R.** and **Gill, K. S.** 1979. Acid phosphatase isozyme patterns in *Drosophila* species. —*Indian J. exp. Biol.*, **17** (11) : 1245-1247.

1008. **Premchand, Sinha, M. P.** and **Kumar, A.** 1979. Nitrogen fertilizer reduces shoot fly incidence in sorghum. —*Sci. Cult.*, **45** (2) : 61-62.

1009. **Rai, P. S.** and **Vidyachandra, B.** 1979. Incidnece of rice gall midge [*Orseolia oryzae* (Wood-Mason)] in relation to date of planting. —*Curr. Res. mon. Newsl.*, **8** (4) : 65-66.

1010. **Rajagopalan, P. K., Chandrahas, R. K.** and **Panicker, K. N.** 1979. Mosquito collections in Pattukottal and adjacent localities in Thanjavur district (Tamil Nadu), with particular reference to *Anopheles culicifacies* Giles. —*Indian J. med. Res.*, **69** (4) : 589-597.

1011. **Rajagopalan, P. K., Menon, P. K. B.** and **Panicker, K. N.** 1979. An ecological appraisal of the mosquitogenic conditions and probable causes of the 1978 epidemic of 'Encephalitis' in Tirunelveli District, Tamil Nadu.—*J. Com. Dis.*, **10** (3) [1978] : 157-164.

An ecological and entomological survey was carried out in the district during an epidemic of Japanese encephalitis. A high mosquitogenic potential existed as a result of very heavy rains in 1977 resulting in increased water availability and wide spread breeding of several mosquito species, including *Culex tritaeniorhynchus*.

1012. **Rajamani, S., Natarajan, K., Mathur, K. C.** and **Chaturvedi, D. P.** 1979. Effective control of rice whorl maggot by seedling rootdip method. —*Pesticides*, **13** (1) : 34-35.

1013. **Rajasekarasetty, M. R., Gowda, L. S., Krishnamurthy, N. B.** and **Ranganath, H. A.** 1979. Population genetics of *Drosophila nasuta nasuta*, *Drosophila nasuta albomicana* and their hybrids. IV. Hybridization and adaptedness.—*Entomon*, **4** (4) : 319-325.

Two related measures of adaptedness, namely, productivity and population size have been estimated in the genetic system of *D. nasuta nasuta*, *D. n. albomicana* and their F_1 hybrids.

1014. **Rajasekarasetty, M. R., Ramesh, S. R.** and **Krishnamurthy, N. B.** 1979. Inversions in the natural populations of *Drosophila nasuta*. —*The Nucleus*, **22** (2) : 92-95.

The present investigations on chromosomal polymorphism in natural populations of *D. n. nasuta* from some of the unexploited areas of South India were undertaken to fill the gaps, if any, and to know whether flexible polymorphism coexists with heteroselection.

1015. **Rajugopal, R.** 1979. Role of *Anopheles balabacensis balabacensis* in the transmission of malaria in Assam. —*J. Com. Dis.*, **11** (2) : 71-74.

1015a. **Ramabrahmam, P.** and **Subrahmanyam, D.** 1979. Choline kinase of *Culex pipiens fatigans*. —*Insect Biochem.*, **9** (3) : 315-321.

Choline kinase was identified in homogenates of whole *C. quinquefasciatus* Say (*pipiens fatigans* Wied.), and some of the properties of the enzymes were studied.

1016. **Ranade, D. R.** 1979. Studies on the external metamorphosis of *Musca domestica nebulo* Fabr. (Diptera—Cyclorrhapha—Muscidae). —Part IV. Metamorphic changes in the abdominal region ; and the development of the genitalia. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 144-155.

The studies were undertaken to study how the abdominal region of the common housefly undergoes structural modifications during the period of metamorphosis.

1017. **Rathore, H. S.** and **Rama, S. V.** 1979. A note on the feeding ecology of *Chironomus* (Diptera) larvae in the river Kshipra, India. —*Bangladesh J. Zool.*, **7** (1) : 73-74.

1018. **Reisen, W. K.** and **Aslamkhan, M.** 1979. A release-recapture experiment with the malaria vector, *Anopheles stephensi* Liston, with observations on dispersal, survivorship, population size, gonotrophic rhythm and mating behaviour. —*Ann. trop. Med. Parasit.*, **73** (3) : 251-269.

1019. **Roy, R. G.** and **Samson, F.** 1979. Results of insecticide susceptibility tests with *Culex gelidus* in Bangalore City. —*Indian J. med. Res.*, **70** (11) : 715-717.

1020. **Roy, S.** and **Lakhotia, S. C.** 1979. Replication in *Drosophila* chromosomes : Part II —Unusual replicative behaviour of two puff sites in polytene nuclei of *Drosophila kikkawai*.—*Indian J. exp. Biol.*, **17** (3) : 231-238.

Replication in polytene nuclei of late 3rd instar larvae of *D. kikkawai* has been studied by antoradiography of squash preparations of salivary glands following a 10 min in vitro pulse of ^{3}H—thymidine.

1021. **Sankaran, T.** and **Nagaraja, H.** 1979. A note on *Eucelatoria* sp. near *armigera* (Coq.) (Dip., Tachinidae), imported from the U.S.A., for trial against *Heliothis armigera* (Hub.) (Lep., Noctuidae) in India. —*Entomon*, **4** (4) : 379-381.

Eucetatoria sp. near *armigera* (Coq.) parasitic on *Heliothis* spp. in the U.S.A. has been bred on *Heliothis armigera* in India.

1022. **Sardey, M. R.** and **Thakare, V. K.** 1979. Relative toxicity of various insecticides to the buffalo fly, *Lyperosia exigua* (De Meij, 1903).

L. exigua, the buffalo fly, is an important bitingfly of buffaloes, flies were undertaken in the laboratory to find-out their relative efficacy and presented in this paper.

1023. **Sarkar, P. K., Rao, K. M., Misra, J. N.** and **Malhotra, P. R.** 1979. Seasonal incidence of *Culex pipiens fatigans* Wied breeding in Tezpur (Assam). —*J. Com. Dis.*, **10** (4) [1978] : 212-217.

1024. **Sarkate, M. B.** and **Raodeo, A. K.** 1979. Studies on chemical control of sorghum earhead midge *Contarinia sorghicola* Coquillett. —*Indian J. Pl. Prot.*, **6** (1) [1978] : 67-69.

1025. **Shah, K. B.** 1979. Incidence of infestation of gall fly *Procecidochares utilis* (Stone) on crofton weed *Eupatorium adenophorum* Sprengel in Kirtipur. —*J. nat. Hist. Mus.*, **3** (1-4) : 101-107.

The present paper gives a clear picture of the percentage of infestation and control of the heavily infested weed of Kirtipur area by the insect parasite which comes to about 87.5%.

1026. **Sharma, G. P., Handa, S. M., Kumar, P.** and **Chopra, K.** 1979. Mapping of the salivary gland chromosomes of *Musca domestica* (Muscidae : Diptera). —*Cytologia*, **44** (3) : 541-547.

1027. **Sharma, O. P.** 1979. A map of polytene chromosomes of *Mansonia annulifera* (Subgenus Mansonioides). —*Res. Bull. Panjab Univ.*, **28** (1-2) [1977] : 39-44.

M. annulifera has been analysed cytologically for the first time. Its chromosomes have been studied from the malpighian tubules of the adult females.

1028. **Sharma, R. M.** and **Rao, S. N.** 1979. A new gall-midge (Diptera : Itonididae : Lestremiinae) from India. —*J. ent. Res.*, **3** (1) : 36-37.

A new species, *N. orientalis* has been described. This can be distinguished from other known species in the presence of two ocelli and fifteen antennal segments.

1029. **Sharma, R. M.** and **Rao, S. N.** 1979. A new gall—midge (Diptera : Itonididae : Lestremiinae) from India.—*Entomon*, **4** (3) : 299-301.

A new species *Xylopriona indica* is described and the genus is recorded for the first time from India. A known species *Peromyia bengalensis* Kieffer is reported from Aurangabad, Maharashtra State.

1030. **Sharma, R. M.** and **Rao, S. N.** 1979. *Odontodiplosis orientalis*, a new Indian gall—midge (Diptera : Cecidomyiidae). —*Oriental Ins.*, **13** (3-4) : 299-302.

1031. **Sharma, S. K., Rahman, S. J.** and **Wattal, B. L.** 1979. A note on Microsporidian infection-*Toxoglugea* species of adult *Anopheles culicifacies* Giles. —*J. Com. Dis.*, **11** (1) : 46-48.

1032. **Sharma, U.** 1979. Developmental morphology of thoracic appendages of *Aschistonyx crataevae* (Mani) (Diptera : Cecidomyiidae). —*Entomon*, **4** (1) : 67-72.

A description of the structure and location of their respective imaginal buds at the onset of pupation and progressive transformation of these buds into fully formed appendages has been given in the present study.

1033. **Sharma, V. P., Subbarao, S. K., Adak, T.** and **Razdan, R. K.** 1979. Effect of temperature on the fertility of prague type *Culex pipiens fatigans*. —*J. Com. Dis.*, **10** (3) [1978] : 148-150.

Indigenous *Cx. p. fatigans* (Delhi type) when reared at 27-28°C or 30-31°C and prague *Cx. p. fatigans* (Prague type) at 27-28°C produced fertile egg rafts. The increase in sterility was due to increase in unembryonated eggs.

1034. **Shukla, G. S.** and **Singh, R. N.** 1979. Chemosterilization of *Chrysomya megacephala* Fabr. by treatment of the larval stage. —*Indian J. Ent.*, **41** (4) : 396-398.

1035. **Singh, G., Misra, P. N.** and **Tiwari, S. C.** 1979. Efficacy of some insecticides in controlling the stemfly of pea. —*Indian J. agric. Sci.*, **49** (1) : 50-52.

1036. Deleted.

1037. **Singh, N.** and **Chakrabarti, S. C.** 1979. Suceptibility of *Anopheles philippinensis* to DDT from some areas of India bordering Bangladesh. —*J. Com. Dis.*, **11** (2) : 85-88.

1038. **Sinha, V. P.** 1979. Experiences with susceptibility experiments. —*Mosquito News*, **39** (1) : 91-93.

The results are reviewed of tests in Bihar, India, since 1951 of the susceptibility of mosquitoes, especially *Anopheles annularis* Wulp, *A. culicifacies* Giles, *A. subpictus* Grassi and *A. fluviatilis* James to DDT, which has been used extensively for mosquito control. Reductions in susceptibility are described and the procedures for testing mosquitoes that may have been already exposed to DDT in the field are discussed.

1039. **Skinner, J.D., Davies, J.C.** and **Reddy, R.V.S.** 1978. A note on the discovery of the male *Acritochaeta distincta* Mall. (Diptera : Muscidae). —*J. Bombay nat. Hist. Soc.*, **75** (1) : 240-241.

1040. **Srinivasan, A.** and **Kesavan, P. C.** 1979. Effect of thioacetamide on pupariation of housefly. —*Curr. Sci.*, **48** (6) : 270-271.

Thioacetamide, an inhibitor of RNA transport from nucleus to cytoplasm, inhibits differently only some of the events of pupariation of housefly.

1041. **Srinivasan, A.** and **Kesavan, P. C.** 1979. Housefly-tests in toxicological studies. —*Indian J. exp. Biol.*, **17** (3) : 319-320.

1042. **Shrivastava, P. S., Choudhury, B. O., Sahu, R.K.** and **Sahu, V. N.** 1979. Gall midge and bacterial blight-resistant varieties for Madhya Pradesh, India. —*Int. Rice Res. Newsl.*, **4** (6) : 6.

Details of the varieties and their reactions to the various pests and pathogens are presented.

1043. **Srivastava, U. S.** and **Singh, S. V.** 1979. Effect of juvenile hormone on the metamorphic changes in the hindgut of *Sarcophaga ruficornis* (Sarcophagidae : Diptera). —*Natn. Acad. Sci. Lett.*, **2** (5) : 197-198, 1 pl.

1044. **Subba Rao, Y.** 1979. Susceptibility status of *Anopheles culicifacies* to DDT, Dieldrin and Malathion in village Mangapeta, District Warangal, Andhra Pradesh. —*J. Com. Dis.*, **11** (1) : 41-43.

1045. **Sukhani, T. R.** and **Jotwani, M. G.** 1979. Effect of site of oviposition on shootfly damage to different growth stages of sorghum seedlings. —*Indian J. Ent.*, **41** (4) : 366-370.

1046. **Taley, Y. M.** and **Thakare, R. K.** 1979. Chemical control of sorghum tissue borers. —*Indian J. Ent.*, **41** (2) : 134-138.

1047. **Tewari, G. C.** 1979. Rice gall midge and its control. —*Indian Fmg.*, **29** (5) : 17, 19.

Life history and control measures, (1) biological (2) cultural and (3) chemical have been discussed.

1048. **Thontadarya, T. S., Rao, K. J.** and **Awaknavar, J. S.** 1979. Addition to the list of insects that predate the sorghum earhead midge, *Contarinia sorghicola* (Coq.). —*Curr. Res. mon. Newsl.*, **8** (4) : 64.

1049. **Thontadarya, T. S., Awaknavar, J. S.** and **Rao, K. J.** 1979. Diapause in the sorghum earhead midge and its parasite, *Tetrastichus* sp. and the role of moisture in its termination. —*Curr. Res. mon. Newsl.*, **8** (4) : 61-62.

1050. **Tripathi, C. P. M.** and **Chaudhry, H. S.** 1979. Effect of thiourea on RNA synthesis in the ovarioles of *Sarcophaga ruficornis* Fabr. (Diptera : Cyclorrhapha). —*Indian J. exp. Biol.*, **17** (5) : 510-512.

Both the follicular epithelial cells and nurse cells in normal flesh-flies, (*S. ruficornis*) are strongly RNA positive.

1051. **Tripathi, C. P. M.** and **Chaudhry, H. S.** 1979. Effect of thiourea on glycogen synthesis in the ovarioles of *Sarcophaga ruficornis* (Fabr.). —*J. ent. Res.*, **3** (1) : 108-110.

In the normal flesh-fly, *S. ruficornis* (Fabr.) glycogen was not detected either in the follicular epithelial cells or in nurse cells at any stage of vitellogenesis, except in the oocyte where it appeared only after the completion of yolk deposition. In the thiourea fed flesh-fly, no trace of glycogen was observed either in the follicular epithelial cells or in nurse cells. Unlike the normal flesh-fly, the ooplasm of these flies did not show any trace of glycogen deposition in them.

1052. **Varma, G. C.** and **Singh, B.** 1979. Host suitability and biology of *Paratheresia claripalpis* Wulp. (Tachinidae : Diptera). —*Indian J. Pl. Prot.*, **6** (1) [1978] : 36-39.

The biology and host suitability of *P. claripalpis* was studied by employing 6 host species.

1053. **Vasudev, V.** and **Krishnamurthy, N. B.** 1979. Dominant lethals induced by cadmium chloride in *Drosophila melanogaster*. —*Curr. Sci.*, **48** (22) : 1007-1008.

1054. **Zaka-Ur-Rab, M.** 1979. Morphology of the male terminalia of *Scatophago stercoraria* (L.) (Diptera : Scatophagidae). —*J. ent. Res.*, **3** (1) : 25-31.

A detailed study has been made of the male terminalia of the predaceous fly, *S. stercoraria* (L.), with particular reference to the skeleto-muscular system. The various components of the terminalia have been re-interpreted on the basis of sound morphological criteria.

(xvi) Lepidoptera

1055. **Adsule, V. M.** and **Kadam, M. V.** 1979. Insecticidal control of Bihar hairy caterpillar, *Diacrisia obliqua* Walker on sunflower, *Helianthus annuus* L. —*J. Maharashtra agric. Univ.*, **4** (1) : 80-82.

1056. **Adsule, V. M.** and **Kadam, M. V.** 1979. Studies on the bionomics of Bihar hairy caterpillar *Diacrisia obliqua*, Walker on sunflower, *Helianthus annuus* L. —*J. Maharashtra agric. Univ.* **4** (3) : 249-252.

The Bihar hairy caterpillar causes serious damage to sunflower crop in recent years. The bionomical studies of the pest on sunflower were undertaken under lab. conditions and presented.

1057. **Ahmad, Z.** 1979. Monitoring the seasonal occurrence of the pink bollworm in Pakistan with sex traps. —*F.A.O. Pl. Prot. Bull.*, **27** (1) : 19-20.

The seasonal occurrence of male pink bollworm, *Pectinophora gossypiella* (Saunders), moths was studied during two continuous cotton (1975 and 1976) by means of sex traps using gossyplure as attractant in Multan, an important cotton growing area in Punjab.

1058. Deleted.

1059. **Arora, G. S.** and **Gupta, I. J.** 1979. Taxonomic studies on some of the Indian non-mulberry silkmoths (Lepidoptera : Saturniidae : Saturniinae). —*Mem. zool. Surv. India*, **16** (1) : 1-63, pls. 1-11.

1060. **Avasthy, P. N.** and **Varma, A.** 1979. The influence of row spacing and nitrogen on shoot borer incidence in sugarcane. —*Indian J. Ent.*, **41** (4) : 387-388.

1061. **Awaknavar, J. S.** and **Thontadarya, T. S.** 1979. Seasonal incidence of the pink bollworm, *Pectinophora gossypiella* (Saunders) in North Karnataka. —*Curr. Res. mon. Newsl.*, **8** (1) : 7-8.

1062. **Awaknavar, J. S.** and **Thontadarya, T. S.** 1979. Possible diapause of the pink bollworm, *Pectinophora gossypiella* (Saunders) in North Karnataka. —*Curr. Res. mon. Newsl.*, **8** (3) : 51-52.

1063. **Awate, B. G.** and **Naik, L. M.** 1979. Efficacies of insecticidal dusts applied to soil surface for controlling potato tuber worm (*Phthorimaea operculella* Zeller) in field. —*J. Maharashtra agric. Univ.*, **4** (1) : 100.

1064. **Banerjee, B.** 1979. A key—factor analysis of population fluctuations in *Andraca bipunctata* Walker (Lepidoptera : Bombycidae). —*Bull. ent. Res.*, **69** (1) : 195-201.

The causes of fluctuation and stabilisation of *A. bipunctata* Wlk. on tea in India were assessed over three years using the technique of keyfactor analysis. The need for devising specialised sampling procedures and statistical tests for tropical insect populations is discussed.

1065. **Banerjee, B.** 1979. Density related development in *Andraca bipunctata* (Walker) (Lepidoptera, Bombycidae). —*Entomologists' Res. J. Var.*, **91** (4) : 97-102.

This paper quantitates the effects of varying density levels of larval instars and fecunds of *A. bipunctata* on its growth rate.

1066. **Banerjee, S.** and **Bhandari, R. S.** 1979. Effect of high and low temperatures on the reproduction of *Pyrausta machaeralis* Walk. (Lepidoptera : Pyralidae). —*Ann. Zool.*, **15** (2) : 79-87.

1067. **Batra, R. C., Sohi, A. S.,** and **Sandhu, G. S.** 1979. Chemical control and new hosts of plum caseworm in India. —*Pestology*, **3** (10) : 22-23.

1068. **Battu, G. S.** and **Singh, K.** 1979. On the possibility of using *Bacillus thuringiensis* Berliner against wax moth, *Galleria mellonella* Linnaeus in bee hives.—*Indian Bee J.*, **39** (1-4) [1977] : 27-29.

B. thuringiensis has proved quite effective against *G. mellonella* and it could be used for controlling the infestation of honey combs by this pest.

1069. **Bell, C.H., Bowley, C.R., Cogan, P.M.** and **Sharma, S.** 1979. Diapause in 23 populations of *Plodia interpunctella* (Lep., Pyralidae) from different parts of the world. —*Ecol. Ent.*, **4** (3) : 193-198.

1070. **Bhardwaj, S.C., Jain, B.K.** and **Gupta, J. N.** 1979. Behaviour of stalk—borer (*Chilo auricilius* Dudeceon) larvae under laboratory and field conditions during winter.—*J. Res. Haryana agric. Univ.*, **9** (4) : 342-344.

The paper deals with the behaviour of stalk borer larvae during winter months under improvised laboratory conditions having warmer temperatures in comparison to the field conditions.

1071. **Bilapate, G. G., Raodeo, A. K.** and **Pawar, V. M.** 1979. Population dynamics of *Heliothis armigera* Hubner on sorghum pigeonpea and chickpea in Marathwada. —*Indian J. agric. Sci.*, **49** (7) : 560-566.

Life-tables were prepared for *H. armigera* Hbn. infesting sorghum [*Sorghum bicolor* (Linn.) Moench], pigeonpea [*Cajanus cajan* (Linn.) Millsp.] and chickpea (*Cicer arietinum* Linn.) to gain the understanding of its population dynamics in Marathwada during 1977-78.

1072. **Bilapate, G. G.** and **Thombre, U. T.** 1979. Effect of constant temperatures on the development of stages of *Spodoptera litura* F. —*J. Maharashtra agric Univ.*, **4** (1) : 31-33.

The development and survival of larvae and pupae of *S. litura* was studied when reared on sunflower leaves at constant temperatures.

1073. **Bindra, O.S., Sidhu, A.S.** and **Dhawan, A. K.** 1979. Evaluation of different sex-attractants against the moths of pink bollworm *Pectinophora gossypiella* (Saund.). —*Indian J. Pl. Prot.*, **6** (1) [1978] : 40-44.

Some species of bollworm caps were tested and compared with control by using Zoecon traps.

1074. **Butter, N. S., Gill, K. S., Nanda, G. S.** and **Mahal, G. S.** 1979. Field screening of wheat germplasm against army-worm, *Mythimna seperata* (Walker) (Lepidoptera : Noctuidae). —*Sci. Cult.*, **45** (2) : 77-79.

1075. **Catling, H. D.** 1979. Egg parasitism of the yellow rice borer, *Tryporyza incertulas* (Walk.), at Joydevpur, Bangladesh. —*Bangladesh J. Zool.*, **7** (1) : 31-40.

The rates of parasitism and the relative effectiveness of the different parasite species were studied.

1076. **Chanda, A. T.** and **Sehgal, S. S.** 1979. Sexual competitiveness of gamma—irradiated adult rice-moth, *Corcyra cephalonica* Staint. —*Entomon*, **4** (2) : 111-115.

The authors have reported the results obtained by irradiating the moths in the adult stage and tested for their infertility and competitiveness.

1077. **Chandramohan, N.** and **Kumaraswami, T.** 1979. Comparative efficacy of chemical and nuclear polyhedrosis virus in the control of groundnut red hairy caterpillar, *Amsacta albistriga* (Walker).—*Sci. Cult.*, **45** (5) : 202-204.

An attempt was made to study the effect of the virus and a chemical quinalphos in controlling the pest under field condition.

1078. **Chaturvedi, D. P.** and **Mathur, K. C.** 1979. Larval feeding behaviour of *Scirpophaga incertulas* (Wlk.) (*Tryporyza incertulas*). —*Curr. Sci.*, **48** (1) : 37-38.

1079. **Dabi, R. K., Sharma, H. C.** and **Shinde, V. K. R.** 1979. Bioefficacy of *Bacillus thuringiensis* Berliner against *Heliothis armigera* Hubner on gram (*Cicer arietinum* Linn.). —*Entomon*, **4** (4) : 343-345.

Different doses of Dipel, HD-1 stains of *B. thuringiensis* were evaluated against 3rd and 5th instar larvae of *H. armigera* on gram.

1080. **Dahiphale, M. V., Bhirud, K. M.** and **Chahun**, 1979. Efficacy of different fertilizer—pesticidal mixtures as soil and foliar application on paddy for the control of stem-borer and leaf-hopper. —*Pesticides*, **13** (6) : 20-23.

The results of the experiment carried out with urea and various pesticides on paddy crop are discussed.

1081. **Dani, R. C., Majumdar, N., Gangopadhaya, S.** and **Mathur, K. C.** 1979. Presence of non-pathogenic bacteria in the gut of rice yellow stem borer, *Tryporyza incertulas* Wlk. (Lepidoptera : Pyralidae). —*Curr. Sci.*, **48** (3) : 136-137.

1082. **Dar, I. A., Majid, A.** and **Ahmad, M.** 1979. Occurrence of the rice ear-cutting caterpillar in the Punjab of Pakistan. —*Int. Rice Res. Newsl.*, **4** (2) : 16.

1083. **Dhaduti, S. G.** and **Mathad, S.B.** 1979. Effect of nuclear polyhedrosis virus of the armyworm *Mythimna* (*Pseudaletia*) *separata* on the tasar silkworm *Antheraea mylitta*. —*Curr. Sci.*, **48** (16) : 750-751.

Since the effect of Nuclear Polyhedrosis Virus (NPV) of the armyworm *M.* (*P.*) *separata* has not been investigated, the present experiments were conducted.

1084. **Dhanorkar, B. K.** and **Daware, D. G.** 1979. Evaluation of some insecticides for the control of pod borers on redgram. —*Res. Bull. Marathwada agric. Univ.*, **3** (7) : 85-86.

1085. **Dilawari, V. K., Dhawan, A. K.** and **Sindhu, A. S.** 1979. Nuclear polyhedral virus (NPV)—an important mortality factor of green semilooper *Anomis flava* (F.) on cotton in Punjab.—*Indian J. Ecol.*, **6** (1) : 144-146.

1086. **Dutta, G.** and **Sharma, J. C.** 1979. Effect of food on the development of angoumois moth *Sitotroga cerealella* Oliver. —*Indian J. Pl. Prot.*, **6** (1) [1978] : 85-87.

1087. **Easwaramoorthy, S.** and **David, H.** 1979. A granulosis virus of sugarcane shoot borer, *Chilo infuscatellus* Snell. (Lepidoptera : Crambidae). —*Curr. Sci.*, **48** (15) : 685.

1088. **Editor**, 1979. Eri : the poor man's silk. —*Indian Silk.*, **18** (1) : 33-37.

While India holds an absolute monopoly in muga silk, it has also no match in production of yet another variety of silk called : eri, endi or erandi. Assam accounts for 95% production of eri silk in India.

1089. **Gaikwad, B. B.** and **Pawar, V.M.** 1979. Effect of food plants on larval and post larval development of cabbage looper *Trichoplusia ni* Hubner. —*J. Maharashtra agric. Univ.*, **4** (2) : 178-179.

1090. **Ganesalingam, V. K.** and **Krishnarajah, S. R.** 1979. Infestation of *Sitotroga cerealella* (Oliver) under field conditions and storages in northern Sri Lanka. —*Ceylon J. Sci.* (*Biol. Sci.*), **13** (1-2) : 159-166.

The present paper determines the infestation of paddy by *S. cerealella* in the paddy fields and determines degree of infestation in paddy under the traditional methods of storage.

1091. **Gera, R.** and **Gupta, D.S.** 1979. Comparative efficacy of mixtures versus single treatment of various insecticides against brinjal borer, *Leucinodes arbonalis*. —*Indian J. Pl. Prot.*, **7** (1) : 89-99.

1092. **Ghosh, S. S.** and **Narasimhanna, M. N.** 1979. Studies on reeling of raily cocoons (*A. mylitta* D.) produced in Madhya Pradesh. —*Indian J. Seric.*, **18** (1) : 51-55.

1093. **Godse, D. B.** and **Patil, R. B.** 1979. Persistance of nuclear polyhedrosis virus of tobacco caterpillar *Spodoptera litura* Fabr. in Karnataka soil.—*Indian J. exp. Biol.*, **17** (11) : 1286-1287.

1094. **Godse, D. B.** and **Patil, R. B.** 1979. Nuclear polyhedrosis of *Plusia signata* (Lepidoptera : Noctuidae). —*Curr. Sci.*, **48** (9) : 405-406.

Polyhedral virus infection was noticed by the authors on *P. signata* Fabricius infesting standing crops of finger millet.

1095. **Gogoi, J. K.** 1979. The romances of muga culture. —*Indian Silk*, **18** (1) : 29-31.

India is the only country where the golden-yellow muga silk of Assam, produced by a worm known as muga "*Antheraea assama*" is exclusively pursued in the Brahmaputra River valley of Assam.

1096. **Gupta, S. L.** 1979. On the study of wing venation and wing markings in Lepidoptera. —*Entomologist's mon. Mag.*, **113** (1360-63) [1977] : 237.

1097. **Hapase, D. G., Patil, A. S.** and **Mohol-kar, P. R.** 1979. Effect of some climatic factors on the incidence of sugarcane borers. —*Indian J. Sugarc. Technol.*, **2** (1) : 1-8.

Considering the increasing trend in sugarcane area under adsali planting, the present studies on occurrence of borers, period of damage and their relation with climatic factors, were undertaken.

1098. **Haque, C.** 1979. Morphology and histology of the internal female reproductive organs of *Euroctic varians* Walk. (Lepidoptera : Lymantridae). —*Allahabad Fmr*, **50** (2) : 113-125, 2 pls.

1099. **Hikim, I. S.** 1979. Egg parasite of the yellow stem borer in West Bengal. —*Int. Rice Res. Newsl.*, **4** (5) : 19.

1100. **Islam, B. N.** and **Hamid Miah, M. A.** 1979. The control of rice stem-borers (Lepidoptera : Pyralidae) by insecticides applied to the roots of rice plants. —*Bull. ent. Res.*, **69** (3) : 395-404.

The object of the experiment was to evaluate the effectiveness of various methods of insecticide application in controlling the initial infestation of rice stemborers.

1. **Jagadish, A.** 1979. Control of *Spodoptera litura* and *Scrobipalpa heliopa* in nursery tobacco. —*Pest. Artic. News Summ.*, **25** (1) : 16-18.

Endosulfan and trichlorphon at 0.03% and 0.06% ; carbaryl (0.05% and 0.1%) and methomyl (0.025% and 0.05%) were used as treatments to control *Spodoptera litura* and, with and without sticker, *Scrobipalpa heliopa* in nursery tobacco.

2. **Joshi, B. G., Sitaramaiah, S., Satyanarayana, S.V.V.** and **Ramaprasad, G.** 1979. Note on natural enemies of *Spodoptera litura* (F.) and *Myzus persicae* (Sulz.) on flue-cured tobacco in Andhra Pradesh. —*Sci. Cult.*, **45** (6) : 251-252.

3. **Joshi, G.** 1979. Effect of mild fumigation on the pattern of egg laying and adult emergence in the rice moth, *Corcyra cephalonica* (Stainton) (Lepidoptera). —*Bull. zool. Surv India*, **2** (1) : 3-5.

Observations on the effect of mild fumigation on the gravid females during egg laying and on the eggs produced by the fumigated females of the rice moth, *C. cephalonica* (Stainton) are noted.

4. **Kaliannan, K., Jayaraj, S.** and **Babu, P.C.S.** 1979. Control of mango stemborer, *Batocera rufomaculata* de Geer. —*Indian J. agric. Sci.*, **49** (4) : 226-231.

In view of the seriousness of this pest problem, experiments were taken up to evolve prophylactic as well as curative control measures for the pest.

1105. **Kallapur, V. L.** and **Halihosur, S. N.** 1979. Effect of brain and corpora allata extracts on the lipid profile of the haemolymph of *Achoea janata* L. —*Curr. Sci.*, **48** (19) : 879-880.

1106. **Kanaujea, K. R.** and **Sidhu, H. S.** 1979. Factors affecting production of sex pheromone in females of angoumois grain moth, *Sitotroga cerealella* (Olivier) (Lepidoptera : Gelechiidae). —*Curr. Sci.*, **48** (9) : 420-422.

In the present communication, the effect of age, mating, time of day and larval food on the production of pheromone in *S. cerealella* has been studied.

1107. **Kausale, P. P., Wadnerkar, D. W.** and **Pawar, V. M.** 1979. Biology of *Ergolis merione* Cram. (Nymphalidae : Lepidoptera) under laboratory conditions. —*J. Maharashtra agric. Univ.*, **4** (1) : 118-119.

The castor spring caterpillar, *E. merione* is usually a minor pest of castor—the biology of this pest was studied under lab. conditions and the results are presented.

1108. **Khan, M. I.** and **Raodoe, A. K.** 1979. Studies on the soil application of systemic insecticides for the control of groundnut leaf miner, *Stomopteryx subsecivella* Zeller (Lepidoptera : Gelechiidae).—*J. Maharashtra agric. Univ.*, **4** (1) : 29-31.

1109. **Khan, M. I.** and **Raodeo, A. K.** 1979. Chemical control of groundnut leafminer (*Stomopteryx subsecivella* Zeller) a serious pest of groundnut and soybean.—*J. Maharashtra agric. Univ.*, **4** (1) : 116-117.

1110. Deleted.

1111. **Khan, T.R., Raziuddin, Md.** and **Singh, S. B.** 1979. Some observations on the effect of temperature and humidity on the hatching eggs in Indian tasar silkworm, *Antheraea mylitta* Drury (Lepidoptera : Saturniidae). —*J. zool. Soc. India*, **28** (1-2) (1976] : 93-97.

1112. **Koul, O., Tikku, K., Saxena, B. P.** and **Atal, C. K.** 1979. Growth and silk production in *Bombyx mori* L. fed on three different varieties of mulberry. —*Indian J. Seric.*, **18** (1) : 1-5.

Quantitative study of change in the larval weight, silk production, silk gland weight and protein consumption in relation to three different varieties of *Morus alba* L. has been evaluated.

1113. **Kumar, C. T. A.** and **Thontadarya, T. S.** 1979. Seasonal incidence of the cotton bollworm, *Heliothis armigera* Hubner on cotton. —*Curr. Res. mon. Newsl.*, **8** (1) : 6-7.

An attempt was made to study the seasonal incidence of the insect around Dharwad which comes under major cotton belt of Karnataka.

1114. **Kumata, T.** 1979. Discovery of the genus *Ectropina* from India, with description of a new species (Lepidoptera : Gracillariidae).—*Insecta matsum. (Ent.) (N. S.)*, (18) : 1-15.

Two species of *Ectropina* from India, are treated. One of them *E. acidula* (Meyrick), is transferred from the genus *Gracillaria*, and the adult is redescribed in detail. The other, *E. raychaudhurii*, is described as a new species, and all larval instars are also described, with a short note on the larval behaviour. A close relationship between *Ectropina* and *Calybites* (=*Euspilapteryx*) is suggested on the basis of the larval characters.

1115. **Larsen, T. B.** 1979. Hazards of butterfly collecting in Colombo, Sri Lanka. —*Entomologist's Rec. J. Var.*, **91** (7&8) : 221.

1116. **Mahadevan, N. R.** and **Kumaraswami, T.** 1979. Chemical control of tobacco caterpillar, *Spodoptera litura* Fab. on banana. —*Pestology*, **3** (10) : 32-33.

1117. **Malhotra, C. P.** and **Katiyar, R. N.** 1979. Chemical control of the lac predator, *Eublemma amabilis* Moore II. Relative toxicity of the various insecticides against the predatory caterpillars. —*Indian J. Ent.*, **41** (2) : 187-190.

1117a. **Mall, S. B., Singh, A. R.** and **Dixit, A.** 1979. Digestive enzymes of mature larvae of *Atteva fabriciella* (Swed.) (Lepidoptera : Yponomeutidae). —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 86-92.

Results of a qualitative survey of some digestive enzymes in the digestive system of fifth instar larvae of *A. fabriciella* have been dealt with in detail in this paper.

1118. **Mallik, S. N.** and **Vaidya, S. N.** 1979. Efficacy of certain insecticides and manures against the incidence of *Argyroploce leucaspis* Meyr. (Eucosmidae : Lepidoptera). —*Pesticides*, **13** (6) 33-34.

1119. **Manjunath, D.** and **Mathad, S.B.** 1979. Infectivity studies on sunlight—exposed nuclear polyhedrosis virus of army worm *Mythimna* (*Pseudaletia*) *separata*. —*Comp. Physiol. Ecol.*, **4** (1) : 15-16.

1120. **Marwaha, K. K.** and **Sarup, P.** 1979. Exploration of possible development of resistance in *Chilo partellus* (Swinhoe) to carbofuran and mephosfolan. —*J. ent. Res.*, **3** (1) : 42-45.

1121. **Mathan, K. K., Murugan, K. A.** and **Ravikumar, V.** 1979. Comparative effectiveness of certain insecticides on the cotton bollworms. —*Pesticides*, **13** (9) : 31-34.

1122. **Mathew, K. P., Nair, M. R. G. K.** and **Abraham, C. C.** 1979. Toxicity of newer insecticides to the coconut caterpillar *Nephantis serinopa* Meyr and its parasite *Bracon brevicornis* Wesmeal. —*Agric. Res. J. Kerala*, **16** (2) [1978] : 188-192.

The present paper reports the results of laboratory studies made on the relative toxicity of eleven insecticides in common use including the newer ones.

1123. **Mishra, S. N.** and **Krishna, S. S.** 1979. Influence of some specific time-and age related mating schedules on oviposition and egg fertility in *Corcyra cephalonica* Staint. (Lepidoptera : Galleridae). —*Entomon*, **4** (2) : 197-199.

1124. **Mohamed, U. V. K.** and **Murad, H.** 1979. Proctodaeal origin of malpighian tubules in the larva of *Callogramma festiva* Donov. —*Geobios*, 6 (4) : 156-159.

1125. **Mohanasundaram, M., Janaki, I. P.** and **Subba Rao, P. V.** 1979. Efficacy of some granules in the control of rice stem borer, *Tryporyza incertulas* Wlk. —*Pesticides*, **13** (2) : 49.

1126. **Mundhe, D. R., Wadnerkar, D. W.** and **Thombre, U. T.** 1979. Biology of green spiny caterpillar *Vanessa cardui* L. (Nymphalidae : Lepidoptera) on soybean, *Glycine max.* (L.) Merill. —*Res. Bull. Marathwada agric. Univ.*, **3** (9) : 125-126.

1127. **Murthy, R. L. N.** 1979. Physiological and contact activity of diflubenzuron against *Spodoptera litura* larvae. —*Pesticides*, **13** (12) : 33.

1128. **Murugesan, S.** and **Parameswaran, S.** 1979. Effect of insecticides on the control of bollworms and yield of MCU-5 cotton under irrigated conditions. —*Pesticides*, **13** (2) : 25-26.

1129. **Muthukrishnan, J., Mathavan, S.** and **Venkatasubbu, K.** 1979. Effects of caffeine and theophylline on food utilisation and emergence in *Danaus chrysippus* L. (Lepidoptera : Danidae). —*Entomon*, **4** (4) : 307-312.

Final instar larvae of *D. chrysippus* L. were fed on *Calotropis gigantea* R. BR. soaked in distilled water, 0.1, 0.2, 0.3, 0.4, and 0.5% caffeine and theophylline solutions.

1130. **Nagalingam, B., Narasimha Rao, B.** and **Rosaiah, B.** 1979. First record of *Spodoptera litura* Fabricius on certain minor spices. —*Curr. Res. mon. Newsl.*, **8** (10) : 171-172.

1131. **Narang, R. C.** and **Gupta, M. L.** 1979. Chromosome number of *Cricula trifenestrata Helfer* (Lepidoptera : Saturniidae). —*Curr. Sci.*, **48** (10) :

1132. **Narang, R. C.** and **Gupta, M. L.** 1979. Chromosomal studies in Eri silk moth, *Philosamia ricini* Hutt. (Lepidoptera : Saturniidae). —*Entomon*, **4** (3) : 217-221.

The present investigations have been carried out using air-dry Giemsa technique. In this species the diploid chromosome number is 28 in both the sexes.

1133. **Narashimhanna, M. N., Ahsan, M. M.** and **Chakraborty, D.** 1979. A field—oriented technique of rearing chawki tasar silkworm of *Antheraea mylitta* D. —*Indian J. Seric.*, **18** (1) : 60-61.

1134. **Narayanan, K.** and **Jayraj, S.** 1979. *Spodoptera litura* (F.) as a host for *Nosema* sp. —*Curr. Sci.*, **48** (6) : 276.

This is the first record of *Nosema* sp. in *S. litura* from India.

1135. **Narayanan, K.** and **Jayaraj, S.** 1979. Occurrence of mixed infection of virus and Protozoa in two species of Lepidoptera. —*Curr. Sci.*, **48** (18) : 825.

1136. **Narayanan, K., Santharam, G., Easwaramoorthy, S.** and **Jayaraj, S.** 1979. Effect of nucleo polyhedrosis virus on nitrogen, uric acid and protein contents of ground nut red-hairy caterpillar, *Amsacta albistriga*. —*Curr. Sci.*, **48** (5) : 219-220.

1137. **Nayak, P.** and **Srivastava, R. P.** 1979. Nuclear polyhedrosis on certain insect pests of rice. —*Curr. Sci.*, **48** (3) : 122-123.

Nuclear polyhedrosis of the rice stem borers *Sesamia inferens* Walker, *Scirpophaga incertulas* Walker, were identified from the diseased larvae obtained from rearing cages.

1138. **Nighut, U. S.** and **Taley, M.** 1979. Chemical control of brinjal tissue borers. —*Pesticides*, **13** (12) : 12-14.

The present paper reports the results of the trials carried out to assess the efficacy of some of the recent synthetic insecticides in controlling all the three species viz. *Leucinodes orbonalis*, *Euzophera perticella* and *Phthorimaca blapsigona* tissue borers.

1139. **Noamani, M. K. R., Mukherjee, P. K.** and **Krishnaswami, S.** 1979. Preliminary studies of the evaluation of grasserie disease resistant strains of the silkworm (*Bombyx mori* L.) through selection. —*Indian J. Seric.*, **18** (1) : 14-17.

In order to study the possibility of evolving some grasserie disease resistant strains of the multivoltine silkworm (*B. mori* L.) through artificial inoculation coupled with selection through generations an experiment was conducted during the years 1966-68.

1140. **Pajni, H. R., Rose, H. S.** and **Gill, K. M.** 1979. Some observations on the biology of *Corcyra cephalonica* (Staint.) (Lepidoptera : Galleriidae). —*Res. Bull. Panjab Univ.*, **27** (3 & 4) [1976] : 223-224.

1141. **Pant, R., Kumar, S.** and **Singh, S. D.** 1979. Changes in carbohydrates and lipids during embryonic development of *Antheraea mylitta* (Lepidoptera).—*J. Biosci.*, **1** (1) : 27-33.

1142. **Pant, R.** and **Gupta, D. K.** 1979. The effect of exposure to low temperature on the metabolism of carbohydrates, lipids and protein in the larvae of *Philosamia ricini*. —*J. Biosci.*, **1** (4) : 441-446.

Studies on cold stress were carried out with a view to provide an insight into the physiological strategy of survival adapted by this silkworm

species at winter temperature (4-12°C). Since there were a few studies which dealt with rates of acclimation of enzymes in insects, in general, it was also considered pertinent to investigate the effect of low temperature on some key metabolites and enzymes involved in protein and lipid metabolism.

1143. **Pant, R.** and **Pandey, K. N.** 1979. Variation in the major lipid components, total, free and esterified sterols, glycerol, glycogen and lipase activity in the fat body of the diapausing pupa of *Antheraea mylitta* (Lepidoptera).—*Curr. Sci.*, **48** (7) : 283-285.

1144. **Pant, R.** and **Srivastava, G. K.** 1979. Variation in major lipid components in the intestine of *Antheraea mylitta* during larval development and spinning period. —*Curr. Sci.*, **48** (11) : 482-483.

1145. **Pant, R.** and **Srivastava, G. K.** 1979. Some biochemical changes occurring during aging of the fifth instar and spinning larva of *Antheraea mylitta*. —*Indian J. exp. Biol.*, **17** (7) : 705-706.

1146. **Panwar, V. P. S.** and **Sarup, P.** 1979. Relationship between successive dates of sowing of maize and damage caused by *Chilo partellus* (Swinhoe) affecting grain yield. —*J. ent. Res.*, **3** (1) : 9-24.

In this investigations, the shifting of planting dates to minimise the loss due to *C. partellus* has been explored.

1147. **Panwar, V. P. S.** and **Sarup, P.** 1979. Pattern of infestation due to the stalk borer, *Chilo partellus* (Swinhoe) in maize field. —*J. ent. Res.*, **31** (1) : 113-115.

The pattern of infestation due to *Chilo partellus* based on individual plant observations of about 62,000 plants of four varieties, viz., Gaug-5, Vijay Composite, Jawahar Composite and Basi local, in 16 sowing dates, spread over three years was studied.

1148. **Patel, R. C., Yadav, D. N.** and **Saramma, P. U.** 1979. Impact of *Chelonus heliopae* Gupta and *Telenomus remus* Nixon against *Spodoptera litura* (Fabricius). —*J. ent. Res.*, **3** (1) : 53-56.

S. litura F. (Lepidoptera : Noctuidae) is a serious polyphagous pest of various crops including vegetables. This necessitated to study the impact of mass releases of an indigenous egg-larval parasite, *C. heliopae* Gupta (Braconidae) and an exotic egg parasite, *T. remus* Nixon (Scelionidae) on the natural population of this pest at Anand (Gujarat).

1149. **Philip, B. M.** and **Jacob, A.** 1979. Studies on the granulosis of *Pericallia ricini* Fabricius (Arctiidae : Lepidoptera). —*Entomon*, **4** (4) : 347-350.

Larvae of *P. ricini* F. infected with the granulosis virus exhibited all the typical symptoms.

1150. **Pillai, K. B., Nair, N. R.** and **Thomas, M. J.** 1979. Relative susceptibility of some rice varieties to infestation by rice leaf roller. —*Agric. Res. J. Kerala*, **17** (2) : 298.

1151. **Pillai, K.S.** and **Nair, M.R.G. K.** 1979. Biology and habits of the rice case worm *Nymphula depunctalis* Guen. in Kerala. —*Entomon*, **4** (1) : 13-16.

The present investigations have been carried out using air-dry Giemsa technique. In this species the diploid chromosome number is 28 in both the sexes.

1133. **Narashimhanna, M. N., Ahsan, M. M.** and **Chakraborty, D.** 1979. A field—oriented technique of rearing chawki tasar silkworm of *Antheraea mylitta* D. —*Indian J. Seric.*, **18** (1) : 60-61.

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1149. **Philip, B. M.** and **Jacob, A.** 1979. Studies on the granulosis of *Pericallia ricini* Fabricius (Arctiidae ; Lepidoptera). —*Entomon*, **4** (4) : 347-350.

Larvae of *P. ricini* F. infected with the granulosis virus exhibited all the typical symptoms.

1150. **Pillai, K. B., Nair, N. R.** and **Thomas, M. J.** 1979. Relative susceptibility of some rice varieties to infestation by rice leaf roller. —*Agric. Res. J. Kerala*, **17** (2) : 298.

1151. **Pillai, K.S.** and **Nair, M.R.G. K.** 1979. Biology and habits of the rice case worm *Nymphula depunctalis* Guen. in Kerala. —*Entomon*, **4** (1) : 13-16.

In Kerala the life cycle of *Nymphula depunctalis* is completed in 33 to 43 days during June-July. Larval and adult habits are described.

1152. **Poonia, F. S.** 1979. Haemolymph proteins in fifth instar larvae of eri silkworm, *Philosamia ricini* Hutt. after infection with a flacherie disease. —*Indian J. Seric.*, **18** (1) : 43-47.

1153. **Prakash, A., Pasalu, I. C.** and **Mathur, K. C.** 1979. Ovicidal activity of *Eclipta alba* Hassk. (Compositae). —*Curr. Sci.*, **48** (24) : 1090.

1154. **Prasad, N. K. K., Chandra Babu, S. S., Halappa, G.** and **Khot, R. S.** 1979. Efficacy of different dust formulations on the control of tobacco cutworm, *Spodoptera litura* F. (Noctuidae : Lepidoptera).—*Curr. Res. mon. Newsl.*, **8** (5) : 85-86.

1155. **Prasad, N. K. K., Urs, K. C. D.** and **Manjunath, T. M.** 1979. Cytrolane—a promising granular insecticide aganist sugarcane seedling borer, *Chilo infuscatellus* (Snellen). —*Curr. Res. mon. Newsl.*, **8** (3) : 47-48.

1156. **Punnaiah, K. C.** 1979. Role of ascorbic acid and yeast in the growth and development of *Heliothis zea*.—*Andhra agric. J.*, **25** (3 & 4) [1978] : 159-160.

1157. **Quayum, M. A., Khalequzzaman, M.** and **Sarder, S. A.** 1979. The relation of temperature to the development of the eggs of *Sylepta derogata* Fab. (Lepidoptera : Pyralidae).—*Bangladesh J. Zool.*, **7** (1) : 1-5.

As very little ecological work has been done on this pest, the present study was undertaken to relate the effect of temperature to the development of the eggs of *S. derogata*.

1158. **Radhakrishnan, S.** 1979. Note on the efficacy of certain new insecticides against groundnut red hairy caterpillar (*Amsacta albistriga* M.). —*Pesticides*, **13** (7) : 60-61.

1159. **Rai, P. S.** and **Vidyachandra, P.** 1979. Efficacy of carbaryl and methyl-parathion for the control of *Cnaphalocrocis medinalis* (Guenee) (Lepidoptera : Pyralidae) infesting paddy. —*Curr. Res. mon. Newsl.*, **8** (12) : 213-214.

1160. **Ramdev, Y. P.** and **Rao, P. J.** 1979. Consumption and utilization of dietary constituents of castor *Ricinus communis* Linn. by castor semilooper *Achoea janata* Linn. —*Indian J. exp. Biol.*, **17** (10) : 1154-1156.

1161. **Rao, S.V., Ali, M.H.** and **Azam, K.M.** 1979. Studies on biology of the cabbage borer, *Hellula undalis* Fabricius (Pyralidae : Lepidoptera). —*Andhra agric. J.*, **25** (1 & 2) [1978] : 13-17.

1162. **Rao, S.V., Ali, M.H.** and **Azam, K.M.** 1979. Insecticidal control of cabbage borer, *Hellula undalis*. —*Indian J. Pl. Prot.*, **7** (1) : 27-32.

An attempt is made to find out a suitable safer insecticide which can effectively control this serious pest of cabbage under seasonal conditions prevailing in Andhra Pradesh.

1163. **Raut, U. M.** and **Sonone, H. N.** 1979. A preliminary observation on resistance in okra to shoot and fruit borer, *Earias vittella* (Fabricius) (Arctiidae : Lepidoptera). —*J. Maharashtra agric. Univ.*, **4** (1) : 101-103.

Among the pest complex of okra, shoot and fruit borer, *E. vittella* is the most important pest.

1164. **Reddy, K.V.S.** and **Davies, J. C.** 1979. A new medium for mass rearing of the sorghum stem borer, *Chilo partellus* Swinhoe (Lepidoptera : Pyralidae) and its use in resistance screening.—*Indian J. Pl. Prot.*, **6** (1) [1978] : 48-55.

Details are given of a diet which has been successfully used for several seasons at ICRISAT, Hyderabad, to produce large number of *C. partellus*.

1165. **Roonwal, M. L.** 1979. Field-ecological studies on mass eruption, seasonal life-history, nocturnal feeding and activity rhythm, and productive behaviour and coloration in the sal defoliator, *Lymantria mathura* (Lepidoptera : Lymantriidae) in Sub-Himalayan forests. —*Rec. zool. Surv. India*, **75** (1-4) : 209-236.

1166. **Roonwal, M. L.** 1979. The willow, apple and sal defoliator. —*Indian Fmg.*, **29** (9) : 3-6, 7-8.

1167. **Rose, H. S.** and **Pajni, H. R.** 1978. Further comments on the genus *Tamraca* Moore with the description of a new species from Chandigarh (Lepidoptera : Pyralidae). —*J. Bombay nat. Hist. Soc.*, **75** (1) : 170-173.

1168. **Rose, H. S.** and **Pajni, H. R.** 1979. Revalidation and recharacterization of the genus *Metoeca* Warren (Lepidoptera : Pyralidoidea : Nymphulinae). —*Ann. Zool.*, **15** (4) : 173-177.

1169. **Roy, P.** and **Sinha, P. K.** 1979. Seasonal activity of the paddy stem borer, *Tryporyza incertulas* (Walker) in West Bengal. —*J. ent. Res.*, **3** (1) : 104-106.

The effect of temperature and humidity and the components of weather were investigated on the activity of paddy stem borer, *T. incertulas* (Walker), with a view to indicate the pest epidemic.

1170. **Sahai, Y. N.** and **Sahai, S.** 1979. Some new host plants of *Laphygma exigua* Hubner. —*Geobios*, **6** (5) : 228-229.

1171. **Saivaraj, K.** and **Venugopal, M. S.** 1979. Control of rice stem borer, *Tryporyza incertulas* Walk. with water surface application of granular insecticides. —*Madras agric. J.*, **66** (4) : 255-259.

1172. **Sandhu, G. S.** and **Chahal, N. S.** 1979. Systematic insecticides for the control of *Chilo partellus*, (Swinhoe) in maize. —*Pestology*, **3** (10) : 24-25.

1173. **Sandhu, G. S.** and **Khangura, J. S.** 1979. Chemical control of bark-eating caterpillar on guava in Punjab. —*Pesticides*, **13** (8) : 32-34.

1174. **Sangappa, H.K.** 1979. Relative efficacy of insecticidal dusts against groundnut leaf miner, *Stomopteryx subsecivella* Zell. —*Res. Bull. Marathwada agric. Univ.*, **3** (5) : 64-65.

1175. **Serrao, J. S.** 1978. Mormon butterfly —Its status in Bombay. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 241-242.

1176. **Shah, A. H.** 1979. Field evaluation of some new insecticides against the brinjal fruit and shoot borer, *Leucinodes orbonalis* Guen. —*Indian J. Ent.*, **41** (2) : 195-196.

1177. **Prem Chand**, 1979. Polyhedrosis of *Diacrisia obliqua* Walker. —*Indian J. Ent.*, **41** (2) : 195-196.

1178. **Sevastopulo, D. G.** 1979. Danaid butterflies attracted to *Heliotropium indicum* (Boraginaceae), and alkaloid containing plants. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 512.

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1178. **Sevastopulo, D. G.** 1979. Danaid butterflies attracted to *Heliotropium indicum* (Boraginaceae), and alkaloid containing plants. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 512.

1179. **Shahi, K. P.** and **Krishna, S. S.** 1979. Effects of the presence of male with unmated or mated female and some light regimes on the programming of oviposition in *Earias favia* Stoll (Lep., Noctuidae). —*Z. angew. Ent.*, **88** (2) : 175-180.

1180. **Shankaranarayana, K. H., Shivaramakrishnan, V. R., Ayyar, K. S.** and **Sen-Sarma, P. K.** 1979. Isolation of a compound from the bark of sandal, *Santalum album* L. and its activity against some lepidopterous and coleopterous insects. —*J. ent. Res.*, **3** (1) : 116-118.

The contribution reports the activity of a compound isolated from the bark of sandal, *S. album* L., against some lepidopterous and coleopterous insects of economic importance.

1181. **Shetgar, S. S.** and **Puri, S. N.** 1979. Chemical control of pod borers infesting red gram. —*Indian. J. Ent.*, **41** (4) : 399-401.

1182. **Shetgar, S. S.** and **Puri, S. N.** 1979. Efficacy of quinalphos and other insecticides against pod borer, *Heliothis armigera* Hubner. —*Indian J. Ent.*, **41** (4) : 403-405.

1183. **Shetgar, S. S.** and **Puri, S. N.** 1979. Chemical control of pod borers infesting pigeon pea *Cajanus cajan* L. — *Indian J. Pl. Prot.*, **6** (1) [1978] : 45-47.

1184. **Siddaramaiah, A. L., Lingaraju, S.** and **Prasad, K. S. K.** 1979. Preliminary studies on the effect of a few fungicides against *Beauveria bassiana* causing muscardine disease of silkworms. —*Indian J. Seric.*, **18** (1) : 6-8.

Twelve fungicides were tested for their fungitoxicity against *B. bassiana* causing muscardine disease in silkworm under laboratory conditions.

1185. **Siddiqui, K. H., Marwaha, K. K., Panwar, V. P. S.** and **Sarup, P.** 1979. Identification of sources of resistance to the stalk borer, *Chilo partellus* (Swinhoe) amongst the maize germplasms comprising 'introduction nursery'. —*J. ent. Res.*, **3** (1) : 87-90.

1186. **Siddiqui, M. S.** and **Mathur, K. P.** 1979. Assessment of damage caused to guava plants by guava shoot borer, *Microclona leucosticta* M. and some observations on its control. —*Progve Hort.*, **11** (1) : 25-30.

1187. **Sidhu, A. S.** and **Dhawan, A. K.** 1979. Carry over of the pink bollworm, *Pectinophora gossypiella* (Saund.) through cotton seed. —*J. Res. Punjab agric. Univ.*, **15** (1) [1978] : 53-57.

1188. **Sidhu, A. S.** and **Dhawan, A. K.** 1979. The incidence and the carryover of the pink bollworm in different varieties of cotton. —*J. Res. Punjab agric. Univ.*, **15** (3) [1978] : 287-290.

The pink bollworms, *Pectinophora gossypiella* (Saund.), is the most serious pest of cotton in Punjab State. The incidence and the carryover of the pink bollworm were studied in the case of 7 varieties of American cotton, namely J34, J205, J207, LH37, LH38, 320F and F414, and in one variety of desi cotton, namely G27, during 1974-75 and 1975-76. Results of such studies made for two years on four recommended and four promising varieties of cotton are described in this paper.

1189. **Sidhu, A. S.** and **Dhawan, A. K.** 1979. Incidence of cotton leaf-roller (*Sylepta derogata* F.) on different varieties of cotton and its chemical control. —*Entomon*, **4** (1) : 45-50.

S. derogata (F.) appeared in an epizotic form during September, 1976. The attack was more on early sown crop than the late sown crop. Of the 16 insecticides tested, azinphos-methyl, dicrotophos, chlorfenvinphos, dichlorovos, acephate, trichlorofon, fenitrothion, endosulfan, carbaryl and monocrotophos were effective for its control.

1190. **Singh, D., Ramzan, M.** and **Mann, G. S.** 1979. Field incidence of the leaf-folder, *Cnaphalocrocis medinalis* Guenee (Pyralidae : Lepidoptera) on different paddy cultivars at Kapurthala (Punjab). —*J. Res. Punjab agric. Univ.*, **15** (1) [1978] : 127-130.

1190a. **Singh, H.** and **Mann, V. S.** 1979. Comparative bio-efficacy of nozzles for the control of leaf-miner in mustard. —*Indian J. Ent.*, **41** (4) : 316-319.

1191. **Singh, I. P.** and **Tiwary, M. B.** 1979. Responses of different host plants on the larval growth and development of *Chilo partellus* Swinhoe. —*Sci. Cult.*, **45** (2) : 70-71.

1192. **Singh, K.** 1979. Evaluation of various insecticides against groundnut leaf miner, *Stomopteryx nerteria* (Lepidoptera : Gelechiidae). —*Indian J. Pl. Prot.*, **6** (1) [1978] : 27-29.

1193. **Singh, O. P.** and **Rawat, R. R.** 1979. Assessment of losses to mustard by the cabbage web-worm, *Crocidolomia binotalis* Zell. (Lepidoptera : Pyralidae). —*Indian J. agric. Sci.*, **49** (12) : 967-969.

1194. **Singh, P.** and **Sharma, K. K.** 1979. External morphology of the poplar defoliators *Pygaera fulgurita* Wlk. and *P. cupreata* Butl. (Lepidoptera : Notodontidae). —*Entomon*, **4** (1) : 81-88.

External morphology of pupae of *Pygaera fulgurita* and *P. cupreata* has been studied in detail. Form and colour of pupae, measurements of their length, width and weight have been recorded and morphology of head, thorax and abdomen described. Sexual dimorphism is very distinct in both the species.

1195. **Singh, P.** and **Sharma, K. K.** 1979. Genitalia of *Pygaera fulgurita* Walker and *P. cupreata* Butler (Lepidoptera : Notodontidae).—*Entomon*, **4** (3) : 255-261.

External morphology of male and female genitalia of *Pygaera fulgurita* and *P. cupreata* is described. Shape of uncus, socus, harpe and anellus in male and shape and size of signum in the female are characters of taxonomic importance.

1196. **Singh, P.** and **Sharma, K. K.** 1979. External morphology and distinguishing characters of male and female pupae of ailanthus webworm, *Atteva fabriciella* Swed. (Lepidoptera : Yponomeutidae). —*Indian Forester*, **105** (1) : 36-40.

External morphology of pupae of *A. fabriciella* and the distinguishing characters of male and female are given. A comparision of pupae of *A. fabriciella* and *A. aurea* is also made.

1197. **Singh, S. P.** and **Singh, O. P.** 1979. Changes in protein turnover and related biochemical correlates during embryonic development of erisilkworm, *Philosamia ricini*. —*Entomon*, **4** (4) : 327-329.

Higher levels of protein synthesis is indicated by two independent peaks of RNA level during early and late days of embryogenesis in eri-silkworm but protein level itself presents variable patterns along with total free amino acid concentration, probably due to proteolysis and deamination.

1198. **Sivapalan, P.** and **Gnanapragasam, N. C.** 1979. Effects of varying proportions of dietary ingredients in meridic diets on the development of the tea tortrix, *Homona coffearia*, in the laboratory. —*Ent. exp. appl.*, **26** : 55-60.

1199. **Smith, C.** 1979. Some interesting butterflies from East Nepal—Parts III & IV. —*J. nat. Hist. Mus.*, **3** (1-4) : 151-158.

Further information and new records for the families given in Part I, (Satyridae, Danaidae, Nymphalidae & Papilionidae) are given in part III. Part IV contains revisions and additional species for Nepal of the families given in Part II (Lycaenidae & Hesperiidae).

1200. **Smith, C.** 1979. Corrections to scientific list of Nepal butterflies. —*J. nat. Hist. Mus.*, **3** (1-4) : 161-164.

1201. **Sran, C. S.** and **Sandhu, G. S.** 1979. New records of parasites and predators of *Nephopteryx eugraphella* Ragonot in India. —*Curr. Sci.*, **48** (4) : 169.

N. eugraphella Ragonot is the most serious insect pest of sapota in India.

1202. **Srivastava, K.M.** and **Singh, R.P.** 1979. Forecasting of yield losses and infestation level of podborer, *Heliothis* in chickpea. —*Indian J. Ent.*, **41** (4) : 375-378.

The paper deals with the relationship between the dates of sowing, percentage infestation of pod borer and yield of chickpea.

1203. **Srivastava, K. P.** and **Kumar, P.** 1979. External sexual characters in the juvenile stages of the lemon-butterfly, *Papilio demoleus*. —*Curr. Sci.*, **48** (15) 702-703.

1204. **Subbarao, P. V., Janaki, I. P.** and **Uthamasamy, S.** 1978. Efficacy of certain insecticides in the control of rice stem borer, *Tryporyza incertulas* Wlk. —*Madras agric. J.*, **65** (10) : 695-696.

1205. **Sundramurthy, V. T.** and **Santhanakrishnan, K.** 1979. Morphogenetic effects of diflubenzuron, an inhibitor of chitin deposition, on the coconut black-headed caterpillar (*Nephantis serinopa* Mayer.). —*Pesticide Sci.*, **10** (2) : 140-150.

1206. **Taneja, S. L.** and **Jayaswal, A. P.** 1979. Efficacy of some new insecticides for the control of pink bollworm, *Pectinophora gossypiella* (Saunders) on American cotton. —*Pesticides*, **13** (7) : 39-40.

The efficacy of insecticides was determined on the basis of pink bollworm incidence on green, opened and unopened bolls, hibernating larvae in cotton seeds and yield in various insecticidal treatment.

1207. **Thimmaiah, G.** 1979. An evaluation of cotton varieties for bollworms infestation. —*Curr. Res. mon. Newsl.*, **8** (5) : 86-87.

1208. **Thontadarya, T. S., Rao, K. J.** and **Kumar, N. G.** 1979. Occurrence of the groundnut leaf miner, *Biloba* (*Stomopteryx*) *subsecivella* (Zeller) on berseem (*Trifolium alexandrinum* Linnaeus) in Karnataka. —*Curr. Res. mon. Newsl.*, **8** (4) : 65.

1209. **Upadhyay, V. R., Shah, A. H.** and **Desai, N. D.** 1979. Varietal resistance of paddy varieties to *Sitotroga cerealella* Oliv. —*Indian J. Ent.*, **41** (2) : 190-192.

1210. **Vaishampayan, S. M.** and **Srivastava, S. K.** 1978. Effect of moon phase and lunar cycle on the light trap catch of tobacco caterpillar *Spodoptera litura* (Fabr.) (Lepidoptera : Noctuidae). — *J. Bombay nat. Hist. Soc.*, **75** (1) : 83-87.

1211. **Varma, A., Mehrotra, A. K.** and **Avasthy, P. N.** 1979. Evaluation of insecticidal control against stem borer, *Chilo partellus* Swinh. in sweet sorghum (*Sorghum bicolor* L.).—*Indian J. Sugarc. Technol.*, **2** (1) : 9-14.

Control of *C. partellus* Swinh. is presented in this paper.

1212. **Varshney, R. K.** 1979. Revised nomenclature specific for taxa in Wynter—Blyth's book on complex the butterflies of Indian region. —*J. Bombay nat. Hist. Soc.*, **76** (1) : 33-40.

1213. **Verma, G. D., Singh, J.** and **Singh, I. P.** 1979. Field evaluation of some insecticidal treatments for control of *Rhyacia herculea* Corti and Draut on Rabi maize in Bihar. —*Entomon*, **4** (2) : 129-131.

Results of a field trial undertaken during the rabi season in 1976-77 are presented here.

1214. **Wadnerkar, D. W., Kaunsale, P. P.** and **Pawar, V. M.** 1979. Bionomics of *Syntomis fortunei* Orza (Syntomidae : Lepidoptera) on Lima Bean, *Dolichus iablab*. —*J. Maharashtra agric. Univ.*, **4** (2) : 157-159.

Biology of *S. fortunei* was studied at a constant temperature and the results are presented.

1215. **Yadav, T. D., Singh, S., Khanna, S. C.** and **Mookherjee, P. B.** 1979. Efficacy of grain protections against larval stages of three species of moth pests. —*Indian J. Pl. Prot.*, **7** (1) : 15-18.

1216. **Yadava, C. P.** 1979. Toxicity of *Bacillus thuringiensis* to the larvae of *Sesamia inferens* Walker (Noctuidae : Lepidoptera) the pink borer of rice. —*Oryza*, **15** (1) [1978] : 105.

1217. **Yadava, P. S., Vais, L.K.** and **Kaushal, B. R.** 1979. Food consumption, assimilation and growth in the larvae of *Pieris brassicae* Linn. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 257-264.

This paper deals with the food consumption, assimilation growth and efficiencies of food utilization by the various larvae instars of *P. brassicae* fed on the leaves of *Raphanus sativus* (Radish).

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1218. **Abraham, C. C.** and **Remamony, K. S.** 1978. New records of Myrmecine ants as pests of bhendi, *Abelmoschus esculentus* Moench. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 242-243.

1219. **Ahmed, S. L.** and **Shafee, S. A.** 1978. Studies on some Indian Aphelinid parasites (Hymenoptera : Chalcidoidea). —*J. Bombay nat. Hist. Soc.*, **75** (1) : 164-167.

1220. **Ali, M., Khan, A. R.** and **Mahal, N.** 1979. Mating and egg laying behaviour of *Tetrastichus hagenowii* (Ratzeburg) (Encyrtidae : Chalcidoidea).—*Bangladesh J. Zool.*, **7** (1) : 41-43.

1221. **Batra, S. W. T.** 1979. Nests of the eumenid wasp, *Anterhynchium abdominale bengalense*, from a termite mound in India. —*Oriental Ins.*, **13** (1-2) : 163-165.

Anterhynchium abdominale bengalense (Saussure) (Hymenoptera : Eumenidae) nested in a senescent mound of *Odontotermes obeus* (Rambur) (Isoptera : Macrotermitinae) in Punjab. The 1 to 11 scattered cells per nest radiated from the termite ventilation shafts. Cells were lined with resin, and in January contained diapausing mature larvae which had fed on caterpillars. Pupation occurred in June. Adults emerged in July and August and emitted a stink bug like cephalic order when handled.

1222. **Bhat, S.** 1979. Oriental species of *Cremnops* Foerster (Hymenoptera : Braconidae). —*Entomon*, **4** (1) : 27-29.

Sixteen species of *Cremnops* now known from the Oriental region are treated here. One new species are described from India and one from Nepal. A key to the oriental species is provided here.

1223. **Bhat, S.** 1979. The genus *Phaenocarpa* Foerster (Hymenoptera : Braconidae : Alysiinae). —*Oriental Ins.*, **13** (1-2) : 1-27.

1224. **Bhat, S.** 1979. Studies on the genus *Aspilota* Foerster (Hymenoptera : Braconidae). —*Oriental Ins.*, **13** (3-4) : 365-381.

1225. **Bisht, D. S., Pant, N. C.** and **Mehrotra, K. N.** 1979. Temperature regulation by Indian honey bee, *Apis cerana indica*. —*Indian J. Ent.*, **41** (4) : 303-310.

1226. **Boucek, Z.** 1979. Description of a new eupelmid parasite (Hymenoptera : Chalcidoidea) of cockroaches in India. —*Bull. ent. Res.*, **69** (1) : 93-96.

Anastatus umae sp. n., a parasite in the oothecae of two Indian species of cockroaches, mainly of *Neostylopyga rhombifolia* (Stoll), is described. It is assigned to *Cladanastatus* subgen. n. of *Anastatus*, based mainly on the branched antennae in the male and on some less conspicuous characters of the female. *Eupelmus leithi* Wlk., another Indian species, is transferred to *Anastatus*. In addition, two other parasites of Indian cockroaches, *Tetrastichus hagenowii* (Ratz.) and *T. asthenogmus* (Wtstn.), which were confused as a single species, *T. hagenowii*, in the synopsis of the cockroaches and their parasites by Roth & Wills in 1960, are separated.

1227. **Chaudhuri, R. K.** 1979. Peculiar foraging behaviour of honey bees in Kangra (India). —*Indian Bee J.*, **39** (1-4) [1977] : 24-26.

Observations on such peculiar foraging behaviour of honey bees help in understanding the local seasonal variations in bee forage availability.

1228. **Deodikar, G. B.** *et al.* 1979. Nesting behaviour of Indian honey bees III. Nesting behaviour of *Apis dorsata* Fab. —*Indian Bee J.*, **39** (1-4) [1977] : 1-2.

Observations made on 1861 colonies distributed in central and western India are presented with discussion on the significance of the peculiar behavioural features.

1229. **Gadgil, M.** 1979. The paper wasps. —*Hornbill*, No. 12 : 5-8.

1230. **Ghorpade, K. D.** 1979. Further notes on *Perilitus coccinellae* (Hymenoptera : Braconidae) in India. —*Curr. Res. mon. Newsl.*, **8** (7) : 112-113.

1231. **Ghosh, A. K.** 1979. Redescription of *Trioxys nepalensis* (Takada) and new records of *Aphilidi parasitoids* (Hymenoptera : Aphidiidae) from Meghalaya, India. —*Oriental Ins.*, **13** (1) : 101-105.

1232. **Grewal, G. S.** and **Sidhu, A. S.** 1979. Note on the role of bees in the pollination of *Cucurbita pepo*. —*Indian J. agric. Sci.*, **49** (5) : 386-388.

A study was taken up to know the impact of bee-pollination on fruit-setting in this crop. The efficacy of the visits paid by bees during different hours and the pollination requirements of flowers in terms of their visits were also studied.

1233. **Gupta, V. K.** 1979. Oriental species of *Klutiana* (Hymenoptera : Ichneumonidae). —*Oriental Ins.*, **13** (3-4) : 323-329.

1234. **Gupta, V. K.** 1979. The oriental species of *Echthronomas* (Hymenoptera : Ichneumonidae). —*Oriental Ins.*, **13** (3-4) : 357-364.

1235. **Gupta, V. K.** and **Saxena, K.** 1979. Studies on *Menaforia* Seyrig (Hymenoptera : Ichneumonidae). —*Oriental Ins.*, **13** (1-2) : 231-242.

1236. **Hayat, M.** 1979. Taxonomic notes on Indian Encyrtidae (Hym. : Chalcidoidea). I. —*J. nat. Hist.*, **13** (3) : 315-326.

The present paper deals with 21 species belonging to several genera. One generic and seven specific synonyms, and nine new combinations are proposed. Also, material of some known species collected by the author is included.

1237. **Hayat, M.** 1979. Indian species of *Anagyrus* (Hym. : Encyrtidae)—I.— *Oriental Ins.*, **13** (1-2) : 167-188.

1238. **Hayat, M.** and **Verma, M.** 1979. Description of a new genus, *Anomalencyrtus* from India (Hym. : Encyrtidae). —*Oriental Ins.*, **13** (3-4) : 341-344.

1239. **Howlader, M. A.** 1979. Hyperparasitism of *Brachymeria jambolana* Gahan (Hymenoptera : Chalcididae) in Dacca. —*Bangladesh J. Zool.*, **7** (1) : 67-68.

1240. **Kapoor, V. C.** and **Malla, Y. K.** 1979. New record of *Dimeromircus vibidia* (Walker) (Hymenoptera : Torymidae), a parasite of the gall fly *Procecidoch utilis* (Stone) (Diptera : Tephritidae) from Nepal. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 932.

1241. **Kaur, R.** and **Jonathan, J. K.** 1979. *Ichneumonologia Orientalis* Part VIII. The tribe Phytodietini (Hymenoptera : Ichneumonidae). —*Oriental Ins., Monogr.*, No. 9 : 1-276.

1242. **Kawatra, A.** 1979. The status of clypeus and epistomal sulcus in the ant *Camponotus compressus* Fabr. (Hymenoptera : Formicidae). —*Curr. Sci.*, **48** (23) : 1050-1051.

The present studies on *Camponotus compressus* warrant a reappraisal of the interpretation of the disposition of the epistomal sulcus.

1243. **Khandge, S. V., Parlekar, G. Y.** and **Naik, L. M.** 1979. Inundative releases of *Copidosoma koehleri* Blanchard (Hymenoptera : Encyrtidae) for control of the potato tuber worm *Phthorimaea operculella* Zeller. —*J. Maharashtra agric. Univ.*, **4** (2) : 165-169.

1244. **Kirkland, R. L.** 1979. A new species of *Praon* (Hymenoptera : Aphidiidae) imported from Pakistan. —*J. Kansas ent. Soc.*, **52** (2) : 309-312.

P. pakistanum n. sp. a parasite imported into the United States for the biological control of greenbug, *Schizaphis graminum* (Rondani), is described and illustrated.

1245. **Krombein, K. V.** 1979. Biosystematic studies of Ceylonese wasps. V : A monograph of the Ampulicidae (Hymenoptera : Sphecoidea). —*Smithson. Contr. Zool.*, No. 298 : 1-29.

1246. **Kshirsagar, K. K.** and **Chauhan, R. M.** 1979. Preliminary observations on oviposition of behaviour in *Trigona (Tetragona) iridipennis* Smith. —*Indian Bee J.*, **39** (1-4) [1977] : 22-23.

A few preliminary observations on oviposition in these colonies reared in small observation hives are presented here. Ten colonies were procured from the forests of Karnataka.

1247. **Kumar, A., Tewari, G. D.** and **Pandey, N. D.** 1979. Antifeeding and insecticidal properties of bitter gourd, *Memordica charantia* Linn. against *Athalia proxima* Klug.—*Indian J. Ent.*, **41** (2) : 103-106.

1248. **Kumar, A., Tewari, G. D.** and **Pandey, N. D.** 1979. Studies on the antifeeding and insecticidal properties of bitter gourd (*Memordica charantia* L.) against mustard sawfly *Athalia proxima* Klug. —*Pesticides*, **13** (12) : 9-11.

The present study was undertaken with a view to exploring the possibility of using bitter gourd seed oil as antifeedant against the larvae of mustard saw fly.

1249. **Lakshmanan, P. L., Balasubramanian, M.** and **Thangavelu, P.** 1979. Interspecific competition between *Tetrastichus israeli* Mani and Kurian (Eulophidae : Hymenoptera) and *Trichospilus pupivora* Ferriere : (Eulophidae : Hymenoptera). —*Indian J. Ecol.*, **6** (1) : 137-139.

1250. **Mishra, R. C., Dogra, G. S.** and **Gupta, P. R.** 1979. An attempt to domesticate Rock bee, *Apis dorsata* F. —*Indian Bee J.*, **39** (1-4) [1977] : 21.

1251. **Moczar, L.** 1979. New *Sulcomesitius* and *Heterocoelia* species from Sri Lanka (Hymenoptera : Bethylidae).—*Pacif. Insects*, **21** (2) : 241-252.

Four new species of *Sulcomesitius* and two *Heterocoelia* are described, and new locality records are noted for *Sulcomesitius haemorrhoidalis* and *S. szentivanyi*.

1252. **Mukherjee, M. K.** 1979. On a collection of the genus *Scelio* Latreille (Scelionidae : Proctotrupoidea) from India. —*Mem. Sch. Ent.*, No. 7 : 89-117.

1253. **Narendran, T. C.** 1979. A new species and a new record of the interesting genus *Smicromorpha* Girault (Hymenoptera : Chalcididae) from oriental region. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 908-911.

1254. **Nath, D. K.** and **Hikim, I. S.** 1979. Ichneumonid parasitoids of the rice yellow borer in West Bengal. —*Int. Rice Res. Newsl.*, **4** (2) : 19.

A list is presented of the parasites that have been reared from larvae or pupae of the yellow stem borer [*Scirpophaga incertulas* (Wlk.)] on rice in West Bengal, India.

1255. **Palaniswami, M. S.** 1979. A new potential parasite *Leptobatopsis indica* Cameron (Ichneumonidae : Hymenoptera) on coleus top shoot folder *Phostria piasusalis* W. (Pyralidae : Lepidoptera).—*J. Root Crops*, **5** (1&2) : 36-38.

The potentiality of this new parasite as a biological agent against the pest was assessed and the results are presented in this paper.

1256. **Pandey, N. D., Sudhakar, T. R., Tewari, G. C.** and **Pandey, U. K.** 1979. Evaluation of some botanical anti-feedants under field condition for the control of *Athalia proxima* Klug. —*Indian J. Ent.*, **41** (2) : 107-109.

1257. **Parlekar, G. Y., Khandge, S. V.** and **Naik, L. M.** 1979. Efficacy of *Copidosoma koehleri* Blanchard (Hymenoptera : Encyrtidae) in controlling potato tuber worm, *Phthorimaea operculella* (Zeller), (Lepidoptera : Gelechiidae) in 'Arnis' (Local storage method). —*J. Maharashtra agric. Univ.*, **4** (3) : 285-287.

1258. **Ramakrishna, T. M.** and **Arekal, G. D.** 1979. Pollination biology of *Calotropis gigantea* (L.) R. Br. —*Curr. Sci.*, **48** (5) : 212-213.

1259. **Ramzan, M.** and **Singh, D.** 1979. Record of *Pteromalus puparum* Linn. (Pteromalidae : Hymenoptera) from the pupa of lemon butterfly, *Papilio demoleus* Linn. at Ludhiana, Punjab (India). —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 931-932.

1260. **Rao, K. J., Thontadarya, T. S.** and **Rangadhamaiah, K.** 1979. A note on the survival and parasitism of the egg-larval parasite *Chelonus blackburni* Cameron (Hym. : Braconidae) on some lepidopterous hosts. —*Curr. Res. mon. Newsl.*, **8** (3) : 49.

1261. **Saini, M. S.** and **Dhillon, S. S.** 1979. Comparative morphology of galea and lacinia in Hymenoptera —*Entomon*, **4** (2) : 149-155.

The present study is an attempt to trace the systematic pattern of changes in these lobes to ultimately achieve among Apocrita the structures which are far removed from their basic form occurring in Symphyta.

1262. **Saini, M. S,** and **Dhillon, S. S.** 1979. Glossal and paraglossal transformation in Order Hymenoptera. —*Entomon*, **4** (4) : 355-360.

The distal lobes of the labium, the glossa and the paraglossae occur prominently but in simple unmodified state in the hymenopteran families.

1263. **Saini, M. S.** and **Dhillon, S. S.** 1979. Adaptational modifications on the first and second abdominal segments in Order Hymenoptera.—*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 44-53.

The present study is primarily an attempt to give interpretation to the modifications related to the first and second abdominal segments with a view to trace an evolutionary trend within the entire range of Hymenoptera.

1264. **Saini, M. S.** and **Dhillon, S. S.** 1979. Functional modifications of the meta —tibial spurs in Order Hymenoptera. —*J. Anim. Morph. Physiol.*, **25** (1&2) [1978] : 54-60.

1265. **Sevastopulo, D. G.** 1979. The black ant, *Camponotus* sp. feeding on urea. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 511-512.

1266. **Sharma, S.K.** 1979. Studies on Indian Diapriidae (Proctotrupoidea : Hymenoptera). —*Mem. Sch. Ent.*, No. 7 : 1-88.

This paper deals with the thirty two new species, representing fifteen genera from India. In addition to this, ten known species are also included from Indian Region for complete record. Of the fifteen genera dealt with here, thirteen are being recorded for the first time from India. The subfamily Belytinae is also being recorded for the first time from the country. As regards the distribution of the family in India, there are two zoogeographically distinct groups viz. a Gondwana and a Palaearctic.

1267. **Shukla, G. S.** and **Chaturvedi, J.** 1979. Qualitative analysis of free amino acids in the developmental stages of *Tetrastichus pyrillae* Crwf. (Hymenoptera : Eulophidae). —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 44-48.

The present work shows a qualitative estimation of free amino acids present in the extracts of different stages (egg, pupa and adult) of *T. pyrillae*.

1268. **Singh, R.** and **Sinha, T. B.** 1979. First record of *Alloxysta* sp., a hyperparasitoid of *Trioxys* (*Binodoxys*) *indicus* Subba Rao and Sharma (Aphidiidae : Hymenoptera). —*Curr. Sci.*, **48** (22) : 1009.

1269. **Singh, R., Sinha, T. B.** and **Sinha, Km. P.** 1979. Studies on the bionomics of *Trioxys* (*Binodoxys*) *indicus* Subba Rao and Sharma (Hym. Aphidiidae) : A parasitoid of *Aphis craccivora* Koch. (Hem., Aphididae) : IV. Functional response of the parasitoid. —*Entomon*, **4** (4) : 331-334.

The present work elucidates functional response of *T.* (*Biodoxys*) *indicus* showing linear relationship between the degree of mortality and density of *Apis craccivora*.

1270. **Stary, P.** and **Ghosh, A. K.** 1979. Redescription of *Trioxys nepalensis* (Takada) and new host records of some aphid parasitoids (Hymenoptera : Aphidiidae) from Meghalaya, India. —*Oriental Ins.*, **13** (1-2) : 41-45.

T. nepalensis (Takada) was observed as a parasitoid of *Aphis citricola* V. Goot, in Meghalaya, India ; it is redescribed along with its taxonomical and ecological characteristics. New host records of *Aphidius matricariae* Haliday, *Toxares deltiger* (Haliday) and *Lipolexis scutellaris* Mackaner from the same area are added.

1271. **Subba Rao, B. R.** 1979. Taxonomic studies on some encyrtid genera (Hymenoptera : Chalcidoidea : Encyrtidae). —*Oriental Ins.*, **13** (1-2) : 139-148.

Thomsonisea sankarani, sp. nov. reared from *Pseudaulacaspis barberi* (Green) is described from India, and *Acridencyrtus ambiguous*, gen. et sp. nov. ex *Phenacoccus mangiferae* Green is described from Bangladesh.

1272. **Sudheendrakumar, V. V., Mohamed, U. V. K., Abdurahiman, U. C.** and **Narendran, T. C.** 1979. Mating behaviour of *Bracon brevicornis* Wesmael (Hymenoptera : Braconidae), a larval parasite of *Nephantis serinopa* Meyrick, the black headed caterpillar of coconut. —*Agric. Res. J. Kerala*, **16** (2) [1978] : 224-226.

The authors have studied the mating behaviour of *B. brevicornis*.

1273. **Sudheendrakumar, V. V., Remadevi, O. K., Mohamed, U. V. K., Narendran, T. C.** and **Abdurahiman, U. C.** 1979. *Meteoridea hutsoni* (Nixon) (Braconidae : Hymenoptera) a new larval parasite of *Nephantis serinopa* Meyrick (Xyloryctidae : Lepidoptera). —*Entomon*, **4** (3) : 303-304.

1274. **Sundaramurthy, V. T.** and **Santhanakrishnan, K.** 1979. The effect of population density of parasite *Perisierola nephantidis* (Hym. : Bethylidae) on the mortality of coconut caterpillar, *Nephantis serinopa* (Lep. : Cryptophagidae). —*Entomophaga*, **24** (2) : 115-117.

Since no information is available on the effect of population density of *P. nephantidis* on the mortality of host larvae, the present investigations were carried out and results are presented in this paper.

1275. **Sundaramurthy, V. T.** and **Mnkundan, N.** 1979. Maximisation of seed set in sunflower with certain attractants of honey bees.—*Pesticides*, **13** (8) : 30-31.

1276. **Taley, Y. M.** and **Thakare, K. R.** 1979. Biology of seven new hymenopterous parasitoids of *Atherigona soccata* Rondani. —*Indian J. agric. Sci.*, **49** (5) : 344-354.

The life-histories of 7 new hymenopterous parasitoids were studied at the College of Agriculture, Nagpur, during 1968-69 to 1970-71.

1277. **Varma, G. C., Bindra, O. S.** and **Chand, N.** 1979. A note on the biology and colonisation of *Apanteles sesamiae* (Cameron) and *Apenteles diatraeae* Muesebeck (Braconidae : Hymenoptera). —*Indian J. Pl. Prot.*, **6** (1) [1978] : 79-80.

1278. **Varma, G. C.** and **Singh, S.** 1979. A new record of an egg parasitoid *Telenomus dignoides* Nixon (Scelionidae : Hymenoptera) on *Tryporyza nivella* Fabricius from Punjab.—*Indian J. Pl. Prot.*, **6** (1) [1978] : 81.

1279. **Varma, G. C.** and **Singh, B.** 1979. A note on the establishment of *Trichogramma australicum* Girault (Taiwan strain) (Trichogrammatidae : Hymenoptera) in Punjab state. —*J. Res. Punjab agric. Univ.*, **15** (3) [1978] : 348-349.

1280. **Yadav, D. N., Patel, R. C.** and **Manjunath, T. M.** 1979. On the occurrence of new larval parasites of *Plutella xylostella* (L.) in Gujarat. —*Curr. Sci.*, **48** (7) : 312-313.

1281. **Yamane, S.** and **Yamane, S.** 1979. Polistine wasps from Nepal (Hymenoptera, Vespidae). —*Insecta matsum.* (*N. S.*), **15** : 1-37.

Sixteen forms belonging to three polistine genera, *Ropalidia*, *Parapolybia* and *Polistes*, are recorded from Nepal with diagnosis for each form. The males of *Polistes adustus* and *Parapolybia nodosa* are described for the first time. Larvae and nests are described for *P. adustus*, *Ropalidia variegata variegata* and *R. stigma rufa*, with brief notes on the biology. A key to the Nepalese forms of the subfamily studied in this paper is given.

12. ECHINODERMATA

1282. **James, D. B.** 1979. Studies on Indian Echinoderms—6. Redescription of two little known Holothurians with a note on an early juvenile of *Holothuria scabra* Jaeger from the Indian Seas. —*J. mar. biol. Ass. India*, **18** (1) [1976] : 55-61.

A detailed description of two little known holothurians viz., *Havelockia versicolar* (Semper) and *Pseudocolochirus violaceus* (Theel) are given with notes on their synonymy. Notes on early juvenile of *H. scabra* Jaeger is also given at the end of the paper.

1283. **Mary Bai, M.** 1979. Occurrence of the sea urchin, *Stomopneustes variolaris* (Lamarck, 1816) along the coasts of Kanya Kumari (S. India). —*Bull. zool. Surv. India*, **2** (1) : 103-104.

1284. **Mary Bai, M.** 1979. Echinoderms and man. —*Zoologiana*, (**2**) [1978] : 68-73.

The author has discussed about the echinoderms of economical importance in this contribution.

1285. **Mishra, N. K.** 1979. Spectral studies of fragmented ribosomal DNA of sea urchin (*Lytechinus variegetus*). —*Indian J. Biochem. Biophys.*, **16** (3) : 181-182.

1286. **Siddeek, M. S. M.** and **Sachithananthan, K.** 1979. Use of length-weight relationship in grading processed Beche-de-mer. —*Bull. Fish. Res. Stn. Sri Lanka*, **29** (1-2) : 115-125.

Holothurians belonging to the species *Holothuria scabra* are collected by diver-fishermen and processed for export. A method to grade processed Beche-de-mer in an active fishery for these animals in Palk Bay and Gulf of Mannar, off the North-Western Coast of Sri Lanka, is also discussed here.

1287. **Soota, T. D.** and **Sastry, D.R.K.** 1979. Notes on two species of *Echinaster* Muller and Troschel (Echinodermata : Asteroidea) from the Indian Ocean. —*Rec. zool. Surv. India*, **75** (1-4) : 343-352.

Two species of the asteroid genus *Echinaster* are reported for the first time from the Gulf of Kutch. Variations observed in the present material are discussed.

13. CHAETOGNATHA

1288. **Srinivasan, M.** 1979. Taxonomy and ecology of Chaetognatha of the West Coast of India in relation to their role as indicator organisms of watermasses. —*Zool. Surv. India, Tech. Monogr.*, No. 3 : 1-47.

The Phylum Chaetognatha includes 70 species so far known from the Oceans of the world and of these, the 24 species known from the Indian seas are reported from the West Coast of India. Of these 24 species, 2 species belong to the genus *Spadella* are benthic, the rest 22 are pelagic and in this account all these pelagic species are described. Brief notes are provided on the ecology of individual species, and the possibility of using certain species as indicator of watermass and their movements are also described.

In the description of individual species, all the important morphometric characters such as, total length, tail length, anterior fin length, posterior fin length, position of the ventral ganglion, position, shape and structure of the seminal vesicles, ovary length, arrangement of ova, position and shape of callarette, if present, shape and structure of the eyes and meristic characters such as prehensile hook, anterior teeth, and posterior teeth that are useful in the identification of the species are described in detail.

14. HEMICHORDATA

1289. **Yaragal, R. B.** and **James, P. S. B. R.** 1979. First record of a pterobranch hemichordate from the seas around India. —*Curr. Sci.*, **48** (6) : 274-275.

The tube-like material, found in the stomach content of the marine catfish *Tachysurus tenuispinis* from the South Canara Coast, is identified as a pterobranch hemichordate of the genus *Rhabdopleura* and this is the first record of a pterobranch hemichordate from the seas around India.

15. CHORDATA

(a) Pisces

1290. **Abraham, S. E. (Mrs.)** 1979. Fish culture in homestead ponds. —*Kisan Wld.*, **6** (11) : 55-56.

1291. **Afsar, M. R.** 1979. Deformity in stomach structure of *Clupisoma garua* (Ham.). —*Matsya*, **4** [1978] : 79-80.

1292. **Agarwal, S. S.** and **Saksena, D. N.** 1979. Length-weight relationship in *Catla catla* (Ham.). —*Geobios*, **6** (3) : 129-132.

1293. **Agrawal, P., Goel, K. A.** and **Agrawal, R. R.** 1979. Alloxan induced multiple benign hepatoma in a freshwater teleost, *Clarias batrachus*. —*Curr. Sci.*, **48** (22) : 1006-1007.

1294. **Agrawal, V. P., Kaushab, S. K. S.** and **Sastry, K. V.** 1979. Studies on the seasonal variation of few digestive enzymes of three teleost fishes in correlation to their food and feeding habits. —*J. zool. Soc. India*, **28** (1-2) [1976] : 75-80.

1295. **Ahmad, N.** 1979. Freshwater fisheries. —*Pakist. J. Sci.*, **31** (3-6) : 179-183.

1296. **Akhtar, S.** 1979. Food and feeding habits of popular food fishes of Pakistan. —*Pakist. J. Sci.*, **31** (3-6) : 184-188.

1297. **Anon.** 1979. No fishing during breeding season. —*Loris*, **15** (2) : 118.

1298. **Arunachalam, S.** 1979. Effects of feeding levels on surfacing activity and food utilization in the catfish *Heteropneustes fossilis* (Bloch). —*Indian J. exp. Biol.*, **17** (5) : 496-499.

H. fossilis, reared in cylindrical aquaria, on different ration levels increased the surfacing frequency as the ration level increased.

1299. **Babu Rao, M.** and **Yazdani, G. M.** 1977. Fishes and malaria control. An account of suitable species in and around Poona. —*Biovigyanam*, **3** : 65-68.

1300. **Badola, S. P.** and **Singh, S. P.** 1979. Fishing methods in Garhwal hills. —*Proc. Indian Acad. Sci. India*, (B) **47** (3) [1977] : 177-181.

Sixteen fishing methods used in Garhwal region have been described.

1301. **Baloni, S. P.** 1979. Breeding behaviour of *Schizothorax richardsonii* (Gray). —*Geobios*, **6** (4) : 176-177.

1302. **Banerji, S. R.** and **Singh, U. N.** 1979. A truncated specimen of *Cirrhinus mrigala* (Ham.). —*Matsya*, **4** [1978] : 80-82.

1303. **Basu, P.** 1979. New horizons in fisheries in coastal areas of Gujarat. —*Seafd. Export J.*, **11** (1) : 27-30.

1304. **Bhan, S.** and **Mansuri, A. P.** 1979. Adaptations to osmotic stress in the marine euryhaline teleost, *Periophthalmus dipes*. III. Changes in tissue succinic dehydrogenase enzyme levels. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 132-138.

1305. **Bhatt, S. D.** and **Gill, T. S.** 1979. Effect of a new oral antidiabetic drug HB_{419} (Glibenclamide) on the plasma glucose and islet histology of two poikilotherms : *Clarias batrachus* and *Uromastix hardwicki*. —*Indian J. exp. Biol.*, **17** (10) : 1122-1126.

The effect of HB_{419} has been studied on the blood glucose level and histology of the islets of Langerhans of the fresh water fish *C. batrachus*, and the Indian sand lizard *U. hardwicki*.

1306. **Bhatt, V., Bhatt, N.** and **Mansuri, A.P.** 1979. Tissue glycogen and blood glucose levels of *Channa punctatus* Bloch. in relation to salinity.—*Geobios*, **6** (1) : 53-57.

1307. **Bhattacharya, S., Mukherjee, D.** and **Sen, S.** 1979. Role of synthetic mammalian thyrotropin releasing hormone on fish thyroid peroxidase activity. —*Indian J. exp. Biol.*, **17** (10) : 1041-1043.

Mammalian TRH stimulated the thyroid peroxidase activity on the teleost *Ophiocephalus punctatus*.

1308. **Biswas, K. P.** 1979. Inshore demersal fisheries off Orissa Coast. —*Fishery Technol.*, **16** (2) : 101-107.

Results of bottom trawling in inshore areas off Pradeep with reference to total catch composition and catch per unit effort during 1962-1978 are reported.

1309. **Biswas, K. P.** and **Karmakar, S. P.** 1979. Effect of electric stimulation of heart beat and body muscle in fish. —*Fishery Technol.*, **16** (2) : 91-99.

In this paper the authors report their attempts to measure the electrical resistance of the skin and body of fish, the contraction of fish body by direct currents and also the effect of electrical stimulation on the heart beat in fishes.

1310. **Bose, K. C.** and **Sinha, A. K.** 1979. Histopathology of *Heteropneustes fossilis* (Bl.) infected by *Procamallanus* (*Monospiculus*) *devendri*. —*Curr. Sci.*, **48** (6) : 275-276.

Infection of the cat-fish *H. fossilis* by *P.* (*M.*) *devendri* has been studied.

1311. **Bose, K. C.** and **Sinha, A. K.** 1979. The histopathology of the stomach wall of the fish *Channa gachua* (Ham.) (Channidae) attributable to the digenetic trematode *Genarchopsis goppo* (Ozaki) (Hemiuridae). —*Curr. Sci.*, **48** (16) : 747-748.

The histopathology of *Channa gachua* (Ham.) infected by the fluke *Genarchopsis gappo* (Ozaki) has been studied.

1312. **Chanchal, A. K., Pandey, B. N.** and **Singh, S. B.** 1979. Studies on some aspects of the biology of *Anabas testudineus* (Teleostei : Anabantidae). —*Matsya*, **4** [1978] : 15-19.

1313. **Chanchal, A. K., Pandey, B. N., Singh, S. B.** and **Prasad, S.** 1979. Cyclic changes in haematologic values of *Anabas testudineus* (Bloch). —*Ann. Zool.*, **15** (3) : 111-123.

1314. **Chandrasekhar, T. C.** and **Setty, T. M. R.** 1979. Improved method of preservation of pink pearch (*Nemipterus japonicus*) by the combined method of hot smoking and sun drying. —*Curr. Res. mon. Newsl.*, **8** (7) : 117-118.

1315. **Chandrasekhar, T. C., Setty, T. M. R.** and **Mohite, R. R.** 1979. "Fish shavings" —a diversified product from lizard fish (*Saurida tumbil*) by hot smoking process. —*Curr. Res. mon. Newsl.*, **8** (7) : 119-120.

1316. **Chandrasekhar, T. C., Setty, T. M. R.** and **Udupa, K. S.** 1979. Studies on smoke curing and preservation of oil sardine (*Sardinella longiceps*). —*Fishery Technol.*, **16** (1) : 47-52.

A method is reported for smoke curing of oil sardine by dry salting in the ratio of 1 : 6 (salt to fish), followed by smoking in the traditional smoke chamber in two stages, (1) at 45°C for 3h and (2) at 75°C for 2h with smoke generated from coconut hust.

1317. **Chatterji, A., Siddiqui, A. Q.** and **Khan, A. A.** 1978. Food and feeding habits of *Labeo gonius* (Ham.) from the river Kali. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 104-109.

1318. **Chaturvedi, L. D., Joshi, B. D.** and **Sharma, B. B.** 1979. The telencephalic fibre connections in three freshwater teleosts. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 177-181.

The paper partly fills this lacuna and deals with the telencephalic fibre connections in the fresh water teleosts of varied feeding behaviour, viz., *Heteropneustes fossilis*, *Channa punctatus* and *Labeo rohita*, belonging to three different families.

1319. **Chaudhuri, A.** and **Mandal, R.K.** 1979. Interfamily hybridization in Cat fishes. —*Indian J. exp. Biol.*, **17** (10) : 1150-1151.

1320. **Chaudhuri, A., Sarkar, P. K.** and **Mandal, R. K.** 1979. Developmental biology of Catfish *Heteropneustes fossilis* Bloch : changing pattern of RNA synthesis and RNA polymerases during embryonic development.— *Indian J. exp. Biol.*, **17** (10) : 1016-1021.

Changing pattern of RNA synthesis has been studied in developing embryos of *H. fossilis*.

1321. **Chhatbar, S. K.** and **Velankar, N. K.** 1979. Distribution of vitamin B-12 in some fishes and marine invertebrates. —*Fishery Technol.*, **16** (2) : 109-111.

1322. **Chowdhary, S. K., Srivastava, J.B.** and **Iqbal, S. E.** 1979. Observation on the relative usefulness of different feeds for common carp (*Cyprinus carpio* var. *communis* Linn.). —*Matsya*, **4** [1978] : 20-24.

1323. **Daniel, A., Nagabhushanam, A. K.** and **Chakrapany, S.** 1979. On bioluminescent *Noctiluca* swarms associated with the movement of extensive shoals of flying-fishes and schools of dolphins in the northern Arabian sea in February, 1974. —*Rec. zool. Surv. India.*, **75** (1-4) : 237-246.

In this paper, the swarming of *Noctiluca miliaris* causing greenish colouration of the sea during the day and a bluishgreen bioluminescence during the night in February 1974 in the northern Arabian sea observed to be associated with the movement of extensive shoals of two species of flying-fishes and the dolphin are reported.

1324. **Daniel, A., Nagabhushanam, A. K.** and **Krishnamurthy, P.** 1978. On the occurrence of "Greenish yellow water" phenomenon caused by the

swarming of *Trichodesmium erythraeum* Ehrenburg in the Sea off Madras and its effect on the local marine. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 88-95.

1325. **Das, C., Bhattacharya, G. C., Datta, N. C.** and **Ganguly, D. N.** 1979. The body form and other parameters in relation to locomotion of some torrential stream fishes. —*J. zool. Soc. India*, **27** (1-2) [1975] : 137-169.

1326. **Das, S. M.** and **Pathani, S. S.** 1979. A study on the effect of lake ecology on productivity of mahseer (*Tor tor* and *Tor putitora*) in Kumaon lakes, India. —*Matsya*, **4** [1978] : 25-31.

1327. **Das, S. M.** and **Upadhyay, J. C.** 1979. Studies on qualitative and quantitative fluctuations of plankton in two Kumaon lakes, Nainital and Bhimtal (India). —*Acta Hydrobiol.*, **12** (1) : 9-17.

The paper deals with the results of an original investigation undertaken to determine the causes of failure of Mahseer (*Tor tor* and *Tor putitora*) fisheries in Kumaon lakes. It has been shown that there is a scarcity of plankton in lake Nainital, where the fish Mahseer is almost extinct, while Bhimtal with a higher plankton content still has a sizeable Mahseer population.

1328. **Desai, A. K.** 1979. Histological studies of the liver of migratory fish, *Hilsa ilisha* and non-migratory *Hilsa toli*. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 119-123.

1329. **Desai, A. K.** 1979. Distribution of cholinesterase in the liver and stomach of the migratory fish, *Hilsa ilisha* and non-migratory *Hilsa toli*. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 124-131.

The present study on histochemical localization of acetyl and Butyryl-cholinesterases in the stomach and liver of migratory *H. ilisha* and non-migratory *H. toli*, revealed alterations of enzyme activity in the stomach and liver of starving *H. ilisha* during migration and drifted *H. toli* captured from the river.

1330. **Desai, A. K.** 1979. Histological observations on catecholamine secreting cells in the heart of migratory *Hilsa ilisha* and non-migratory *Hilsa toli*. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 252-256.

Changes in the secretory cells of the heart of migratory *H. ilisha* and non-migratory *H. toli* were studied.

1331. **Desai, A. K.** 1979. Comparative structural changes in the kidney of *Hilsa ilisha* and *Hilsa toli* as related to migratory habits. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 220-227.

The histological alterations in the kidney during certain phases of life cycle of the migratory *H. ilisha* and non-migratory *H. toli* were studied. Changes in the haemopoeitic tissue were also studied. An attempt was also made to discuss the kidney-pituitary-adrenocortical tissue interactions.

1332. Deleted.

1333. **De Silva, S. S.** and **Silva, E.I.L.** 1979. Fish fauna of a coastal lagoon in Sri Lanka — distribution and seasonal variation. —*Bull. Fish. Res. Stn. Sri Lanka*, **29** (1-2) : 1-10.

Sri Lanka is blessed with approx. 22000 ha. of lagoons and subsistence fin and shell fisheries exist in almost all the larger lagoons. The results of investigations carried out over the period of Sept. 1977 to August 1978 are presented here.

1334. **De Silva, S. S.** and **Silva, E.I.L.** 1979. Studies on the fish ponds at Pitipana, Negombo. 1. Seasonal and diurnal variation of some hydrobiological factors. —*Bull. Fish. Res. Stn. Sri Lanka*, **29** (1-2) : 63-78.

The paper deals with the biology of a grey mullet, *Mugil cephalus* L., and the feasibility of its culture in the brackish waters and the results of investigations on the water quality of five experimental ponds carried out over a period of one year, together with studies on the primary productivity are presented.

1335. **De Silva, S. S.** and **Silva, E.I.L.** 1979. Biology of young grey mullet, *Mugil cephalus L.* populations in a coastal lagoon in Sri Lanka. —*J. Fish. Biol.*, **15** (1) : 9-20.

1336. **De Souza, S. N.** and **Naqvi, S. W. A.** 1979. Metal concentrations in the grey mullet (*Mugil cephalus*) from Visakhapatnam. —*Mahasagar* —*Bull. natn. Inst. Oceanogr.*, **12** (4) : 259-262.

Abst :—The present work was aimed at determining the concentration levels of various metals in different body tissues of mullet in a polluted environment.

1337. **Devadasan, K.** and **Venkataraman, R.** 1979. On fish meal and our fish meal industry. —*Seafd. Export J.*, **11** (1) : 9-13.

1338. **Devaraj, K. V.** and **Manissery, J. K.** 1979. Preliminary studies on the use of guppies (*Poecilia reticulata*) as forage fish for the culture of common murrel (*Channa striatus*). —*Curr. Res. mon. Newsl.*, **8** (4) : 55-56.

Because of the fast multiplication rate of guppies and their availability in paddy plots, irrigation channels and other freshwater bodies in plenty an experiment was conducted at the Fisheries Research Station, Hesaraghatta to assess the suitability of guppies as single item forage fish for culturing common murrel.

1339. **Dewan, S., Miah, J. U., Sarker, A. L.** and **Saha, S. N.** 1979. Seasonal patterns of feeding of juvenile major carp, *Labeo rohita* (Ham.). —*J. Fish. Biol.*, **14** (6) : 511-516.

1340. **Dhanze, J. R.** and **Jayaram, K. C.** 1979. The family of catfishes of the genus *Arius* (Siluriformes). —*Curr. Sci.*, **48** (22) : 1008.

1341. **Dhanze, J. R.** and **Jayaram, K. C.** 1979. Record of *Tachysurus crossocheilus* (Bleeker) (Pisces : Siluriformes : Ariidae) from the east coast of India. —*Bull. zool. Surv.* India, **2** (1) : 119-121.

1342. **Dharmamba, M.** 1979. Corticosteroids and osmoregulation in fishes. —*Proc. Indian natn. Sci. Acad.*, (B) **45** (5) : 515-525.

The salient features of the role of corticosteroids in the salt and water metabolism of fishes with reference to their effects at various osmoregulatory effector organs have been reviewed.

1343. **Dhawan, A. D., Naidu, N. C.** and **Mohan, K.R.** 1979. Ascorbic acid content in blood and brain of *Clarias batrachus* (Linn.) exposed to industrial effluents. —*Matsya*, **4** [1978] : 70-72.

1343a. **Dubale, M. S.** and **Shah, P.** 1979. Histopathological lesions induced by malathion in the liver of *Channa punctatus*. —*Indian J. exp. Biol.*, **17** (7) : 693-697.

1344. **Durve, V. S.** and **Kakkar, V.** 1979. Fishery of Guda reservoir in Bundi district (Rajasthan). —*Seafd. Export J.*, **11** (6) : 9-14.

1345. **Eschmeyer, W. N., Hallacher, L. E.** and **Rama Rao, K. V.** 1979. The scorpion fish *Minous* (Scorpionidae : Minoinae) including a new species from the Indian Ocean. —*Proc. Calif. Acad. Sci.*, **41** (20) : 453-473.

1346. **Eschmeyer, W. N.** and **Rama Rao, K. V.** 1979. A new scorpion fish *Ebosia falcata* (Scorpaenidae : Pteroinae) from Western India Ocean with comments on the genus. —*Matsya*, **3** : 64-71.

1347. **Eschmeyer, W. N., Rama Rao, K. V.** and **Hallacher, L. E.** 1979. Fishes of the scorpionfish family Choriodactylinae from the Western Pacific and the Indian Ocean. —*Proc. Calif. Acad. Sci.*, **41** (21) : 475-500.

1348. **Fernando, C. H.** 1979. The freshwater zooplankton of Sri Lanka, with a discussion of tropical freshwater zooplankton composition. —*Bull. Fish. Res. Stn. Sri Lanka*, **29** (1-2) : 11-54.

A detailed analysis of the Sri Lanka zooplankton based on extensive samples collected from 1965-1974 from all parts of the country and all types of habitats is presented as a background to discussing differences in tropical and temperate freshwater zooplankton.

1349. **George, V. C., Khan, A. A.** and **Varghese, M. D.** 1979. Rational exploitation of *Catla catla* (Ham). from Hirakud reservoir—a preliminary account. —*Fishery Technol.*, **16** (2) : 87-90.

1350. **Govind, B. V., Sukumaran, P. K.** and **Raghavan, S. L.** 1979. An incidence of Carcinoma in *Puntius puckelli* (Day). —*Matsya*, **4** [1978] : 86-87.

1351. **Govindan, T. K.** 1979. Rigor mortis in fish. The phenomenon and its significance. —*Seafd. Export J.*, **11** (1) : 37-40.

1352. **Grover, S. P.** 1979. Field observation on the biology of *Puntius ticto* (Ham.) in Doon valley. —*Geobios*, **6** (1) : 15-16.

1353. **Grover, S.P.** 1979. Taxonomic account and field observations on the biology of *Nemachilus rupicola* (McClelland) in Doon Valley. —*Cheetal*, **21** (1) : 27-28.

1354. **Grover, S. P.** and **Gupta, S. K.** 1979. Fish and fishes of Banda district (U.P.). —*Proc. natn. Acad. Sci. India*, (B) **47** (4) [1977] : 204-218.

A detailed account of status of fishing industry, resources, fishing methods and the nature of fish fauna of Banda district is presented. A classified list of 84 species of fishes and general aspect of fishery development in river stretches, tanks and reservoirs have been discussed.

1355. **Gupta, R. K.** 1979. Morpho-histology of the brain of sisorid catfish *Bagarius bagarius* (Ham.). —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 71-76.

The present attempt has been made to describe the structure and function of brain.

1356. **Gupta, V. J.** and **Janvier, P.** 1979. Late Devonian vertebrate remains from western Himalayas (Himachal Pradesh, India). —*Bull. Indian geol. Ass.*, **12** (2) : 161-171.

Fragmentary fish scales and teeth have been discovered in conodont bearing samples collected at Yunang river, mostly belonging to elasmobranchs.

1357. **Hakim, V.M.A.** 1979. Export-oriented growth of fisheries. An appraisal.—*Seafd. Export J.*, **11** (3) : 23-27.

1358. **Hasnain, A.** 1979. A note on the comparison of tryptic susceptibility of fish myofibrillar proteins. —*Curr. Sci.*, **48** (8) : 373-374.

1359. **Husain, A.** 1979. Vertebral anomaly in the catfish, *Wallago attu* (Bloch & Schneider) (Siluriformes : Siluridae). —*Cheetal*, **20** (4) : 33-38.

1360. **Husain, A.** and **Tilak, R.** 1979. On the redescription of *Hara jerdoni* Day (Sisoridae : Siluriformes). —*J. inld Fish. Soc. India*, **9** : 92-93.

1361. **Jayabalan, N.** and **Ramamoorthi, K.** 1979. Significance of ventral luminescence of silver—bellies (Fam. : Leiognathidae). —*Curr. Sci.*, **48** (4) : 181-182.

The catches of silver-bellies in bottom trawls were found to vary between the day and night times. The ventral luminescence of leiognathids appears to be one possible reason for the variation.

1362. **Jayaram, K. C.** 1979. Aid to the identification of the Siluroid fishes of India, Burma, Sri Lanka, Pakistan and Bangladesh. 3. Sisoridae. —*Rec. zool. Surv. India, Occ. Pap.* No. **14** : 1-62.

This paper is the third in the series "Aid to the identification of Siluroids." Part 2 (Jayaram, 1977a) dealt with the families, genera and species of Siluridae, Schilbeidae, Pangasiidae, Amblycipitidae and Akysidae. As far as possible important key characters are illustrated under descriptions of genera and diagnosis of species. Further characters which will help in identification are printed in italics.

1363. **Jayaram, K. C.** 1979. Record of *Tachysurus crossocheilus* (Bleeker) (Pisces : Siluriformes, Ariidae) from the East coast of India. —*Bull. zool. Surv. India*, **1** (2) : 119-121.

1364. **Jayaram, K. C.** 1979. Aspects of indigenous and exotic fishes of India. —*Zoologiana*, **(2)** (1978) : 33-39.

The author has discussed all known genera of fresh water fishes to occur in India and the adjacent countries and their entire life history.

1365. **Jayaram, K. C.** and **Dhanze, J. R.** 1979. Siluroid fishes of India, Burma and Ceylon. 22- A preliminary review of the genera of the family Ariidae (Pisces : Siluroidea). —*Matsya*, **4** [1978] : 42-51A.

1366. **Jhingran, V. G.** 1979. Presidential address :—Need for ecological orientation to the management of Inland Fisheries Resources. —*Proc. 66th Indian Sci. Congr.*, Hyderabad, Part II : 17-34.

The need for correctives for man-made ecological distortions and scientific management of fishery resources for their conservation and optimum utilisation is emphasised here.

1367. **Jhingran, V. G.** 1979. Recent advances in inland aquaculture in India. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 589-599.

1368. **Jinadatharaya, Y. A.** and **Vernekar, V. S.** 1979. Modern method for salt curing and drying shark fish. —*Seafd. Export J.*, **11** (1) : 48-50.

1369. **Jonklaas, R.** 1979. Spear fishing. The other side of the coin. —*Loris*, **15** (2) : 64-65.

1370. **Joshi, B. D.** 1979. Effects of starvation on some haematologic values in some fresh water fishes. —*Indian J. exp. Biol.*, **17** (9) : 968-969.

Starvation causes a definite fall in various haematologic values of the fish.

1371. **Joshi, B. N.** and **Sathyanesan, A. G.** 1979. A histochemical study of the adrenal homologue of the freshwater catfish *Rita rita* (Ham.) —*Indian J. exp. Biol.*, **17** (10) : 1044-1048.

In *R. rita* the adrenal homologue is arranged around the posterior cardinal vein in the pronephric kidney.

1372. **Kabir, S. M. H.** and **Ahmed, N.** 1979. Histopathological changes in climbing perch, *Anabas testudineus* (Bloch.) (Anabantidae : Perciformes) due to three granular insecticides. —*Bangladesh J. Zool.*, 7 (1) : 21-29.

Laboratory tests were conducted to ascertain the toxic effects of different dosages of three granular insecticides, namely Basudin 10G, Furadan 3G and Padan on *A. testudineus* cultured in rice fields.

1373. **Kapoor, C. P.** 1979. Effect of follicle stimulating hormone on female *Puntius ticto* (Ham.). —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 110-118.

1374. **Kapur, K.** 1979. Effects of indomethacin on ovulation and spawning in exotic fish *Cyprinus carpio*. —*Indian J. exp. Biol.*, **17** (5) : 517-519.

Studies have been made on the effect of indomethacin—a prostaglandin biosynthesis inhibitor, on ovulation and spawning in *C. carpio*.

1375. **Karamchandani, S. J.** and **Mishra, D. N.** 1979. Food and feeding habits of *Labeo boggut* (Sykes) from Kulgarhi reservoir (Madhya Pradesh). —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 389-396.

1376. **Khuda-Bukhsh, A. R.** 1979. Karyology of two species of hillstream fishes, *Barilius bendelisis* and *Rasbora daniconius* (Fam. : Cyprinidae). —*Curr. Sci.*, **48** (17) : 793-794.

1377. **Koundinya, P. R.** and **Murthi, R. R.** 1979. Haematological studies in *Sarotherodon* (*Tilapia*) *mossambica* (Peters) exposed to lethal (Lc 50/48 hrs.) concentration of sumithion and sevin. —*Curr. Sci.*, **48** (19) : 877-879.

1378. **Krishna Kumari, L., Sumitra-Vijayaraghavan, Royan, J. P.** and **Wafar, M.V.M.** 1979. Laboratory studies on the food conversion in *Etroplus suratensis*. —*Mahasagar-Bull. natn. Inst. Oceanogr.*, **12** (1) : 41-43.

In this communication, experiments were carried out on the fish *E. suratensis* using four different types of pelleted foods containig different levels of protein and carbohydrates and the food conversion efficiencies was discussed.

1379. **Krishnaja, A. P.** and **Rege, M. S.** 1979. Genetic studies on two species of the Indian carp *Labeo* and their fertile F_1 and F_2 hybrids. —*Indian J. exp. Biol.*, **17** (3) : 253-257.

Karyotope analysis, haemoglobin profiles and muscle and serum protein patterns of the Indian carps *Labeo rohita* and *L. calbasu* together with those of their fertile F_1 hybrids '*Calbahu*', '*Rosu*' and F_2 'Calbahu' are presented.

80. **Kulkarni, C. V.** and **Ogale, S. N.** 1979. Feeding, growth and early development of the Indian trout, *Barilius (Opsarius) bola* Ham. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 266-272.

81. **Kulkarni, C. V.** and **Ogale, S. N.** 1979. The present status of Mahseer (fish) and artificial propagation of *Tor khudree* (Sykes). —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978) : 651-660.

82. **Kumari, C. S. V.** 1979. Blood urea content in the catfish *Clarias batrachus* (Linn.). —*Bull. Dept. Mar. Sci. Univ. Cochin*, **10** : 29-35.

83. **Kumari, S. D. R.** and **Nair, N. B.** 1979. The respiratory metabolism of the hill stream loach *Noemacheilus triangularis* Day. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 109-120.

An attempt is made to study the routine oxygen consumption in a hill-stream loach *N. triangularis* Day.

84. **Kumari, S. D. R.** and **Nair, N. B.** 1979. Sexual dimorphism in the loaches *Noemacheilus triangularis* (Day) and *Lepidocephalus thermalis* (Cuv. & Val.). —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 198-210.

In *L. thermalis*, thickened inner rays of pectorals are a sex distinguishing feature, whereas in *N. triangularis*, no such externally visible sex dimorphic characters are present. Detailed statistical analysis reveal certain morphometric measurements which are specific for male and female *N. triangularis* and *L. thermalis*, but these are of not much value for the easy recognition of sexes in the field.

1385. **Kumari, S. D. R.** and **Nair, N. B.** 1979. Effects of feeding rate on the growth, conversion efficiency and chemical composition of *Noemacheilus triangularis* (Day) and *Lepidocephalus thermalis* (Cuv. & Val.). —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 296-306.

The effect of feeding rate on the growth, conversion efficiency and chemical compsition of the two loaches viz. *N. triangularis* and *L. thermalis* are presented.

1386. **Kunjipalu, K. K., Kuttappan, A. C.** and **Mathai, P. G.** 1979. A new large mesh trawl for demersal fishery.— *Fishery Technol.*, **16** (1) : 19-27.

Investigations with a new 32 m large mesh demersal trawl were carried out in the sea off Veraval, North West Coast of India and the results were reported in this paper.

1387. **Lazarus, S.** and **Joel, J. J.** 1979. The pelagic fisheries resources of Kanyakumari district, Tamil Nadu, South India. —*Seafd. Export J.*, **11** (5) : 9-28.

The important fishing craft and gear in the district, seasonal and regional variations of the fishery, important species exploited, and disposal, utilization and marketing of the catches are briefly described.

1388. **Mahajan, C. L.** and **Juneja, C. J.** 1979. Bioassay studies on an airbreathing fish *Channa punctatus* Bloch. with aldrin. —*Rajasthan Univ. Stud. Zool.*, **1** : 41-47.

1367. **Jhingran, V. G.** 1979. Recent advances in inland aquaculture in India. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 589-599.

1368. **Jinadatharaya, Y. A.** and **Vernekar, V. S.** 1979. Modern method for salt curing and drying shark fish. —*Seafd. Export J.*, **11** (1) : 48-50.

1369. **Jonklaas, R.** 1979. Spear fishing. The other side of the coin. —*Loris*, **15** (2) : 64-65.

1370. **Joshi, B. D.** 1979. Effects of starvation on some haematologic values in some fresh water fishes. —*Indian J. exp. Biol.*, **17** (9) : 968-969.

Starvation causes a definite fall in various haematologic values of the fish.

1371. **Joshi, B. N.** and **Sathyanesan, A. G.** 1979. A histochemical study of the adrenal homologue of the freshwater catfish *Rita rita* (Ham.) —*Indian J. exp. Biol.*, **17** (10) : 1044-1048.

In *R. rita* the adrenal homologue is arranged around the posterior cardinal vein in the pronephric kidney.

1372. **Kabir, S. M. H.** and **Ahmed, N.** 1979. Histopathological changes in climbing perch, *Anabas testudineus* (Bloch.) (Anabantidae : Perciformes) due to three granular insecticides. —*Bangladesh J. Zool.*, **7** (1) : 21-29.

Laboratory tests were conducted to ascertain the toxic effects of different dosages of three granular insecticides, namely Basudin 10G, Furadan 3G and Padan on *A. testudineus* cultured in rice fields.

1373. **Kapoor, C. P.** 1979. Effect of follicle stimulating hormone on female *Puntius ticto* (Ham.). —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 110-118.

1374. **Kapur, K.** 1979. Effects of indomethacin on ovulation and spawning in exotic fish *Cyprinus carpio*. —*Indian J. exp. Biol.*, **17** (5) : 517-519.

Studies have been made on the effect of indomethacin—a prostaglandin biosynthesis inhibitor, on ovulation and spawning in *C. carpio*.

1375. **Karamchandani, S. J.** and **Mishra, D. N.** 1979. Food and feeding habits of *Labeo boggut* (Sykes) from Kulgarhi reservoir (Madhya Pradesh). —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 389-396.

1376. **Khuda-Bukhsh, A. R.** 1979. Karyology of two species of hillstream fishes, *Barilius bendelisis* and *Rasbora daniconius* (Fam. : Cyprinidae). —*Curr. Sci.*, **48** (17) : 793-794.

1377. **Koundinya, P. R.** and **Murthi, R. R.** 1979. Haematological studies in *Sarotherodon* (*Tilapia*) *mossambica* (Peters) exposed to lethal (Lc 50/48 hrs.) concentration of sumithion and sevin. —*Curr. Sci.*, **48** (19) : 877-879.

1378. **Krishna Kumari, L., Sumitra-Vijayaraghavan, Royan, J. P.** and **Wafar, M.V.M.** 1979. Laboratory studies on the food conversion in *Etroplus suratensis*. —*Mahasagar-Bull. natn. Inst. Oceanogr.*, **12** (1) : 41-43.

In this communication, experiments were carried out on the fish *E. suratensis* using four different types of pelleted foods containig different levels of protein and carbohydrates and the food conversion efficiencies was discussed.

1379. **Krishnaja, A. P.** and **Rege, M. S.** 1979. Genetic studies on two species of the Indian carp *Labeo* and their fertile F_1 and F_2 hybrids. —*Indian J. exp. Biol.*, **17** (3) : 253-257.

Karyotope analysis, haemoglobin profiles and muscle and serum protein patterns of the Indian carps *Labeo rohita* and *L. calbasu* together with those of their fertile F_1 hybrids '*Calbahu*', '*Rosu*' and F_2 'Calbahu' are presented.

1380. **Kulkarni, C. V.** and **Ogale, S. N.** 1979. Feeding, growth and early development of the Indian trout, *Barilius (Opsarius) bola* Ham. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 266-272.

1381. **Kulkarni, C. V.** and **Ogale, S. N.** 1979. The present status of Mahseer (fish) and artificial propagation of *Tor khudree* (Sykes). —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978) : 651-660.

1382. **Kumari, C. S. V.** 1979. Blood urea content in the catfish *Clarias batrachus* (Linn.). —*Bull. Dept. Mar. Sci. Univ. Cochin*, **10** : 29-35.

1383. **Kumari, S. D. R.** and **Nair, N. B.** 1979. The respiratory metabolism of the hill stream loach *Noemacheilus triangularis* Day. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 109-120.

An attempt is made to study the routine oxygen consumption in a hill-stream loach *N. triangularis* Day.

1384. **Kumari, S. D. R.** and **Nair, N. B.** 1979. Sexual dimorphism in the loaches *Noemacheilus triangularis* (Day) and *Lepidocephalus thermalis* (Cuv. & Val.). —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 198-210.

In *L. thermalis*, thickened inner rays of pectorals are a sex distinguishing feature, whereas in *N. triangularis*, no such externally visible sex dimorphic characters are present. Detailed statistical analysis reveal certain morphometric measurements which are specific for male and female *N. triangularis* and *L. thermalis*, but these are of not much value for the easy recognition of sexes in the field.

1385. **Kumari, S. D. R.** and **Nair, N. B.** 1979. Effects of feeding rate on the growth, conversion efficiency and chemical composition of *Noemacheilus triangularis* (Day) and *Lepidocephalus thermalis* (Cuv. & Val.). —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 296-306.

The effect of feeding rate on the growth, conversion efficiency and chemical compsition of the two loaches viz. *N. triangularis* and *L. thermalis* are presented.

1386. **Kunjipalu, K. K., Kuttappan, A. C.** and **Mathai, P. G.** 1979. A new large mesh trawl for demersal fishery.— *Fishery Technol.*, **16** (1) : 19-27.

Investigations with a new 32 m large mesh demersal trawl were carried out in the sea off Veraval, North West Coast of India and the results were reported in this paper.

1387. **Lazarus, S.** and **Joel, J. J.** 1979. The pelagic fisheries resources of Kanyakumari district, Tamil Nadu, South India. —*Seafd. Export J.*, **11** (5) : 9-28.

The important fishing craft and gear in the district, seasonal and regional variations of the fishery, important species exploited, and disposal, utilization and marketing of the catches are briefly described.

1388. **Mahajan, C. L.** and **Juneja, C. J.** 1979. Bioassay studies on an airbreathing fish *Channa punctatus* Bloch. with aldrin. —*Rajasthan Univ. Stud. Zool.*, **1** : 41-47.

The purpose of conducting these tests was two-fold (i) to determine tolerance of *C. punctatus* for aldrin as compared to other fishes and (ii) to plan experiments at sub-lethal levels.

1389. **Mahajan, C. L.** and **Juneja, C. J.** 1979. Effect of aldrin on peripheral blood of fish *Channa punctatus* (Bloch.).—*Indian J. environ. Hlth.*, **21** (2) : 162-172.

The results of a series of experiments on an air breathing fish *C. punctatus* at various sublethal levels of aldrin dissolved in water (0.025-0.125 mg/1) are reported in this paper.

1390. **Malhotra, Y. R., Jyoti, M. K.** and **Gupta, K.** 1979. *Ichthyophonus* and *Myxobolus* as a possible cause of exophthalmus and ovotestes condition in male *Channa punctatus* Bloch.—*Matsya*, **4** [1978] : 83-86.

1391. **Malhotra, Y. R., Jyoti, M. K.** and **Sehgal, H.** 1979. Causes of size and sex restricted kill of *Puntius conchonius* in a subtropical lake in Jammu. —*Indian J. exp. Biol.*, **17** (8) : 836-837.

An interesting winter fish kill is reported from a subtropical lake, Jammu.

1392. **Mansuri, A. P.** and **Bhan, S.** 1979. Adaptations to the osmotic stress in the marine euryhaline teleost, *Periophthalmus dipes*. IV. Changes in total protein levels of various tissues. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 139-146.

The present study deals with the effects of salinity changes on total protein content of different tissues in the teleost, *P. dipes*.

1393. **Mathur, D. S.** 1979. Histopathological changes in liver of fishes resulting from exposure to certain chlorinated hydrocarbon insecticides. —*Toxicons*, **17** : 118.

1394. **Mathur, D. S.** 1979. Effects of various concentrations of aldrin on seven species of fishes of Jabalpur (M. P.) —*Proc. natn. Acad. Sci. India*, (B) **47** (3) [1977] : 161-163.

1395. **Mathur, D. S.** 1979. Toxicity of dieldrin to certain siluroid fishes. —*Proc. natn. Acad. Sci. India*, (B) **47** (3) [1977] : 191-192.

1396. **Mathur, D. S.** and **Agarwal, H. P.** 1979. Fishes in relation to man. —*Zoologiana*, (2) [1978] : 49-53.

In this paper the authors have made an attempt to evaluate the importance of fishes.

1397. **Matthews, V. S.** 1979. Brackish water fish farming in Orissa—A new horizon. —*Seafd. Export J.*, **11** (1) : 45-47.

1398. **Meenakshi, S., Rajamanickam, C.** and **Jayaraman, J.** 1979. Adaptation to salinity by fish macromolecular changes in mitochondria and microsomes of the gill. —*J. Biosci.*, **1** (4) : 427-432.

Mitochondria isolated from the gill tissues of the fish *Sarothredon mossambica* were analysed for their macromolecular content, following transfer from fresh water to media of higher salinity. The results suggest a breakdown of mitochondria during the initial phases of the stress and a regeneration during continued exposure. Also all the synthetic machineries, in general, seem to be triggered in gill tissue during continuous exposure to hyperosmotic media.

1399. **Menezes, M. R.** 1979. Serum patterns of flat fishes.—*Mahasagar—Bull. natn. Inst. Oceanogr.*, **12** (1) : 45-48.

This study was undertaken to determine whether individual variations in serum patterns exist in the species examined and whether such physiological variables as age, sex or condition of maturity exert any influence on electrophoretic characteristics.

1400. **Mishra, A. K.** and **Singh, B. R.** 1979. Effect of thermal stress on O_2 consumption through water of the air breathing fish *Channa gachua* (Bloch). —*Indian J. exp. Biol.*, **17** (9) : 892-894.

The study was conducted to measure O_2 uptake through the gills of *C. gachua* in summer and winter at different temperatures.

1401. **Mishra, K. D., Saxena, B. D.** and **Sharma, P. K.** 1979. Brain of *Xenentodon cancila* with reference to its feeding habits. —*Geobios*, **6** (4) : 166-168.

1402. **Mishra, N. K.** and **Sardana, N.** 1979. Effect of lysine-arginine and glutathione on the growth of oocytes of the fish *Anabas testudineus* (Bloch). —*Curr. Sci.*, **48** (11) : 508-509.

The effect of intraperitoneal injections of lysine-arginine and glutathione on oocyte and ovarian growth of the climbing perch. *A. testudineus* is reported.

1403. **Mishra, R. N.** and **Mishra, N. K.** 1979. Effect of starvation on *Heteropneustes fossilis* (Bloch) : a biochemical study. —*Indian J. exp. Biol.*, **17** (11) : 1224-1229.

1404. **Mohanty, S. K.** 1979. Some observations on the toxicity of effluents from a caustic soda factory to some estuarine and freshwater fishes. —*Sci. Cult.*, **45** (3) : 116-118.

Toxicity of some industrial effluents to fish has been studied.

1405. **Mohanty, S. K., Rao, P. V.** and **Choudhury, S.** 1979. Ganjam coast in Orissa can support good trawl fishery. —*Seafd. Export J.*, **11** (3) : 15-17.

1406. **Mukundan, M. K., James, M. A., Radhakrishnan, A.G.** and **Antony, P.D.** 1979. Red and white meat of tuna (*Euthynnus affinis*). Their biochemical role and nutritional quality. —*Fishery Technol.*, **16** (2) : 77-82.

The biochemical and nutrient composition of red and white meat of tuna are reported.

1407. **Murthy, K. V. S.** 1979. Temperature range of some species of fish off Veraval during February, 1979. —*Seafd. Export J.*, **11** (8) : 19-23.

1408. **Mustufa, G.** and **Abu Ahmed, A. T.** 1979. Food of *Notopterus notopterus* (Pallas) (Notopteridae : Clupeiformes). —*Bangladeh J. Zool.*, **7** (1) 7-14.

A detailed study was undertaken on the food habit of the fish from pond and jheel which consists of protozoans, crustaceans, algae, insects and small quantities of other food items.

1409. **Nagendran, R.** and **Shakuntala, K.** 1979. Studies on toxicity of biocides to cyprinid forage fishes : Part I — Effects of sublethal concentrations of sodium pentachlorophenate on the ecophysiology of *Puntius ticto* (Ham.). —*Indian J. exp. Biol.*, **17** (3) : 270-273.

Effects of sublethal concentrations of Na-PCP on the behaviour and bioenergetics of feeding of *P. ticto* have been described.

1410. **Nammalwar, P.** 1979. An instance of regenerated scale in the perch *Pomadasys hasta* (Bloch.) (Pomadasyidae).—*Matsya*, **4** [1978] : 82-83.

1411. **Nammalwar, P.** and **Narayanan, K.** 1979. Mass mortality of fishes due to the bloom of *Trichodesmium thiebauttii* Gomont on the Gulf of Mannar Coast. —*Sci. Cult.*, **45** (4) : 170-171.

1412. **Nandi, N. C.** and **Raut, S. K.** 1979. Outbreak of lernaeosis in freshwater fishes from a pond at Midnapore, West Bengal. —*Indian J. Anim. Hlth.*, **18** (2) : 67-68.

Infection of *Lernaea bengalensis* in *Channa punctatus* and *Lernaea* sp. from a number of fishes have been noted.

1413. **Natarajan, G. M.** 1979. Oxygen consumption in *Channa gachua* (Ham.). —*Geobios*, **6** (11) : 30-31.

1414. **Natarajan, G. M.** 1979. Corpuscles of Stannius of *Anabas scandens* Cuvier. —*Geobios*, **6** (5) : 220-221.

1415. **Natarajan, G. M.** 1979. Observations on the oxygen consumption in Indian air-breathing fishes. III. Oxygen consumption in the fresh water catfish, *Mystus gulio* (Ham.). —*Comp. Physiol. Ecol.*, **4** (1) : 38-40.

Data on oxygen consumption of *M. gulio* are summarised and the results are discussed.

1416. **Natarajan, R., Nair, G.B.** and **Abraham, M.** 1979. Incidence of *Vibrio parahaemolyticus* in relation to feeding habit of fishes. —*Curr. Sci.*, **48** (19) : 875-877.

1417. **Nath, S.** 1979. On the food, feeding habits and alimentary tract of *Garra gotyla gotyla* (Gray) (Cypriniformes ; Cyprinidae ; Garrinae). —*Matsya*, **4** [1978] : 75-76.

1418. **Pallam, V. J.** 1979. Larval development of the lanternfish (Pisces, Myctophidae) *Diogenichthys panurgus* Bolin, 1946). —*Bull. Dept. Mar. Sci. Univ. Cochin*, **10** : 1-18.

1419. **Pandey, K. C.** and **Misra, R. C.** 1979. Olfactory organs and olfaction in a terodontiform fish, *Tetrodon hypselogenjon* Bleeker. —*Indian J. Zoot.*, **20** (1) : 55-57.

1420. **Pandey, K.C.** and **Pandey, D.N.** 1979. A note on the hypophysis of *Xenentodon cancila* (Hamilton). —*Geobios*, **6** (4) : 183-184.

1421. **Pandey, K. C.** and **Sarala (Miss)** 1979. Remarks on the heart of *Channa punctatus* (Bloch). —*Indian J. Zoot.*, **20** (1) : 43-45.

1422. **Panduranga Rao, C.C., Govindan, T.K.** and **Gupta, S.** 1979. Investigations on long distance transportation of fish—V, transportation of filleted and round seer fish. (*Scomberomorus* sp.) from Kakinada to Calcutta by rail.—*Fishery Technol.*, **16** (1) : 11-13.

1423. **Panigrahi, A. K., Rath, S.** and **Misra, B. N.** 1979. Change in DNA, protein and free amino acids of the brain of a freshwater fish *Tilapia mossambica* Peters, during aging. —*Indian J. exp. Biol.*, **17** (7) : 699-701.

1424. **Parihar, R. P.** 1979. Studies on the cleavage and gastrulation in *Cirrhinus mrigala* (Ham.). —*Ann. Zool.*, **15** (2) : 43-57.

5. **Parvathi, M. R.** and **Sriramulu, V.** 1979. Pro-lactin influenced lipogenesis in *Mystus vittatus* (Bloch.). —*Curr. Sci.*, **48** (10) : 457-459.

6. **Parvathi, M. R.** and **Sriramulu, V.** 1979. Influence of bovine prolactin on lipogenesis in liver of the fresh-water fish *Mystus vittatus* (Bloch).— —*Indian J. exp. Biol.*, **17** (10) : 1103-1106.

Exogenous administration of bovine prolactin (NIH-P-B_4) between 5 and 6 hr after the onset of the photoperiod to *M. vittatus* is discussed.

7. **Parwez, I, Goswami, S. V.** and **Sundararaj, B. I.** 1979. Salinity tolerance of the fresh water catfish *Heteropneustes fossilis* (Bloch). —*Indian J. exp. Boil.*, **17** (8) : 810-811.

Abrupt transfer of fresh water catfish to media of various salinities ranging from 10% to 100% sea water revealed that its upper limit for survival was 35% sea water.

8. **Pathani, S. S.** 1978. Secondary sexual characters in Kumaon mahseer *Tor tor* (Hamilton) and *Tor putitora* (Hamilton) in U.P. —*Indian J. Anim. Sci.*, **48** (10) : 773-775.

9. **Pathani, S. S.** and **Das, S. M.** 1979. On induced spawning of mahseer *Tor putitora*, (Hamilton) by mammalian and fish pituitary hormone injection. —*Sci. Cult.*, **45** (5) : 209-210.

0. **Patnaik, S. K.** *et al.* 1979. Comparative studies on phosphorylases of the muscle of some vertebrates, —*Indian J. Biochem. Biophys.*, **16** (3) : 182-185.

The activities and kinetic properties of muscle phosphorylases of five vertebrates viz. a fish (*Clarias batrachus*), a frog (*Rana tigrina*), a lizard (*Calotes versicolor*), a pigeon (*Columba livia*) and a squirrel (*Funambulus pennanti*), have been studied.

1431. **Patro, U. K. N.** and **Patnaik, B. K.** 1979. Change in ascorbic acid, glycogen and protein of muscle and brain of *Ophiocephalus punctatus* Bloch. following short-term cold stress. — *Indian J. exp. Biol.*, **17** (5) : 521-523.

Short-term cold stress included a low level of ascorbic acid and a rise in glycogen content of the fish muscle but did not alter the concentration of such constituents in brain.

1432. **Perigreen, P. A., Nair, A. L.** and **Prabhu, P. V.** 1979. Filleting of fish and utilisation of filleting waste. — *Fishery Technol.*, **16** (1) : 43-45.

1433. **Pillai, V. N.** 1979. Environmental monitoring and forcasting services for Indian fisheries. Possibilities and prospects. —*Seafd. Export J.*, **11** (1) : 19-25.

1434. **Polunin, N. V. C.** and **Lubbock, R.** 1979. Five new prawn—associated gobies (Teleostei : Gobiidae) of the genus *Amblyeleotris*. —*Bull. Br. Mus. nat. Hist.* (*Zool.*), **36** (4) : 239-249.

Five new species of prawn-associated gobies belonging to the genus *Amblyeleotris* Bleeker are described : *A. rhyax* from the Philippines and Bismarck Archipelago, *A. callopareia* and *A. macronema* from the Geat Barrier Reef, *A. latifasciata* from the Gulf of Thailand and Philippines, and *A. diagonalis* from various localities, in the Indian Ocean and Western Pacific, (Sri Lanka & eastern Andaman Sea).

1435. **Pradhan, M. S.** 1977. Preliminary observations on the serum proteins of some fishes of Nagpur Distt. —*J. inld. Fish. Soc. India*, **9** : 212-213.

1436. **Pradhan, M. S.** and **Dubbewar, D. M.** 1979. Effect of hypophysectomy on blood glucose and liver glycogen concentration in the Indian cat fish, *Clarias batrachus*. —*Endokr. pol.*, **30**(3) : 285-288.

1437. **Prasad, D. Y.** 1979. Effect of sodium cyanide on tissue energy reserve in a freshwater catfish *Clarias batrachus* (Linn.). —*Curr. Sci.*, **48** (18) : 829-830.

The effect of various concentrations of sodium cyanide, on liver, muscle, brain and kidney glycogen content in fresh water catfish *C. batrachus* (Linn.) was studied.

1438. **Prasad, R. R.** 1979. Fishes and their migration. —*Seafd. Export J.*, **11** (9) : 19-23.

1439. **Prasada Rao, K. S.** and **Ramana Rao, K.V.** 1979. Effect of sublethal concentration of methyl parathion on selected oxidative enzymes and organic constituents in the tissues of the freshwater fish, *Tilapia mossambica* (Peters).— *Curr. Sci.*, **48** (12) : 526-528.

1440. Deleted.

1441. **Qadri, M. Y.** and **Yousuf, A. R.** 1979. Physico-chemical features of Beehama spring. —*Geobios*, **6** (5) : 212-213.

1442. **Raghuvanshi, C.** 1979. Distribution of glycogen in the normal and regenerated barbel of the fish *Heteropneustes fossilis* (Bloch). —*Curr. Sci.*, **48** (11) : 510-511.

1443. **Rahman, A.** 1979. Occurrence of the snake-eel, *Pisodonophis cancrivorus*, in Bangladesh, with notes on other eels. —*Matsya*, **4** [1978] : 88-91.

1444. **Rajagopalan, M.** and **Meiyappan, M. M.** 1979. Redescription of the sand shark *Negaprion odontaspis* (Fowler) obtained from Minicoy Atoll, Lakshadweep. —*J. mar. biol. Ass. India*, **18** (1) [1976] : 162-165.

N. odontaspis belonging to the Family Carcharhinidae is reported for the first time after its original discovery, based on a juvenile female specimen of 551 mm length obtained from the Minicoy lagoon of the Laccadive Archipelago. The specimen is redescribed and illustrated here.

1445. **Raju, T.** and **Ramana Rao, J. V.**1979. Nitrite induced methemoglobinemia in cat fish *Clarias batrachus* (Linn.). —*Indian J. environ. Hlth.*, **21** (1) : 79-81.

1446. **Ram, L.** 1979. Siluroid fishes as new hosts for *Ichthyoxenus montanus*, Schioedte and Meinert (Crustacea : Isopoda : Cymothoidea). —*J. inld. Fish. Soc. India*, **10** : 127-128.

1447. **Ramachandrapai, M.** and **Venkitasubramanian, T. A.** 1979. Aflatoxins —a review. —*J. scient. inld. Res.*, **38** (2) : 73-80.

1448. **Ramaswamy, M.** and **Reddy, T. G.** 1979. Adaptive changes in the blood bicarbonate levels of three air-breathing fishes following aerial exposure. —*Curr. Sci.*, **48** (10) : 461-462.

1449. **Ramaswamy, M.** and **Reddy, T. G.** 1979. Adaptive changes in free amino acid levels in blood of three air-breathing fishes in response to desiccation. —*Indian J. exp. Biol.*, **17** (9) : 961-964.

In the obligate air-breathing fishes free amino acid levels in blood increased in response to dehydrating stress during exposure to aerial conditions.

1450. **Ranganatha Koundinya, P.** and **Ramamurthi, R.** 1979. Comparative study of inhibition of acetylcholinesterase activity in the freshwater teleost *Sarotherodon (Tilapia) mossambica* (Peters) by Sevin (carbamate) and Sumithion (organophosphate). —*Curr. Sci.*, **48** (18) : 832-833.

The present report is a comparative study of inhibition of 'AchE' and accumulation of 'Ach' in different tissues of a freshwater teleost exposed to lethal (LC 50/48 hrs) concentration of Sevin and Sumithion.

1451. **Rangaswamy, C. P.** 1979. On the appearance of certain diagnostic characters in fry of *Mugil cephalus* Linnaeus. —*Matsya*, **4** [1978] : 11-14.

1452. **Rao, G. P. S., Nadkarni, V. B.** and **Rao, M. A.** 1979. The endocrine component of the testis of the catfish, *Clarias batrachus* (Linn.) : a histochemical study. —*Curr. Sci.*, **48** (18) : 834-835.

Investigation was undertaken to identify and confirm the endocrine component, histologically and histochemically, in the testis of *C. batrachus*.

1453. **Rao, K. S.** and **Rao, K. V. S. J.** 1979. A case report of epidermal tumors on a marine teleost, *Johnius (Johnieops) aneus* (Bloch.) from the waters off Visakhapatnam. —*Curr. Sci.*, **48** (9) : 417-418.

In the present study, the specimen was collected from the catches of a trawler operating between the fishing grounds outside the breakwater of the outer harbour of Visakhapatnam, it is possible that the fish was subjected to the adverse effects of the industrial and domestic effluents let out into the harbour waters.

1454. **Rao, K. S.** and **Dad, N. K.** 1979. Studies of herbicide toxicity in some freshwater fishes and ectoprocta.— *J. Fish. Biol.*, **14** (6) : 517-522.

1455. **Rath, R.** and **Hejmadi, P. M.** 1979. The fecundity of *Ophiocephalus punctatus* (Pisces : Channidae). —*J. zool. Soc. India*, **28** (1-2) [1976] : 1-6.

1456. **Ratnakar, A.V.** 1979. Effect of salinity on *Cyprinus carpio* (var communis) —A study in context of utilization of water from river Khan. —*Univ. Indore Res. J. Sci.*, **6** (1) : 8-12.

The melanization was observed on the head and dorsal surface of the fish with the increase of salinity and disappeared when they were brought to normal fresh water.

1457. **Reddy, P. B.** 1979. Ventral fin length as a sexually dimorphic character in the murrel, *Channa punctata* (Bloch. 1793). —*Curr. Sci.*, **48** (10) : 442.

1458. **Reddy, P. B.** and **Reddi, C. S.** 1979. On the meristic characters in species of Mastacembelidae from Guntur. — *Geobios*, **6** (5) : 199-203.

1459. **Reddy, S. R.** 1979. Preliminary investigations on the culture of *Puntius ticto* (Ham.) on tubificid worms. — *Ceylon J. Sci.* (*Biol. Sci.*), **13** (1-2) : 19-21.

Food intake, growth and conversion efficiency of *P. ticto* were studied by feeding the juvenile fish on a 'ad libitum' diet of the oligochaete worm *Tubifex tubifex* for 30 days. The result of the above observation is given here.

1460. **Remick, A. P.** 1979. A kettle of fish ? —*Loris*, **15** (2) : 121.

1461. **Ritakumari, S. D.** and **Nair, N. B.** 1979. Food, feeding habits and rate of gastric digestion in *Noemacheilus triangularis* Day. —*Proc. Indian natn. Sci. Acad.*, **45**B (1) : 56-70.

In this paper, a detailed study of the food, feeding habits and rate of gastric digestion in a hill-stream loach of Kerala *N. triangularis* Day is presented.

1462. **Rita Kumari, S. D.** and **Nair, N. B.** 1979. Length-weight relationship of the loaches *Noemacheilus triangularis* Day and *Lepidocephalus thermalis* (Cuv. & Val.). —*Matsya*, **4** [1978] : 52-58.

1463. **Saeed-uz-Zaman, M.** 1979. Culture of common carp (*Cyprinus carpio* Linnaeus) in Punjab. —*Pakist. J. Sci.*, **31** (1-2) : 60-63.

Distribution, morphology, spawning behaviour for the culture of the common carp *C. carpio* Linn. have been illustrated on economic importance.

1464. **Saha, S. N.** and **Dewan, S.** 1979. Food and feeding habits of *Tilapia nilotica* (Linnaeus) (Perciformes : Cichlidae). 1. Types and amount of food taken by the fish and its size and patterns of feeding. —*Bangladesh J. zool.*, **7** (1) : 53-60.

Examination of the gut contents of different size of 240 specimens from a pond in Jamalpur during November 1975 to June, 1976 showed that the fish is an omnivore with higher feeding preference for detritus and plant food.

1465. **Saralaya, K. V.** 1979. Fish processing and diversification. —*Seafd. Export J.*, **11** (3) : 9-14.

1466. **Sareen, M. L.** and **Khullar, R. C.** 1979. Morphological and histochemical studies on the oogenesis of *Discognathus lamta* (Ham.). —*Res. Bull. Panjab Univ.*, **28** (1-2) [1977] : 85-92.

The histochemistry of lipids, carbohydrates, proteins and nucleic acids occurring in the ovary of *D. lamta* has been worked out.

1467. **Sarkar, P. K., Chaudhuri, A.** and **Mandal, R. K.** 1979. Developmental biology of catfish *Heteropneustes fossilis* Bloch : changes in nucleic acid and protein content and effects of some inhibitors during embryonic development. —*Indian J. exp. Biol.*, **17** (10) : 1012-1015.

The different stages of embryonic development of *H. fossilis* have been studied following artificial spawning induced by administration of chorionic gonadotrophin.

1468. **Sarma, B., Choudhury, M.** and **Goswami, U. C.** 1979. Length-weight relationship in *Channa striatus* (Bloch.), a commercially important murrel of Assam. —*Matsya*, **4** [1978] : 87-88.

1469. **Saxena, M.** and **Kulshrestha, S. K.** 1979. Structural organisation of the integument of non-scaly teleost *Mystus vittatus* (Pisces : Siluridae) with special reference to its anchoring elements. —*Ann. Zool.*, **15** (4) : 141-157.

1470. **Saxena, O. P., Chowdhery, V.** and **Bhatia, H. K.** 1979. Yolk nucleus in the oocyte of a freshwater fish *Colisa fasciatus* (Bl. and Schn.). —*Matsya*, **4** [1978] : 69-70.

1471. **Saxena, P. K.** and **Mani, K.** 1979. Ovarian recrudescence in freshwater teleost *Channa punctatus* (Bl.), during thiourea treatment. —*Indian J. exp. Biol.*, **17** (12) 1301-1304.

1472. **Saxena,** (Miss) **R.** and **Tyagi, A. P.** 1979. Teratology of pelvic fin in *Clarias batrachus*. —*Matsya*, **4** [1978] : 78-79.

1473. **Selvaraj, C.** and **Kanaujia, D. R.** 1979. Scientific fish culture in an Orissa village. —*Indian Fmg.*, **29** (2) : 27-28.

1474. **Selvaraj, C.** and **Kanaujia, D. R.** 1979. Fish seed rearing in village ponds. —*Indian Fmg.*, **29** (3) : 31-32.

1475. **Selvaraj, C., Parameswaran, S.** and **Radhakrishnan, S.** 1979. Biometric studies of the species of *Ompok* Lacepede. —*Matsya*, **4** [1978] : 72-75.

1476. **Sen, T. K.** 1979. *Lepidocephalus dibruensis*, a new cobitid fish from Dibru river, Dibrugarh, Assam, with a key to the Indian species of *Lepidocephalus* Bleeker. —*Bull. zool. Surv. India*, **2** (1) : 35-38.

A new species of *Lepidocephalus* from Dibru river is described and a key to the identification of the Indian species of the genus *Lepidocephalus* provided.

1477. **Shanbhogue, S. L.** 1979. Demersal fishery resources of India. —*Seafd. Export J.*, **11** (8) : 9-16.

1478. **Shanbhouge, S. L. Sheshappa, D. S., James, P. S. B. R.** and **Stephen, D.** 1979. Preliminary observations on the diet activity patterns of fishes along Mangalore Coast. —*Curr. Res. mon. Newsl.*, **8** (7) : 123-124.

1479. **Sharma, C. L.** 1979. Biostatistical analysis of growth of mesencephalon and its parts in the development stages of *Cirrhina mrigala* (Ham.). —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 93-101.

The study was undertaken to work out the analysis of growth on length basis and problems related with the various parts of brain.

1480. **Shenoy, A. S.** 1979. Fisheries of Orissa—A review. —*Seafd. Export J.*, **11** (5) : 29-33.

1481. **Shrestha, T. K.** 1979. Techniques of fishing in Nepal. 1. Innovation and development of loop line snaring. —*J. nat. Hist. Mus.*, **3** (1-4) : 121-138.

The constructional design of the snaring loop line fishing technique and its modus operandi in the Sunkoshi and Trisuli river systems have been presented.

1482. **Siddiqi, S. Z.** 1979. Occurrence of *Exallias brevis* (Kner, 1868) [Blenniidae : Salariinae] and *Scartelaos tenuis* (Day, 1876) [Gobiidae : Gobionellinae] in Indian waters. —*Bull. zool. Surv. India*, **2** (1) : 111-112.

1483. **Singh, B. P.** 1979. Abnormalities in paired fins of *Silonia silondia* (Hamilton). —*J. zool. Soc. India*, **27** (1-2) [1975] : 178-180.

1484. **Singh, H. R.** 1979. The cerebellar tracts in a fresh-water teleost *Puntius ticto* Giinther (Cypriniformes, Cyprinidae). —*Matsya*, **4** [1978] : 32-41.

1485. **Singh, S. R.** and **Singh, B. R.** 1979. Changes in O_2 consumption of a siluroid fish (*Mystus vittatus*) put to different concentrations of some heavy metal salts. —*Indian J. exp. Biol.*, **17** (3) : 274-276.

The routine O_2 uptake of *M. vittatus* at 30°C considerably decreased in the toxic solutions of Cu and Zn sulphate.

1486. **Sinha, A. B.** 1978. Gut content of *Gudusia chapra* Ham. in relation to plankton of Ramgarh Lake. —*Fertil. Technol.*, **15** (2) : 188-190.

1487. **Sinha, G. M.** 1979. Histochemical localization of alkaline and acid phosphatase in the alimentary tract of hatchling of a teleost fish, *Cirrhinus mrigala* (Hamilton). —*Mikroskopie*, **33** (3-4) : 101-107.

1488. **Sinha, M., Singh, B.** and **Saha, P. K.** 1979. A note on hypophysation of tawes, *Puntius javanicus* (Blkr.) in India. —*Curr. Sci.*, **48** (8) : 370-371.

1489. **Sinha, N. D. P.** and **Dutta Munshi, J. S.** 1979. Muscle fluid compartments and electrolyte distribution in relation to gonadal cycle in the freshwater teleost *Channa punctatus*. —*Indian J. exp. Biol.*, **17** (9) : 885-887.

A compartmental analysis giving an idea of kinetics of distribution of electrolytes in muscle fluid compartments during post-spawning, resting and preparatory phases of gonadal cycle of the amphibious teleost *C. punctatus* is reported.

1490. **Sinha, R. K., Singh, S. P.** and **Singh, S. B.** 1979. Studies on afferent branchial arteries in an exotic fish *Tilapia mossambica* (Peters). —*Matsya*, **4** [1978] : 76-78.

1491. **Sinha, S. C.** 1979. In Tripura fish culture in paddy fields. —*Indian Fmr.*, **28** (11) : 32 & 35.

1492. **Sinha, V. R. P.** 1979. Carp seed production through induced breeding. —*Indian Fmg.*, **29** (4) : 28-30.

In this article, the technique of induced breeding for development of intensive fish culture has been discussed.

1493. **Somvanshi, V. S.** 1979. Seasonal changes in the biochemical composition of liver in *Garra mullya* (Sykes). —*Fishery Technol.*, **16** (1) : 39-41.

1494. **Soni, D. D.** and **Srivastava, B. K.** 1979. Ecological study on predatory fishes of Sagar lake. —*Geobios*, **6** (6) : 269-271.

1495. **Soni, D. D., Srivastava, B. K.** and **Srivastava, A. G.** 1979. Conjoint twins in Blackmollic, *Mollienisia sphenops* (Cuv. & Valen.). —*Geobios*, **6** (4) : 192.

1496. **Sastry, K. V.** and **Gupta, P. K.** 1979. Alteration in the activities of three Peptidases and Lipase in the digestive system of the fish *Channa punctatus* exposed to lead nitrate. —*Bull. environ. Contam. Toxicol.*, **21** : 190-195.

The present investigations deal with the alterations in the activities of some digestive enzymes that accompany acute and chronic lead intoxication in the liver and different parts of the digestive tract of a teleost fish, *Channa punctatus*.

1497. **Sastry, K. V.** and **Malik, P. V.** 1979. Studies on the effect of Dimetron on the digestive system of a freshwater fish, *Channa punctatus*. —*Arch. environ. Contam. Toxicol.*, **8** : 397-407.

1498. **Sastry, K. V.** and **Sharma, S. K.** 1979. *In Vivo* effect of Endrin on three phosphatases in kidney and Liver of the fish *Ophiocephalus punctatus*. —*Bull. environ. Contam. Toxicol.*, **21** : 185-189.

The liberal use of pesticides on agricultural pests often causes damage to aquatic life. A number of workers have reported toxicity of organoch-

lorine pesticides to fishes. In the present study, the effect of endrin on the phosphatases of kidney and liver in *Ophiocephalus punctatus* has been examined.

1499. **Sreenivasan, S., Anand, C. P.** and **Dhananjaya, S.** 1979. Studies on freezing and cold storage preservation of commercially important fresh water fishes. —*Curr. Res. mon. Nswsl.*, **8** (8) : 141-143.

The present studies on freezing and cold storage preservations of commercially important fresh water fishes were attempted to find out the retention of oriental qualities of fish during freezing and storage of the fish.

1500. **Srivastava, C. B. L.** 1979. Occurrence of sensory nerve endings (stretch receptors) in the muscles of a teleost *Gnathonemus petersii*. —*Natn. Acad. Sci. Lett.*, **2** (5) : 199-200, 2 pls.

1501. **Srivastava, G. J.** and **Srivastava, O. P.** 1979. Urea induced histopathology in skin and gastric lining of the teleost *Channa punctatus* (Bl.). —*Indian J. exp. Biol.*, **17** (8) : 840-843.

1502. **Srivastava, N.** and **Kapoor, A. S.** 1979. Cyclic changes in amino-acid content of the liver in *Channa punctatus* Bloch. —*Rajasthan Univ. Stud. Zool.*, **1** : 63-70.

Cyclic changes and correlation of these with corresponding changes in various endocrine glands of the fish have been discussed.

1503. **Srivastava, N.** and **Kapoor, A. S.** 1979. Measurement of thyroid gland activity in fish. —*Matsya*, **4** [1978] : 67-69.

1504. **Sundararaj, V.** 1979. Fish for mosquito control. —*Kisan Wld*, **6** (9) : 50-51.

1505. **Sundararaj, V., Gouthaman, K. C.** and **Raman, K. R.** 1979. Fish culture in paddy fields. —*Kisan Wld*, **6** (2) : 51-53.

1506. **Swarup, K., Shyam Lal** and **Srivastav, A. K.** 1979. Evaluation of toxicity of effluent of a fertilizer factory in Gorakhpur to *Puntius sophore* by bioassay. —*Proc. natn. Acad. Sci. India*, (B) **47** (3) [1977] : 247-250.

The details of the toxic range of effluent, the rate of survival of fish and causes of fish mortality are discussed.

1507. **Swarup, K.** and **Singh, S. R.** 1979. The fishery of Surha Tal, Ballia, Uttar Pradesh. —*J. zool. Soc. India*, **27** (1-2) [1975] : 180-184.

1508. **Talwar, P. K.** 1979. Deep-water fishes of India. —*Zoologiana*, (2) [1978] : 1-6.

The oceanic fishes form two main ecological groups depending on their relationship to the Ocean floor. Swimming and floating between the surface and the deep-sea floor are the pelagic fishes, below these come the benthic fishes living near or at the bottom.

1509. **Tandon, K. K.** and **Gupta, R.** 1979. On a collection of fish from Ferozpur district (Punjab). —*J. zool. Soc. India*, **27** (1-2) [1975] : 19-29.

151[illegible]. **Tandon, K. K.** and **Gupta, J. R.** 1979. Notes on the bionomics of *Macrones vittatus* (Bloch). —*Res. Bull. Panjab Univ.*, **27** (1 & 2) [1976] : 121-122.

Brief notes on some aspects of its biology have been given on the basis of the data collected from Verka near Amritsar (Punjab) during 1966-1967.

1511. **Tandon, K. K.** and **Kaur, P.** 1979. Taxonomic value of tori longitudinales and valvula cerebelli in *Channa punctatus* (Bloch) and *Channa marulius* (Ham.). —*Curr. Sci.*, **48** (11) : 511-512.

1512. **Tandon, K.K.** and **Sharma, V. K.** 1979. Ichthyofauna of Kangra and Hamirpur districts (Himachal Pradesh). —*J. zool. Soc. India*, **28** (1-2) [1976] : 55-64.

1513. **Tandon, R.S.** and **Pandey, K. C.** 1979. On the functional morphology of labyrinth-weberian ossicles-swim bladder complex of freshwater shark *Wallago attu*. —*J. zool. Soc. India*, **28** (1-2) [1976] : 139-145.

1514. **Thakur, N. K.** 1979. On the maturity and spawning of an air-breathing catfish *Clarias batrachus* (Linn.).—*Matsya*, **4** [1976] : 59-66.

1515. **Thakur, N.K., Munnet, S.K.** and **Singh Kohli, M.P.** 1979. Teratological manifestations *Clarias batrachus* (Linn.).—*Geobios*, **6** (6) : 257-260.

1516. **Thampuran, N.** and **Iyer, K. M.** 1979. Studies on the growth temperature ranges of bacteria isolated from fresh sardine at different primary incubation temperatures. —*Fishery Technol.*, **16** (1) : 15-18.

1517. **Thankamma, R.** *et al.* 1979. Protein hydrolysate from miscellaneous fish. —*Fishery Technol.*, **16** (2) : 71-75.

A method to prepare fish protein hydrolysate from miscellaneous fish obtained as by—catch from shrimp trawlers is outlined.

1518. **Thomas, F.** and **Mathen, C.** 1979. Mercury in fish. —*Seafd. Export J.*, **11** (1) : 31-34.

1519. **Thomas, P. C.** and **Misra, M. S.** 1979. Carbonic anhydrase content in various tissues of a freshwater bony fish (*Heteropneustes fossilis*). —*J. zool. Soc. India*, **27** (1-2) [1975] : 31-35.

1520. **Tilak, R.** 1979. Description of a new subspecies of a cyprinid and a new distributional record of sciaenid from Poonpun river, a tributary of river Ganga, near Patna (Bihar). —*Cheetal*, **20** (4) : 25-28.

1521. **Tilak, R.** 1979. Redescription of *Hara hara* (Ham.) *Hora horai* Misra with a key to species of the genus *Hora* Blyth. —*Bull. zool. Surv. India*, **1** (3) : 295-301.

1522. **Tilak, R.** and **Sinha, N. K.** 1979. A check-list of fishes of Madhya Pradesh. —*Zool. Jb.*, **106** : 179-196.

1523. **Toor, H. S., Kapur, K.** and **Rai, B.** 1979. Follicular atresia in the ovary of the teleost fish *Puntius ticto*.—*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 85-92.

The process of follicular atresia in the *P. ticto* ovary has been described.

1524. **Tripathi, S. D.** and **Sharaf, R. K.** 1979. A natural rohu × mrigal hybrid from Adhartal lake, Jabalpur. —*J. zool. Soc. India*, **28** (1-2) [1976] : 89-92.

1525. **Valles, I. G.** 1979. Spin-fishing on the Kerala coast. —*Hornbill*. No. 12 : 15-16.

1526. **Venkatesan, P.** and **Rao, T. K. R.** 1979. Effect of food quality and rate of conversion on the growth of *Sphaerodema annulatum* Fabr. fed with larvae of *Culex*. —*Entomon*, **4** (3) : 277-280.

An attempt has been made to investigate the effect of food quality and rate of conversion on the growth of the developmental stages fed only on larvae of *Culex* mosquito.

27. **Verma, S. R., Tyagi, A. K.** and **Dalela, R. C.** 1979. Effect of distillery waste on some freshwater teleosts-biochemical studies. —*Environ. Pollut.*, **19** (3) : 225.

28. **Weerakoon, D. E. M.** 1979. Induced spawning of two major species of Chinese carps, *Ctenopharyngodon idellus* and *Aristychthys nobilis* in Sri Lanka. —*Bull. Fish. Res. Stn. Sri Lanka*, **29** (1-2) : 55-62.

This article describes the techniques involved in induced spawning at the Freshwater Fish Breeding and Experimental Station in Udawalawa.

29. **Yazdani, G. M.** and **Harshey, D. K.** 1979. The Indian mahseers. Their identity and distribution. —*Wild Life*, **1** (4-6) : 15-18.

30. **Yusufkamal, M., Jaitly, P. N.** and **Singh, D. N.** 1979. Low temperature induced spawning of the Indian major carp, *Cirrhina mrigala* (Hamilton). —*Sci. Cult.*, **45** (2) : 68-69.

(b) Amphibia

31. **Anandarathnam, K.** and **Swami, K. S.** 1979. Protein synthesis in relation to amino acid and protein changes in amphibian muscle. —*Indian J. exp. Biol.*, **17** (11) : 1247-1249.

32. **Anasuya, R., Gajalakshmi, V., Rajendra, W., Indira, K.** and **Swami, K. S.** 1979. Effect of DDT on succinate and glutamate dehydrogenase activities in selected tissues of frog (*Rana hexadactyla*). —*Curr. Sci.*, **48** (18) : 835-837.

An attempt was made to study the in vitro effects of DDT on succinic dehydrogenase and glutamate dehydrogenase activity levels to know the specific effect of this organochlorine insecticide on oxidative patterns and detoxification potential of mitochondrial enzymes in different tissues of frog, *R. hexadactyla*.

1533. **Biswas, N., Ojha, J.** and **Datta Munshi, J. S.** 1979. Bimodal oxygen uptake in relation to body weight of the amphibious Mud-Skipper *Beleophthalmus boddaerti* (Pall.). —*Indian J. exp. Biol.*, **17** (8) : 752-756.

Measurements of the bimodal O_2 uptake have been made on estuarine amphibious mud-skipper *B. boddaerti* and the data analysed with respect to body weight using logarithmic transformation, $Y = a\ W^b$.

1534. **Brahmachari, G. K.** 1979. Adrenaline in toad venom. —*Sci. Report.*, **16** (3) : 197-198.

1535. **Breckenridge, W. R.** and **Jayasinghe, S.** 1979. Observations on the eggs and larvae of *Ichthyophis glutinosus*.—*Ceylon J. Sci. (Biol. Sci.)*, **13** (1-2) : 187-202.

Description of the egg, embryo and larva at different stages of development are given. Some data regarding egg numbers per cluster, egg sizes, lengths of embryos and larvae, gill sizes and gill morphology are also provided.

1536. **Chacko, T.** (Mrs.) 1979. Development of chondrocranium in *Rana tigrina* Daud. —*J. zool. Soc. India*, **28** (1-2) [1976] : 103-138.

1537. **Jagadees, K.** 1979. Farm the frog and augment export. —*Seafd. Export J.*, **11** (3) : 29-33.

1538. **Kameswari, M., Raghu Ramulu, G.** and **Rao, L. N.** 1979. Effect of helminth infections on the macromolecular contents in the liver of *Rana tigrina*. —*Indian J. exp. Biol.*, **17** (9) : 976-979.

1539. **Kasinathan, S., Balasubramanian, A., Ramakrishnan, S.** and **Basu, S. L.** 1979. The role of fat body in testicular spermatogenesis and steroidogenesis in *Rana hexadactyla* Lesson. —*J. Biosci.*, **1** (2) : 207-214.

In this paper, the authors report the biological and biochemical role of fat body in *R. hexadactyla* Lesson with a special emphasis on cholesterols required for steroidogenesis, and on prostaglandins and cyclic AMP reported to influence spermatogenesis (Marsh and Savad, 1966 ; Marsh, 1968 ; Butcher *et al.* 1968 ; Bartke and Koerner, 1974 ; Tso and Lacy, 1975). Histochemical studies have also been made under different experimental condition.

1540. **Kasinathan, S., Basu, S. L.** and **Sriramulu, V.** 1979. Subtotal gonadectomy and its effect on the spermatogenesis in *Rana hexadactyla* (Lesson). —*Comp. Physiol. Ecol.*, **4** (1) : 7-10.

The present work has been planned to study whether the compensatory hypertropy is dependent on the size and volume of the other excised gonad or the phenomenon is independent of such factors.

1541. **Krishnamoorthy, R. V.** and **Das, A. B.** 1979. Changes in myosin yield and myosin—ATPase activity of frog gastrocnemius muscle. —*Indian J. exp. Biol.*, **17** (7) : 687-689.

1542. **Lakshmipathi, V., Ramana Rao, K. V.** and **Swami, K. S.** 1979. Electrophoretic patterns of proteins in three species of frog *Rana hexadactyla* (Lesson) *Rana tigrina* (Daudin) and *Rana cyanophlyctis* (Schneider). —*Indian J. exp. Biol.*, **17** (3) : 298-300.

Distinct variabilities were observed in the band pattern of serum transferrins, albumins and the soluble muscle proteins of the frogs were studied.

1543. **Mastanaiah, S., Raju, D. C.** and **Swami, K. S.** 1979. The influence of denervation on the co-enzyme specificity of malate and glutamate dehydrogenases in gastrocnemius muscle of frog, *Rana hexadactyla*. —*Curr. Sci.*, **48** (10) : 434-436.

1544. **Mulherkar, L.** and **Rao, G. B.** 1979. Histochemical detection of mucopolysaccharides during development of the frog *Microhyla ornata*. —*Indian J. exp. Biol.*, **17** (10) : 1022-1026.

The presence of neutral and acidic mucopolysaccharides in different stages of larval development of *M. ornata* is demonstrated by using various histochemical techniques.

1545. **Nanavati, A.N.D.** 1979. The fossil frog beds at Worli Hill, Bombay. —*Hornbill*, No. **10** : 14-15.

1546. **Niazi, I. A.** and **Saxena, S.** 1979. Relationship between inhibiting influence of vitamin A and developmental stage of regenerating tail in toad tadpoles (*Bufo andersonii*).—*Indian J. exp. Biol.*, **17** (9) : 866-868.

Experiments were designed to find the stage during tail regeneration most sensitive to vitamin A excess.

7. **Nigam, H. C.** 1979. Food and feeding habits of *Rana tigrina* (Daud.) in paddy belts of Uttar Pradesh. —*Geobios*, **6** (6) : 241-244.

8. **Pillai, R. S.** 1979. A new species of *Rana* (Family Ranidae) from Western Ghats, S. India. —*Bull. zool. Surv. India*, **2** (1) : 39-42.

A new species of frog belonging to the genus *Rana* is being described from Naduvattom (W. Ghats) on the basis of four males, two females and four juveniles.

9. **Pillai, R. S.** and **Chandra, S. K.** 1979. Amphibian fauna of Khasi hills, Meghalaya. —*Rec. zool. Surv. India*, **75** (1-4) : 383-395.

The paper deals with the amphibian fauna of Khasi hills. Altogether 20 species are recorded from the area. Keys for the genera and the species are also given.

0. **Rajendra, W., Indira, K.** and **Swami, K. S.** 1979. Catalytic potential of glutamate dehydrogenase in normal and fatigued gastrocnemius muscles of frog. —*Curr. Sci.*, **48** (24) : 1062-1064.

1. **Rajendra, W., Suhasini, D., Chetty, C. S., Indira, K.** and **Swami, K. S.** 1979. Malathion impact on contraction kinetics of amphibian skeletal muscle. —*Curr. Sci.*, **48** (16) : 748.

Experiments were conducted to investigate the effect of malathion on contraction kinetics of the muscle.

2. **Reddanna, P.** and **Govidappa, S.** 1979. Effect of *in vivo* muscular stimulations. II. Influence on hepatic carbohydrate metabolism. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 156-161.

An attempt has been made to understand the changes in the carbohydrate metabolism of hepatic tissue during muscular electrical stimulation.

1553. **Reddy, M. N., Indira, K.** and **Swami, K. S.** 1979. Changes in electromigratory pattern of Ca^{2+} in denervation atrophy of amphibian gastrocnemius muscle.—*Indian J. exp. Biol.*, **17** (12) : 1392-1393.

1554. **Selvanayagam, P. F. L.** and **Habibulla, M.** 1979. Electrical stimulation effects on the levels of free amino acids and proteins in peripheral nervous system of frog. —*Indian J. exp. Biol.*, **17** (3) : 300-302.

1555. **Shivpal** and **Niazi, I. A.** 1979. A table of normal developmental stages of the larvae of the toad *Bufo andersonii* Boulenger (Bulonidae, Anura, Amphibia). —*Rajasthan Univ. Stud. Zool.*, **1** : 8-17.

In this paper the period from the time of appearance of hindlimb buds in the tadpole upto the end of metamorphosis into a toadlet is divided into I-XXII developmental stages based on externally recognizable morphological features.

1556. **Singh, K.** and **Singh, N.** (**Km.**) 1979. Effect of seasonal variations, starvation and cold acclimation on serum cholinesterase activity of common frog, *Rana tigrina*. —*Curr. Sci.*, **48** (3) : 131.

The authors made a study to observe the effect of seasonal changes, cold acclimation and starvation on the level of serum cholinesterase in the common Indian frog.

1557. **Singh, K.** and **Singh, N.** 1979. Studies on serum acid phosphatase of common frog *Rana tigrina*. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 228-235.

This investigation was undertaken on acid-phosphatase of *R. tigrina* serum (1) to determine the normal level of the enzyme activity, (2) to establish the biochemical characterization of the enzyme, (3) to study the stability of the enzyme and, (4) to find out the effect of some known inhibitors on the rate of enzyme activity.

1558. **Sinha Hikim, A. P.** 1979. Islet cytology of Himalayan newt (*Tylototriton verrucosus*). —*Curr. Sci.*, **48** (16) : 744-745.

The present report deals with the islet cytology of an undescribed urodel, the Himalayan newt with a view to ascertaining its cytological composition and intrapancreatic distribution.

1559. **Soni, D.D.** and **Shrivastava, A.S.** 1979. Abnormality in fore limb of *Rana tigrina* Daudin.—*Geobios*, **6** (2) : 74-75.

1560. **Sridhara, S.** 1979. Acid and alkaline phosphatase activity of skeletal muscles of the frog, *Rana cyanophlyctis*, during low temperature acclimation. —*Indian J. exp. Biol.*, **17** (9) : 958-960.

1561. **Sridhara, S.** and **Krishnamoorthy, R. V.** 1979. Muscle specific compensatory changes in the myosin ATPase activity of cold-acclimated *Rana cyanophlyctis*. —*Comp. Physiol. Ecol.*, **4** (1) : 19-24.

The investigation is directed to examine whether the capacity acclimation of a thermoconformer involves functional demands of the muscle or brings forth changes in the trophic influence of the muscle with reference to purified myosin ATPase activity of frogs acclimated to cold.

1562. **Suhasini, D., Rajendra, W., Indira, K.** and **Swami, K. S.** 1979. DDT impact on aspartate and alanine amino transferase activity levels in the liver of frog, *Rana hexadactyla*. —*Curr. Sci.*, **48** (5) : 228-230.

1563. **Vankateswarlu, D.** and **Babu, K. S.** 1979. *In vivo* administration of scorpion *Heterometrus fulvipes* venom on enzymatic alterations in brain, muscle and liver of frog. —*Indian J. exp. Biol.*, **17** (3) : 303-304.

1564. **Visalakshi, S.** and **Ashraf, J.** 1979. Comparative study of thermostability of live and 'model' tissue of *Rana tigrina* inhabiting tropical climate. —*Indian J. exp. Biol.*, **17** (11) : 1275-1277.

(c) Reptilia

1565. **Acharjyo, L. N., Mohapatra, S.** and **Mishra, B.** 1978. On skin sloughing of king Cobras, *Ophiophagus hannah* (Cantor) in captivity. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 234-236.

1566. **Agarwal, P. N.** 1979. The trigeminal nerve and its branches in a non-poisonous snake, *Natrix piscator piscator* Schneid. and a poisonous snake, *Naja naja naja* Linn. —*Curr. Sci.*, **48** (18) : 827-829.

A comparative account of the trigeminal nerve and its innervation in non-poisonous and poisonous snakes has been reported.

1567. **Agrawal, H. P.** 1979. Food and feeding habits of *Naja naja naja* Linn. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 272-275.

1568. **Agrawal, H. P.**, and **Mathur, D. S.** 1979. Reptilian taxonomy—a boon to mankind.—*J. Fd. Farm Agric.*, **10** (7) : 260-261.

9. **Bhanotar, R. K.** and **Bhatnagar, R. K.** 1979. Bio-eco studies on spiny tailed lizard *Uromastix hardwickii* Gray. Part II. Psammophilic adaptations.—*J. zool. Soc. India*, **28** (1-2) [1976] : 81-88.

0. **Biswas, S., Acharjyo, L. N.** and **Mahapatra, S.** 1979. Notes on the distribution, sexual dimorphism and growth in captivity of *Geochelone elongata* (Blyth). —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 928-930.

1. **Biswas, S.** and **Sanyal, D. P.** 1978. A new species of Krait of the genus *Bungarus* Daudin 1808 (Serpentes : Elapidae) from the Andaman Island. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 179-183.

2. **Chandra, A., Srivastava, J. C.** and **Srivastava, S. C.** 1979. Life on earth 200 million years ago. —*Sci. Report.*, **16** (3) : 168-174.

The Triassic period—age of the reptiles witnessed the development of many a new form and group of life.

2a. **Chavan, S. A.** 1979. Distribution and conservation of crocodiles in and around Gir wildlife sanctuary. —*Indian J. For.*, **2** (3) : 266-268.

3. **Chugh, K. S., Mohanthi, D., D., Yash Pal** and **Dass, K. C.** 1979. Coagulation abnormalities induced by Russell's viper venom in the rhesus monkey. —*Am. J. Trop. Med. Hyg.*, **28** (4) : 763-767.

4. **Das, K.** and **Patnaik, B. K.** 1979. Effect of age, sex and cold exposure on pyruvate oxidation by midbrain of the garden lizard *Calotes versicolor*.—*Indian J. exp. Biol.*, **17** (12) : 1371-1373.

5. **De Silva, A.** 1979. The Ceylon krait. Record of a large specimen. —*Loris*, **15** (2) : 97-98.

1576. **Editor,** 1979. Crocodile farming : a money spinner. —*Loris*, **15** (2) : 123-124.

1577. **Gay, T.** 1979. Notes on the green keeback snake (*Macropisthodon plumbicolour*). —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 854-859.

1578. **Halder, C.** and **Thapliyal, J. P.** 1979. Pineal of *Calotes versicolor*, Daud. A light and electron microscopic study. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 307-313.

The present investigation was undertaken to study (light and electronmicroscopic) morphology and cytology of the pineal gland of the Indian garden lizard, *C. versicolor* with a view to determine if the pineal, a photosensitive secretory organ of a tropical lizard, would be any different from that of lizards of temperate zone.

1579. **Jain, S. P.** 1979. Report on hematological studies of *Natrix piscator* Schneider, a fresh water snake.—*Agra Univ. J. Res.*, **27** (2) [1978] : 91-94.

1580. **Katdare, M.** and **Mulherkar, L.** 1979. A study of the morphogenesis of the lizard, *Calotes versicolor*. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 147-152.

Histological study of development of skin from stage 26 embryo to stage 41 embryo is carried out. The difference between dorsal and ventral scale is described.

1581. **Kinariwala, R. V., Shah, R. V.** and **Ramachandran, A. V.** 1979. Tail regeneration and lipid metabolism : changes in the content of total hepatic lipids, glycerides and total blood lipids in the scincid lizard, *Mabuya carinata*. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 153-160.

Involvement of hepatic lipids and blood lipids in the regenerative process during tail regeneration in lizard, *M. carinata* has been studied.

1582. **Kiran, Usha** 1979. Evolutionary significance of the relative disposition of the bones in the jaw complex of snakes and lizards. —*Ann. Zool.*, **15**(2) : 59-78.

1583. **Kothari, J. S., Hiradhar, P. K.** and **Shah, R. V.** 1979. Thyroid-gonad interrelationship and its effect on growth rate of regenerating tail in the gekkonid lizard *Hemidactylus flaviviridis*. —*Indian J. exp. Biol.*, **17** (9) : 869-872.

Faster regeneration of tail in male lizards is probably due to greater anabolic effect of male hormone, than in females. More pronounced delay in regeneration rate in male lizards following thyroidectomy has been noticed, which may be due to reduced androgen production as surmized from degenerative changes seen in gonads and gonoducts.

1584. Deleted.

1585. **Mathur, J. K.** 1979. Effects of Janus green on developing limbs of the garden lizard, *Calotes versicolor*. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 317-319.

1586. **Mathur, J. K.** 1979. Histogenesis of cartilage and bone in humerus and femur of lizard *Calotes versicolor*. —*Indian J. exp. Biol.*, **17** (5) : 533-537.

1587. **Mishra, K. D.** and **Majupuria, T. C.** 1979. A report of twin-headed snake, *Spalerosophis diadema*. —*Geobios*, **6** (Suppl.) : 338.

1588. **Misra, C.** and **Thapliyal, J. P.** 1979. Time of administration of indolamines and testicular response of Indian garden lizard *Calotes versicolor*. —*Indian J. exp. Biol.*, **17** (12) : 1383-1385.

1589. **Mohanty, K. C.** and **Naik, D. R.** 1979. Effect of reserpine on adenohypophysial cells of the male Indian garden lizard *Calotes versicolor* (Daudin). —*Indian J. exp. Biol.*, **17** (8) : 743-747.

Conspicuous hypertrophy and hyperphasia of prolactin-secreting (A1) cells resembling that of gravid lizards, were noticed following reserpine treatmezt suggesting that, as in mammals, reserpine stimulated the secretion of prolaction by suppressing the inhibitory influence of hypothalamus.

1590. **Murthy, T. S. N.** and **Sharma, B. D.** 1978. The feeding habits of the Cliff Racer, *Coluber rhodorhachis* (Jan.). —*J. Bombay nat. Hist. Soc.*, **75** (1) : 233.

1591. **Padhi, S. Ch.** and **Patnaik, B. K.** 1979. Oxidation of glucose and leucine by aging male garden lizard brain slices. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 49-54.

The study concerns a test for a change in cellular function in an aging reptile, a relative unexplored area.

1592. **Ramachandran, A. V., Kinariwala, R. V.** and **Shah, R. V.** 1979. Tail wound healing and lipid metabolism : changes in the content of total hepatic lipids, glycerides and total blood lipids in the agamid lizard, *Calotes versiclor*. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 161-166.

1593. **Ramachandran, A. V., Kinariwala, R. V.** and **Shah, R. V.** 1979. Tail regeneration and lipid metabolism : 2. Changes in the content of total hepatic

cholesterol, phospholipids and blood cholesterol in the scincid lizard, *Mabuya carinata*. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 21-28.

In the light of the previously observed changes on blood lipids, hepatic lipids and glycerides, during tails regeneration in *M. carinata*, changes in the other lipid fractions too such as phospholipids and cholesterol were assayed so as to have a clear understanding of the involvement of systemic lipids in regeneration.

1594. **Rao, S.K.** and **Aswathanarayana, N.V.** 1979. Karyological studies of four species of lizards from peninsular India. —*Curr. Sci.*, **48** (15) : 667-671.

The karyotypes of four species of lizards, viz., *Mabuya trivittata* (Hardwicke and Gray) and *M. carinata* (Schneider) (Family : Scincidae), *Psammophilus dorsalis* (Gray) and *Calotes versicolor* (Daudin) (Family: Agamidae) are described. The morphometric data on the chromosomes are presented. Geographic variation in the karyotype of *M. carinata* is described. The karyotypes of these species are compared with those of other karyologically analysed lizards.

1595. **Salgado, I.** 1979. Star tortoise.—*Loris*, **15** (2) : 134.

1596. **Sanyal, D. P., Talukdar, S. K.** and **Dasgupta, G.** 1979. Two new distributional records of snakes from the Dun Valley and the Corbett National Park, U. P. —*Cheetal*, **21** (1) : 11-12.

1597. **Shah, R. V., Kothari, J. S.** and **Hiradhar, P. K.** 1979. Effects of testosterone on the rate of growth of the regenerating tail of normal and thyroidectomised gekkonid lizard *Hemidactylus flaviviridis*. —*Indian J. exp. Biol.*, **17** (11) : 1194-1196.

1598. **Shah, R. V., Kinariwala, R. V.** and **Ramchandran, A. V.** 1979. Tail wound healing and lipid metablism : 2 Changes in the content of total hepatic cholesterol, phospholipids, and blood cholesterol in the agamid lizard, *Calotes versicolor*. —*J. Anim. Morph. Physi.*, **26** (1 & 2) : 29-35.

A quantitative evaluation of cholesterol in liver and blood and phospholipids in liver was undertaken so as to have an idea of the extent of involvement of systemic factors in wound healing and also to confirm the changes observed in the previous study as due to regeneration itself.

1599. **Shah, R. V., Kothari, J. S.** and **Hiradhar, P. K.** 1979. Changes in certain splenic hydrolases during tail regeneration in the gekkonid lizard, *Hemidactylus flaviviridis*. —*Curr. Sci.*, **48** (6) : 240-241.

Changes in acid and alkaline phosphatases of spleen during tail regeneration in the gekkonid lizard have been evaluated using histochemical techniques.

1600. **Shah, R. V., Kothari, J. S.** and **Hiradhar, P. K.** 1979. Histomorphological changes in spleen during tail regeneration in the gekkonid lizard, *Hemidactylus flaviviridis*. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 167-171.

Alterations in the gravimetric and histological profiles of the spleen during tail regeneration in the gekkonid lizard, *H. flaviviridis*, have been studied.

1601. **Shah, R. V., Varghese, T.** and **Hiradhar, P. K.** 1979. Free amino acids during tail regeneration in the gekkonid lizard *Hemidactylus flaviviridis*.—*Indian J. exp. Biol.*, **17** (9) : 960-961.

Involvement of hepatic lipids and blood lipids in the regenerative process during tail regeneration in lizard, *M. carinata* has been studied.

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1597. **Shah, R. V., Kothari, J. S.** and **Hiradhar, P. K.** 1979. Effects of testosterone on the rate of growth of the regenerating tail of normal and thyroidectomised gekkonid lizard *Hemidactylus flaviviridis*. —*Indian J. exp. Biol.*, **17** (11) : 1194-1196.

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Qualitative and quantitative analyses of free amino acids during tail regeneration in the lizard *H. flaviviridis* were studied.

1602. **Shivakumar, G. R.** and **Sarkar, H.B.D.** 1979. Effect of quinacrine hydrochloride on testes and accessory reproductive organs of the lizard *Psammophilus dorsalis* (Gray). —*Indian J. exp. Biol.*, **17** (12) : 1296-1300.

1603. **Shivakumar, G. R., Sarkar, H. B. D.** and **Sekharappa, B. M.** 1979. Histochemical profile of testis and epididymis in the lizard *Psammophilus dorsalis* (Gray). —*Indian J. exp. Biol.*, **17** (8) : 826-830.

Histochemical profile of testis and epididymis in *P. dorsalis* during the breeding season have been studied.

1604. **Shivakumar, G. R., Sarkar, H. B. D.** and **Sekharappa, B. M.** 1979. Histochemical localisation of steroidogenic sites in the ovary of the lizard, *Psammophilus dorsalis* (Gray). —*Curr. Sci.*, **48** (13) : 606-607.

1605. **Singh, L. A. K.** 1979. Pigeon catching muggers. —*Hornbill*, No. **10** : 22-25.

1606. **Singh, L.A.K.** 1979. Gharial : Research and conservation. —*Wldl. Newsl.*, **6** (1) : 7-8.

1607. **Singh, R.** and **Kar, I.** 1979. Serum phosphate in the parathyroidectomized freshwater snake *Natrix piscator* Schneider. —*Indian J. exp. Biol.*, **17** (9) : 984-985.

1608. **Singh, V. B.** 1979. The status of the gharial (*Gavialis gangeticus*) in U. P. and its rehabilitation.—*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 668-683.

1609. **Thapliyal, J. P.** and **Pati, A. K.** 1979. Thymectomy and changes in blood morphology of the adult male chequered water snake *Natrix piscator*. —*Indian J. exp. Biol.*, **17** (11) : 1242-1244.

1610. **Uttam, R.** 1979. Of friends with fangs. —*Wld. Wildl. India Newsl.*, 4th Q., No. 31 : 6-7.

1611. **Whitaker, R.** 1978. Notes on the status of the Gir crocodiles. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 224-227.

1612. **Whitaker, R.** 1978. Breeding record of the Indian chameleon (*Chameleo zeylanicus*). —*J. Bombay nat. Hist. Soc.*, **75** (1) : 232.

1613. **Whitaker, R.** 1978. Birth record of the Andaman Pit Viper (*Trimeresurus purpureomaculatus*). —*J. Bombay nat. Hist. Soc.*, **75** (1) : 233.

1614. **Whitaker, R.** 1979. Permanent marking system for crocodilians. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 496.

1615. **Whitaker, R.** 1979. Crocodile egg collection in Tamil Nadu. —*Indian Forester*, **105** (2) : 121-128.

1616. **Whitaker, R.** 1979. Future of crocodiles in Tamil Nadu.—*Indian Forester*, **105** (8) : 592-593.

1617. **Whitaker, R.** 1979. The crocodilians of Corbett National Park. —*Indian J. For.*, **2** (1) : 38-40.

The purpose in visiting the Park was to make a survey and brief study of the gharial (*G. gangeticus*) and mugger (*C. palustris*).

1618. **Whitaker, R.** and **Whitaker, Z.** 1978. A preliminary survey of the salt water crocodile (*Crocodylus porosus*) in the Andaman Islands. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 43-49.

1619. **Whitaker, R.** and **Whitaker, Z.** 1979. Notes on vocalization and protective behaviour in the Mugger. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 227-228.

1620. **Whitaker, R.** and **Whitaker, Z.** 1978. Growth rate of *Crocodylus palustris*. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 231-232.

1621. **Whitaker, R.** and **Whitaker, Z.** 1979. Notes on *Phelsuma andamanensis*, the Andaman Day Gecko or Green Gecko. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 497-499.

1622. **Whitaker, R.** and **Whitaker, Z.** 1979. Breeding of Tokay Gecko. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 499-500.

1623. **Whitaker, Z.** and **Whitaker, R.** 1978. Notes on captive breeding in Mugger (*Crocodylus polustris*). —*J. Bombay nat. Hist. Soc.*, **75** (1) : 228-231.

1624. **Wickremasinghe, S.** 1979. Turtle tales. —*Loris*, **15** (2) : 78-86.

1625. **Yahya, S. A.** 1979. Hearing ability of brown tree snake (*Dendrelaphis tristis*). —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 930.

(d) Aves

1626. **Abdulali, H.** 1979. A catalogue of the birds in the collection of the Bombay Natural History Society—21 Sturnidae. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 373-384.

1627. **Abdulali, H.** 1979. The birds of Great and Car Nicobars with some notes on wildlife conservation in the Islands. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 744-772.

1628. **Acharjyo, L.N.** and **Mohapatra, S.** 1979. A note on the breeding and longevity of the Indian Pangolin (*Manis crassicaudata*) in captivity. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 921-922.

1629. **Agarwal, S. K.** *et. al.* 1979. Seasonal variation in fertility and hatchability of quail eggs. —*Indian Poult. Gaz.*, **63** (1) : 36-37.

1630. **Aggarwal, C. K., Mohapatra, S. C.** and **Ahuja, S. D.** 1979. Genetic and phenotypic correlations between broiler traits. —*Indian Poult. Gaz.*, **63** (3) : 114-119.

1631. **Al-Attar, A. A.** and **Sial, M. B.** 1979. Effect of feeding date stones as a replacer for maize meal on the performance of broiler chicks. —*Pakist. J. Sci.*, **31** (1-2) : 44-47.

The purpose of this investigation was to determine the effect of date stones at various levels on the performance of broiler chicks. Also the upper limit of date stones, tolerable to the chicks was kept in view.

1632. **Ali, S.** 1979. Keoladeo Ghana Waterbird Sanctuary. —*Hornbill*, No. 13 : 27-29.

1633. **Ali, Salim,** 1979. Bird study in India : its history and importance. —*Cheetal*, **20** (4) : 3-14.

1634. **Ambadkar, P. M.** and **Chauhan, B. C.** 1979. Annual variations in the levels of total lipids, cholesterol, phospholipids and Δ^5-3β—Hydroxysteroid dehydrogenase activity (complex of EC 1.1.1.51 and EC 5.3.3.1) in the testes of the Indian house crow, *Corvus splendens* (Vieillot). —*Pavo*, **17** (1-2) : 103-116.

1635. **Ambadkar, P. M.** and **Chauhan, B. C.** 1979. Annual variations in the levels of total lipids, cholesterol, phospholipids and the activity of Δ^5-3β—hydroxysteroid dehydrogenase (complex of EC 1.1.1.51 and EC 5.3.3.1) in the ovaries of Indian house crow, *Corvus splendens* (Vieillot). —*Pavo*, **17** (1-2) : 117-134.

1636. **Arneja, D. V.** 1979. Broodiness and forced moulting in turkeys. —*Poult. Guide*, **16** (2) : 37-41.

1637. **Bagalkote, S. G.** and **Rangneker, P. V.** 1979. A study on the composition of the blood serum of the Indian domestic fowl (Desi fowl) *Gallus domesticus* during immature laying and broody phases of the life cycle.—*Pavo*, **17** (1-2) : 76-84.

1638. **Banerjee, M.** and **Banerjee, V.** 1979. The blood of some migratory birds : Leucocytes. —*Ann. Zool.*, **15** (3) : 125-139.

1639. **Baruah, K. K.** and **Pathak, N. N.** 1979. A short note on the clutch size distribution and laying interval of successive eggs in sequence in Leghorn birds. —*Indian vet. J.*, **56** (1) : 71-72.

1640. **Bhardwaj, A.** 1979. "Birds and environment".—*Rajasthan Agric.*, **14** (Dec.) : 17-20.

1641. **Baskaran, T.** 1979. The bird phenomenon of Haflong. —*Newsl. Birdwatchers*, **19** (6) : 2-3.

Haflong in North Cachar Hills of Shillong.

1642. **Bhat, N. R., Kulkarni, G. R., Rao, M. A.** and **Murthy, S. K.** 1979. Studies on the inhibition of fatty acid synthesis in the chicken liver by adenine compounds *in vitro*. —*J. Biosci.*, **1** (4) : 369-375.

The results presented here show that even though adenasine and a number of other compounds can inhibit fatty acid synthesis, the inhibitory action of c AMP cannot be attributed to its degradation products.

1643. **Chalana, R. K.** and **Guraya, S. S.** 1979. Seasonal fluctuations and histochemical characteristics of the interstitial cells in the ovary of crow and Myna. —*Pavo*, **17** (1-2) : 65-70.

1644. **Chatterjee, S., Chakraborty, A. K., Ray, B. N., Ghosh, S. P.** and **Chatterjee, M.** 1979. A note on the effect of heat stress on certain enzyme activities in domestic duck (*Anas platyrhyncos*) in captive terrestrial environment. —*Indian J. Anim. Sci.*, **49** (7) : 591-593.

The experiment was undertaken to find out certain enzyme activities of male and female ducks related to protein catabolism, gluconeogenesis and utilization of carbohydrate in captive terrestrial environment and secondly the modification of enzyme activities during acute heat stress exposure.

1645. **Chattopadhyay, S.** 1979. Occurrence of the thickbilled Wabbler *Phragmaticola aedon ruffscens* Stegmann at Baj Baj, West Bengal. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 491-492.

1646. **Chattopadhyay, S.** 1979. On the occurrence of the Burmese black-browed flycatcher wabbler, *Scicercus burkii tephrocephalus* (Anderson) at Baj Baj, West Bengal.—*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 492.

1647. **Chaturvedi, C. M.** and **Thapliyal, J. P.** 1979. Comparative study of adrenal cycles in three species of the Indian birds (*Athene brama*, *Acridotheres tristis* and *Coturnix coturnix*). —*Indian J. exp. Biol.*, **17** (10) : 1049-1052.

A comparative study of the seasonal cycles of adrenal gland activity of locally available wild spotted owlet *A. tristis* and locally migratory rain quail *C. coturnix* was made.

1648. **Choudhuri, D., Prakashbabu, M.** and **Biswas, D. K.** 1979. Breeding for egg-type chickens.—A review of work done in India. —*Indian Poult. Gaz.*, **63** (3) : 87-98.

1649. Deleted.

1650. **De Costa, N.** 1979. Slimbridge. —*Loris*, **15** (2) : 93-96.

1651. **Dongaonkar, V. D., Kolte, G. N.** and **Rao, K. N. P.** 1979. Some observations on the histopathology of experimentally infected chickens with infectious bursal disease virus. —*Indian vet. J.*, **56** (7) : 541-545.

Present report deals with the pathoanatomical changes brought about by IBD virus in experimentally infected chickens.

1652. **Doyle, C.** 1979. Bird brain plan for helmets. —*Loris*, **15** (2) : 111.

1653. **Dunnet, G. M.** and **Kotagama, S. W.** 1978. Red-necked phalarope in Sri Lanka. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 215-216.

1654. **Duraiswami, J., Rajendran, M. P., John, M., Ganesamurthy, M.** and **Narayana Rao, C. V.** 1979. Duck plague in Tamil Nadu. —*Indian vet. J.*, **56** (1) : 1-5.

1655. **Fleming, R. L. (Jr.)** 1979. Birding in the Himalayas. —*Wld Wildl. India Newsl.*, 4th Q., No. 31 : 1-3.

1656. **Gajendran, K., Dhanapalan, P.** and **Kothandaraman, P.** 1979. Effect of hatchery sanitation on the hatchability of white leg horn eggs. —*Indian Poult. Gaz.*, **63** (1) : 33-35.

1657. **Ganguly, S.** and **Biswas, B. B.** 1979. RNA synthesis in maturing avian erythrocyte nuclei. —*J. Biosci.*, **1** (3) : 335-343.

Study was performed to compare the RNA synthesis in the nuclei isolated from mature and immature erythrocytes of white leghorn cock.

1658. **Gaston, A. J.** 1978. The seasonal occurrence of birds on the New Delhi bridge. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 115-128.

1659. **Gaston, A. J.** 1978. Notes on the Striated Babbler *Turdoides earlei* (Blyth) near Delhi. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 219-220.

1660. **Gaston, A. J.** 1979. Distribution of birds in relation to vegetation on the New Delhi bridge. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 257-265.

1661. **Gaston, A. J.** 1979. Birds observed at Cheruthuruthy. —*J. Kerala nat. Hist. Soc.*, **2** : 27-30.

A full systematic list of the species recorded at Cheruthuruthy is given in this paper. Four species are apparently not recorded previously in Kerala. One species, the Little Ranged Plover (*Charadrius dubius*) was recorded nesting in Kerala for the first time.

1662. **George, R. P., Nair, G. R., Nair, R.S., Nair, B.R.K.** and **Unni, A.K.K.** 1979. Relationship between shank length and body weight in desi ducks.—*Indian vet. J.*, **56** (11) : 937-939.

Shank length and body weight at 12 weeks of age in Desi ducks were subjected to study.

1663. **Goel, V. K.** 1979. Effect of climate on egg production.—*Poult. Guide*, **16** (2) : 47-52.

1664. **Gole, P.** 1978. A buzzard nest in Ladakh. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 213-214.

1665. **Gooders, J.** 1979. A new bird for Nepal and notes on other scarce species. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 925-926.

1666. **Gopal, P. K.** and **Ahuja, S. P.** 1979. Lipid and growth changes in organs of chicks (*Gallus domesticus*) during acute and chronic toxicity with disyston and folithion. —*Indian J. exp. Biol.*, **17** (10) : 1153-1154.

1667. **Govil, H.N.** and **Bhandari, D.S.** 1979. Effect of different antibiotics with two sources of calcium on growth of white leghorn chickens.—*Sci. Cult.*, **45** (10) : 411-412.

1668. **Govindakrishnan, P. M., Verghese, A.** and **Chakravarthy, A. K.** 1979. Occurrence of red headed merlin (*Falco chicquera* Daudin) in Bangalore, Karnataka. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 487.

1669. **Grant, G. S.** 1978. Foot-wetting and belly-soaking by incubating Gull-billed Terns and black skimmers.—*J. Bombay nat. Hist. Soc.*, **75** (1) : 148-152.

1670. **Grewal, G. S.** and **Singh, B.** 1979. Survival of Marek's disease agent in Dander and dry feathers in Punjab.—*Indian vet. J.*, **56** (2) : 87-88.

1671. **Grubh, R. B.** 1979. Field identification of some Indian vultures (*Gyps bengalensis, G. indicus, G. fulvus* and *Torgos calvus*). —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 444-449.

1672. **Grubh, R. B.** 1979. Competition and co-existence in Grifton vultures : *Gyps bengalensis, G. indicus* and *G. fulvus* in Gir forest. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 810-814.

1673. **Gunawardane, V.** 1979. Nesting tailor birds. —*Loris*, **15** (2) : 119.

1674. **Guraya, S. S., Dang, H. R.** and **Parshad, R. K.** 1979. Gonadal growth and regression in birds in relation to some ecological factors. —*Pavo*, **17** (1-2) : 71-75.

1675. **Guttikar, S. N.** 1979. Lostt Pelicanry. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 482-485.

1676. **Hornbuckle, J.** 1979. Birding in Kaziranga. —*Hornbill*, No. 11 : 17.

1677. **Hussain, S. A.** 1979. Orangerumped honeyguide (*Indicator xanthonotus*) in the Garhwal, Himalayas. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 487-488.

1678. **Ingalhalikar, S.** and **Dharap, S.** 1979. Nesting of the tree swift. —*Hornbill*, (11) : 17-18.

1679. **Islam, K.** 1979. Sighting of the Indian Pitt (*Pitta brachyura*) in Pakistan. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 924-925.

1680. **Jayewardene, J.** 1979. The kingfishers of Sri Lanka. —*Loris*, **15** (2) : 89-92.

1681. Deleted.

1682. **Kaushik, R. K.** and **Kalra, D. S.** 1979. Occurrence of gout in poultry.—*Poult. Guide*, **16** (1) : 27-30.

1683. **Khacher, L.** 1978. Bird migration across the Himalayas.—*J. Bombay nat. Hist. Soc.*, **75** (1) : 212-213.

1684. **Khacher, L.** 1978. A brief note on the Grandala, *Grandala coelicolor* Hodgs. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 221.

1685. **Khacher, L.** 1979. Faecal feeding in the whiteheaded Babbler, *Turdoides affinis* (Jerdon)—A rejoinder. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 490-491.

1686. **Khacher, L.** 1979. The Bronzewinged Jacana *Metopidius indicus* (Latham) in Saurashtra at Jamnagar. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 923.

1687. **Khacher, L.** 1979. The birds of Dodda Gubbi. Part II. —*Newsl. Birdwatchers*, **19** (6) : 6-10.

1688. **Khan, M. A. R.** 1979. Ecology of the black-and-orange flycatcher *Muscicapa nigrorufa* (Jerdon) in Southern India. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 773-791.

1689. **Kothari, A. S.** 1979. Point Calimere, Tamil Nadu—1979. Nature Camp. —*Hornbill*, (13) : 31-32.

1690. **Kulkarni, B.S.** 1979. The great Indian bustard. —*Hornbill*, (10) : 20-21.

1691. **Kumar, A., Singh, R. P., Misra, B. S.** and **Shukla, S. N.** 1979. Seasonal variation in morphology and melanizing activity in semen of Cockerels of different breeds. —*Indian J. Anim. Rcs.*, **13** (1) : 31-34.

The present paper deals with the breed and seasonal variation in the two breed of cocks and to determine the level of melanizing activity in the semen samples of these cocks.

1692. **Lahir, Y. K.** and **Dhage, K. P.** 1979. Study of *Corvus splendens* (Viellot) — IV. Proteolytic activity of the alimentary canal. —*Pavo*, **17** (1-2) : 13-19.

1693. **Lamba, B. S.** and **Bhatnagar, R. K.** 1979. Fauna of Corbett National Park. —*Cheetal*, **20** (4) : 18-20.

1694. **Lamba, B. S.** and **Bhatnagar, R. K.** 1979. Fauna of Corbett National Park. —*Cheetal*, **21** (1) : 29-32.

1695. **Magon, V. K.** 1979. Optimum pH for the activity of amylase in the digestive system of two Indian birds. —*Pavo*, **17** (1-2) : 20-26.

1696. **Magon, V. K.** and **Agrawal, V. P.** 1979. Distribution of acid phosphatase in the digestive system of two Indian birds *Uroloncha malabarica* (Linnaeus) and *Saxicoloides fulicata* (Linnaeus).— *Pavo*, **17** (1-2) : 27-32.

1697. **Maheshwari, M. L.** and **Barsaul, C. S.** 1979. Growth response and egg production in poultry on mashes devoid of preformed vitamin A. II. Egg production. —*Indian J. Anim. Hlth.*, **18** (1) : 35-37.

1698. **Majumdar, N.** 1979. Occurrence of the Blueheaded Rock Thrush *Monticola cinclorhynchus* (Vigors) (Muscicapidae : Turdinae) in Orissa. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 493.

1699. **Majumdar, N.** 1979. On the taxonomic status of the eastern ghats Rufousbellied Munia, *Lonchura kelaarti vernayi* (Whistler and Kinnear, 1933) [Aves : Placeidae]. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 493-495.

1700. **Majumdar, N.** 1979. On the occurrence of the blacknecked green Woodpecker, *Picus canus hessei* Gyldenstolpe (Piciformes : Picidae) in Orissa. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 924.

1701. **Malhotra, L., Kant, R., Baweja, P. K.** and **Saxena, R. N.** 1979. Light induced changes in the Hypothalamo—Hypophyseal-Gonad axis of the male Indian weaver bird *Ploceus philippinus*. —*Indian J. exp. Biol.*, **17** (8) : 729-731.

Indian weaver birds are seasonally breeding and photoresponsive animals. The annual gonadal cycle is primarily controlled by photoperiod and out-of-season complete gonadal development and related changes in the hormones level could be achieved within 10 and 6 weeks respectively of exposure of birds to long photoperiod.

1702. **Malhotra, R. K., Chawla, S., Sarin, S.** and **Bindal, A. K.** 1979. Differentiation of fibre-types during postembryonic development of *M. biceps brachii* of chick. —*Res. Bull. Panjab Univ.*, **27** (1 & 2) [1976] : 21-27.

An attempt has been made to explain the initial steps in the cytochemical differentiation of the various types of muscle fibres from the basic stock of morphologically and physiologically similar fibres. The paper includes a histochemical study of the changes in the succinic dehydrogenase activity, the lipid contents and the glycogen levels of the muscle fibres during the differentiation of different fibre types in the postembryonic growth of the chick biceps. The studies have been conducted on a number of stages during the post-hatching period.

1703. **Mall, M.P.** and **Chauhan, H.V.S.** 1979. A note on fowl cholera in goose.—*Indian Poult. Gaz.*, **63** (3) : 126-128.

Pasteurella multocida was isolated from a goose kept free at the fish pond of I.V.R.I. It was pathogenic for ducks, mice and fowls. Histopathological changes in liver, intestine and spleen have also been described.

1704. **Mathew, D. N.** and **Zacharias, V. J.** 1979. A comparative study of the biology of some species of babblers. —*J. Kerala nat. Hist. Soc.*, **2** : 9-11.

The biology of the whiteheaded babbler and the jungle babbler have been studied.

1705 **Mathur, G. B.** and **Mathur, P.K.** 1979. The conducting system of the heart of spotted munia, *Lonchura punctulata* (Linn.). —*Indian J. Zoot.*, **20** (1) : 59-66.

1706. Deleted

1707. **Menon, A. G. K.** 1979. A marine reserve for birds in Pitti Island, Lakshadweep Archipelago. —*Newsl. int. Conserv. Bird Preserv.*, : 7-9.

1708. **Mirza, Z. B., Aleem, A.** and **Asghar, M.** 1979. Pheasant survey in Pakistan. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 292-296.

1709. Deleted.

1710. **Mohankumar, O. R., Sreemannarayana, O.** and **Kishanrao, P.** 1979. Fish meal in chick ration. —*Poult. Guide*, **16** (2) : 31-32.

1711. **Mohiuddin, S. M.** 1979. Studies on the normal haematological values in different strains of white leghorn. —*J. N. K. V. V. Res. J.*, **10** (2) [1976] : 110-114.

1712. **Nadakal, A. M.** and **Nair, K. V.** 1979. Studies on the metabolic disturbances caused by *Raillietina tetragona* (Cestoda) infection in domestic fowl: effect of infection on certain aspects of carbohydrate metabolism. —*Indian J. exp. Biol.*, **17** (3) : 310-311.

1713. **Narang, M. L.** and **Lamba, B. S.** 1978-79. Occurrence of the Nepal Dark Rosefinch, *Carpodacus nipalensis nipalensis* (Hodgson) at Jogeshwar near Almora (U. P.). —*Cheetal*, **20** (2-3) : 60.

1714. **Narang, V.** and **Talesara, C. L.** 1979. Histochemical profile of certain avian and mammalian skeletal muscles in relation to their varying functional load. —*Indian J. exp. Biol.*, **17** (10) : 1087-1090.

A histoenzymological study was carried out on the pectoralis and gastrocnemius muscles of rat, bat, pigeon and chicken in order to reveal histochemical characteristics of their fibre types.

1715. **Narayana, H.** and **Setty, S. V. S.** 1979. Vitamin A and carotene content in blood as influenced by incorporation of mulberry leaves (*Morus indica*) in layers mash. —*Indian vet. J.*, **56** (9) : 778-783.

An experiment was conducted with "MYCHIX" at the age of 36 weeks for a period of 50 days (from February to April) to study the effect of mulberry leaves on vitamin A and carotene levels in blood.

1716. **Osman, S. M.** 1979. Peregrine Falcon. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 845-853.

1717. **Patel, P. V.** and **Pilo, B.** 1979. Effect of glucose injection on the activities of glycogen synthetase, glucose-6-phosphate dehydrogenase, malic enzyme and lactate dehydrogenase in the liver of pigeon. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 172-180.

1718. **Patel, P. V.** and **Pilo, B.** 1979. Glucostatic function of avian skin. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 55-60.

Activities of lactate dehydrogenase and glucose-6-phosphate dehydrogenase were estimated in the present study following intravenous administration of glucose.

1719. **Patel, P. V., Pilo, B., Asnani, M. V.** and **Shah, R. V.** 1979. Studies on developing avian liver-6. Activities of succinate dehydrogenase, adenosine triphosphatase activity and lactate dehydrogenase in the liver of pigeon during post-hatching development. —*Pavo*, **17** (1-2) : 40-49.

1720. **Phillips, W. W. A.** 1979. Nests and eggs of Ceylon birds. X. Coraciiformes, Bucerotidae, Upupidae, Coraciidae, Meropidae and Alcedinidae. —*Ceylon J. Sci.* (*Biol. Sci.*), **13** (1-2) : 131-158.

In the present paper, the nesting of the Hornbills (Bucerotidae), Hoopoes (Upupidae), Rollers (Coraciidae), Bee-eaters (Meropidae) and the Kingfishers (Alcedinidae) come under review.

1721. **Phillips, W. W. A.** 1979. Nests and eggs of Ceylon birds XI. Trogoniformes, Apodiformes and Caprimulgiformes. —*Ceylon J. Sci.* (*Biol. Sci.*), **13** (1-2) : 167-186, 14 pls.

1722. **Pillai, G.** 1979. Black headed orioles. —*Loris*, **15** (2) : 136.

1723. **Pilo, B.** 1979. Seasonal variations in the iron content of the liver and muscle of the migratory starling, *Sturnus roseus*. —*Pavo*, **17** (1-2) : 1-6.

1724. **Pilo, B.** 1979. Ascorbic acid content of the liver of a migratory starling, *Sturnus roseus* during post and premigratory periods. —*Pavo*, **17** (1-2) : 1-12.

1725. **Pilo, B.** and **Iyengar, S.** 1979. Non-specific acid and alkaline phosphomonoesterase during post hatching of brain in altricial birds. —*Pavo*, **17** (1-2) : 91-102.

1726. **Pilo, B.** and **Patel, P. V.** 1979. Studies on developing avian liver-7. The correlation of functional maturity of the liver with the function of certain endocrine glands in pigeon during post hatching development. —*Pavo*, **17** (1-2) : 54-64.

1727. **Prakashbabu, M.** *et al.* 1979. Management of quail flock. —*Poult. Guide*, **16** (1) : 21-26.

1728. **Price, T.** 1979. Some observations on the webbler (Aves : Sylvinae) populations of the upland perennial wetlands in the eastern ghat. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 488-490.

1729. **Pupekar, P. G.** 1979. Chronic respiratory diseases of poultry. —*Fmr Parl.*, **14** (9) : 29-30.

1730. **Ranaweera, K. N. P., Siriwardene, J. A. de S., Manamperi, H. B., Jayawardena, K. M.** and **Poulter, R. G.** 1979. Dried fish silage as a protein source for poultry : 1. Feeding trials with broiler chickens. —*Ceylon vet. J.*, **27** (1-4) : 5-9.

1731. **Rao, K. R.** and **Zoramthanga, R.** 1979. On the phenomenon of nocturnal flights of some resident birds at Lunglet, Mizoram, N. E. India. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 927-928.

1732. **Rao, R. V. M.** 1979. Birds seen at Periyar Sanctuary (Kerala) from October 7th to 10th-Weather-clear to cloudy with occasional showers and mist. —*Bull. Madras Naturalists' Soc.*, No. 12 : 8.

1733. **Rao, T. K.** 1979. Birding in Gingee (Tamil Nadu). —*Newsl. Birdwatchers*, **19** (6) : 4-5.

1734. **Rao, V. S. N.** and **Varada Rajulu, P.** 1979. Effect of cyproheptadine on growth and feed consumption of broiler chicken. —*Indian vet. J.*, **56** (1) : 73-74.

1735. **Ravindra Reddy, V., Varadarajulu, P., Subba Rao, K. V., Apparao, V.** and **Chandra Reddy, V. R.** 1979. Effects of density in cages on egg production, feed for dozen eggs and egg quality studies. —*Indian vet. J.*, **56** (1) : 49-52.

1736. **Reddy, B. N.** 1979. Study of some factors related to hatchability in white leghorn eggs—effect of shell thickness on hatchability. —*Andhra agric. J.*, **25** (3 & 4) [1978] : 143-146.

1737. **Renganathan, P ; Mohapatra, S. C., Ayyagari, V. B., Venkatramaiah, A.** and **Chaudhri, D.** 1979. A comparative study on index selection for egg production and egg weight versus selection for egg mass in chickens. —*Indian vet. J.*, **56** (9) : 757-763.

Genetic, phenolytic and environmental correlations between the traits were determined from variance and covariance component analysis within

hatches. Sire component of variance and covariance was used for the determination of genetic correlation. Selection indexes were constructed utilizing egg production upto 260 days of age and 32 weeks of egg weight.

8. **Rengaraju, V.** 1979. Histopathology of the intestine of the crow-pheasant infected with *Porrorchis indicus* (Schmidt and Kuntz). (Syn. *Pseudoporrorchis indicus* Das).—*Curr. Sci.*, **48** (17) : 765-768.

Histological and histochemical alterations in the intestine of crow-pheasants infected with *P. indicus* are described in this paper.

9. **Revappa, K. L., Ramachandra, R. N.** and **Raghavan, R.** 1979. Pathogenesis of Marek's disease-distribution of viral antigens in infected chickens as detected by immuno-peroxidase test. —*Indian vet. J.*, **56** (4) : 257-261.

Marek's disease virus (MDV) is a member of group 'B' Herpes viruses and is highly cell associated.

0. **Ripley, S. D.** 1979. Changes in the bird-fauna of a forest area Simlipal Hills, Mayurbhanj dist., and Dhenkanal district., Orissa. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 570-574.

1. **Roberts, J. O. M.** 1979. Breeding of the Mallard (*Anser platyrhynchos*) in Nepal. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 485-486.

2. **Roberts, T. J.** 1978. Unusual ornithological records for Pakistan. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 216-219.

3. **Rogers, H. J.** 1979. Karnala bird sanctuary. —*Wildl. Newsl.*, **6** (1) : 9.

1744. **Roy, T. C., Kumar, J., Balaine, D. S.** and **Chhikara, B. S.** 1979. Studies on the performance of commercial broiler stocks under 3×3 diallel crossing 1. Fertility, hatchability, feed conversion, efficiency and economics. —*J. Res. Haryana agric. Univ.*, **9** (4) : 392-399.

In the present study, three commercial broiler stocks were crossed in all possible combination and the fertility, hatchability of the mating groups and feed conversion efficiency and economics have been reported.

1745. **S. S. N.** and **S. S. N.** 1979. The Veli Swamp : a naturalist's paradise. —*J. Kerala nat. Hist. Soc.*, **2** : 35-37.

A brief list of the birds and plants of the area are noted. The flora, the aquatic fauna—particularly the Amphibia of the area are worthy of a detailed scientific study.

1746. **Saha, B. C.** and **Mukherjee, A. K.** 1978. Notes on the food of the black headed munia and the spotted munia in South Kamrup district, Western Assam (India). —*J. Bombay nat. Hist. Soc.*, **75** (1) : 221-224.

1747. **Saha, S. S.** and **Datta, B. B.** 1979. Taxonomic status of the Eastern Grey Bush Chat, *Saxicola ferrea harringtoni* (Hartert). —*Bull. zool. Surv. India*, **2** (1) : 113-114.

1748. **Santharam, V.** 1979. "Bird week".—*Bull. Madras Naturalists' Soc.*, No. 12 : 4-5 & 7.

1749. **Saraswat, R. C., Singh, R.** and **Kushwaha, N. S.** 1979. Egg production in different tiers of cages. —*Poult. Guide*, **16** (2) : 33-35.

1750. Deleted.

1751. **Sareen, M. L.** 1979. Structure and function of yolk nucleus during vitellogenesis in *Passer domesticus* and *Saxicoloides fulicata*. —*Res. Bull. Panjab Univ.*, **27** (1 & 2) [1976] : 99-102.

The present study deals with the structure and function of the yolk nucleus in the oocytes of two perching birds, *P. domesticus* and *S. fulicata*.

1752. **Saxena, B. S.** and **Saxena, A. K.** 1979. Testicular cycle of the jungle bush quail, *Perdicula asiatica*. —*Indian J. Zoot.*, **20** (1) : 39-42.

1753. **Saxena, M.** and **Mathur, R. S.** 1979. Cholesterol activity in the testes of *Passer domesticus* and *Streptopelia decaocto*. —*Curr. Sci.*, **48** (12) : 549-550.

1754. **Saxena, M.** and **Mathur, R. S.** 1979. Annual male reproductive cycle of ring dove *Streptopelia decaocto*. —*Pavo*, **17** (1-2) : 135-140.

1755. **Saxena, R. N., Malhotra, L., Kant, R.** and **Baweja, P. K.** 1979. Effect of pinealectomy and seasonal changes on pineal antigonadotropic activity of male Indian weaver bird *Ploceus philippinus*. —*Indian J. exp. Biol.*, **17** (8) ; 732-735.

Pinealectomy in male Indian weaver bird during nonbreeding phase results in an early recrudescene of the testis, increased hypothalamic LHRH, plasma LH and reduced pituitary LH as measured by radioimmunoassay.

1756. **Sharma, I. K.** 1979. Ecological aspects of population trends of the peafowl *Pavo cristatus* at Jodhpur. —*Pavo*, **17** (1-2) ; 50-53.

1757. **Sheriff, F. R.** 1979. Duck incubation and brooding. —*Kisan Wld*, **6** (9) : 46-47.

1758. **Shukla, P. C.** 1979. Infectious laryngotracheitisan emerging poultry disease in India.—*Poult. Guide*, **16** (1) : 45-47.

1759. **Singh, C. M., Singh, R. A., Aggarwal, C. K.** and **Sharma, R. K.** 1979. Effect of level and duration of feed restriction on growth feed consumption and mortality of White Pekin ducks. —*J. Res. Haryana agric. Univ.*, **9** (4) : 384-390.

Studies with chickens have shown that the growth rate is reduced during the period of feed restriction, but the recovery in body weight is rapid after the restriction is withdrawn.

1760. **Singh, C. M., Singh, R. A., Sharma, R. K.** and **Aggarwal, C. K.** 1979. Effect of level and duration of feed restriction on reproductive performance of White Pekin ducks. —*J. Res. Haryana agric. Univ.*, **9** (4) : 378-383.

The paper deals with the similar effects of feed restriction (during rearing period) on the reproductive performance of White Pekin breeding ducks upto 300 days of their age.

1761. **Singh, C. S. P., Misra, H. R.** and **Mukherji, D. K.** 1979. A study on the sex on early growth of white rock chicks. —*Indian vet. J.*, **56** (6) : 526-527.

1762. **Singh, K. B.** and **Dominic, C. J.** 1979. Hydrocortisone inhibition of hypertonic saline—induced changes in hypothalamic neurosecretory system of the spotted owlet *Athene brama* Temminck. —*Indian J. exp. Biol.*, **17** (10) : 1053-1057.

Administration of hydrocortisone, 6 mg/animal/day, inhibited the histological changes in the hypothalamic neurosecretory system of the spotted owlet that normally follow administration of 3% NaCl Soln., 1ml./animal/day.

1763. **Singh, J.** and **Malhotra, F. C.** 1979. Sequential gross and histopathological studies on aspergillosis in chicks. —*Indian J. Anim. Sci.*, **49** (7) : 562-568.

The sequential gross and histopathological alterations in young chicks infected with *A. fumigatus* spores by intratracheal and intra-airsac routes at various levels of infection were studied.

1764. **Singh, R., Johari, D. C., Dwivedi, H. P., Yadav, P. L.** and **Kushwaha, N. S.** 1979. A note on growth rate trend in two pure bred strains of White Leghorn. —*Indian Poult. Gaz.*, **63** (3) : 123-125.

Body weight and gain in weight at different ages were investigated in two pure strains of White Leghorn.

1765. **Soni, J. L.** 1979. An outbreak of tick paralysis in White leghorn chickens due to *Argus persicus*. —*Indian vet. J.*, **56** (2) : 149-150.

1766. **Soni, V. C.** 1979. The role of kinensis and mechanical advantage in the feeding apparatus of some partridges and quails. —*Ann. Zool.*, **15** (3) : 103-109.

1767. **Soni, V. C.** and **Rawal, U. M.** 1979. The adaptive features of avian pelvic girdle—Family Phasianidae.—*Pavo*, **17** (1-2) : 33-39.

1768. **Sreenivasaiah, P. V.** and **Joshi, H. B.** 1979. A note on correlation co-efficients of body weight of different ages in Japanese quails (*Coturnix coturnix japonica*). —*Indian Poult. Gaz.*, **63** (3) : 129-131.

Seasonal differences in the magnitude of correlation co-efficients between body weight at hatch and weight at subsequent ages were observed. Giving margin for seasonal differences, that 20th day body weight can possibly be used as a criterion for selecting Japanese quail to improve 56 day body weight.

1769. **Srinivasan, V. A., Kharole, M. U., Kalra, D. S.** and **Dwivedi, P.** 1979. Colibacillosis in poultry. —*Indian vet. J.*, **56** (8) : 629-633.

Escherichia coli is a common pathogen of poultry. It is normally present in the intestinal tracts. In poultry it is associated with various disease conditions like coliseplicaemia and omphalitis in young chicks as well as peritonitis, salpingitis and airsac disease in growers and adults. It causes heavy financial losses to the poultry industry. The present study is an attempt to assess the prevalence of various serotypes of *E. coli* associated with different disease conditions in chicken, ducks and quails.

1770. **Srivastava, A. K.** and **Saxena, A. K.** 1979. Effect of long and short days on body weight and gonads of chemically thyrodectomized jungle bush quail (*Perdicula asiatica*). —*Pavo*, **17** (1-2) : 85-90.

1771. **Thapliyal, J. P.** and **Singh, V. B.** 1979. Lipid metabolism in the castrated red-headed bunting *Emberiza bruniceps*. —*Indian J. exp. Biol.*, **17** (12) : 1382-1383.

1772. **Tomar, I. S.** and **Singh, O. P.** 1979. Contribution of the common north Indian black and grey partridges to the control of winter weeds of major crops in Meerut district. —*Indian J. agric. Sci.*, **49** (5) : 355-357.

Systematic study was conducted to find out the amount of seeds of weeds consumed by these frequently occurring game-birds under controlled conditions from 1976 to 1978.

1773. **Vyas, D.K.** 1979. Effects of sex-steroids on the testes of the rock-pigeon (*Columba livia* Gmelin). —*Rajasthan Univ. Stud. Zool.*, **1** : 23-30.

The effect of exogenous oestrogen, progesterone and their combination on the testes of the sexually active adult and nestling pigeons was examined.

1774. **Vyas, D. K.** and **Singh, R.** 1979. Effect of whole body external gamma irradiation (Co^{60}) on the liver of house sparrow (*Passer domesticus* Linn.). —*Rajasthan Univ. Stud. Zool.*, **1** : 52-54.

(e) *Mammalia*

1775. **Abeygunawardena, H.** and **Perera, B. M. A. O.** 1979. Maturation changes occurring in goat spermatozoa during their passage through the epididymis. —*Ceylon vet. J.*, **27** (1-4) : 14-16.

1776. **Abeyratne, A. S.** and **Atureliya, D. S.** 1979. A study on the reproductive organs in the indigenous female goat of Sri Lanka. —*Ceylon vet. J.*, **27** (1-4) : 17-19.

1777. **Acharjyo, L. N.** and **Mohapatra, S.** 1979. Birth and growth of common Palm Civet (*Paradoxurus hermaphroditus*) in captivity. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 204-206.

1778. **Acharjyo, L. N.** and **Nayak, B. C.** 1979. Incidence of Trichobezoars and Phytotrichobezoars in two species of wild ruminants. —*Indian vet. J.*, **56** (2) : 153.

1779. **Agarwal, B. V., Agarwal, S. C.** and **Ram, N.** 1979. A comparative study for component amino acids in soluble and insoluble protein fractions of eye lenses of some mammals. —*Indian J. exp. Biol.*, **17** (9) : 882-884.

The amino acid composition in soluble and insoluble protein fractions derived from the lenses of various mammals have been comparatively studied.

1780. **Agrawal, K. P., Mongha, I. V.** and **Bhattacharyya, N. K.** 1979. Success in embryo transfer in indigenous goats. —*Curr. Sci.*, **48** (17) : 792.

1781. **Agrawal, K. P., Mongha, I. V.** and **Bhattacharyya, N. K.** 1979. Studies on embryo transfer in mammals : Rabbit.—*Indian J. exp. Biol.*, **17** (12) : 1314-1316.

1782. **Agrawal, M. C., Sahasrabudhe, V. K.** and **Gehlot, K.** 1979. Immunization against *Schistosoma incognitum* in mice by administration of cercariae of *Schistosoma indicum*. —*Indian vet. J.*, **56** (8) : 682-685.

Work on heterologous immunity against any of the Indian schistosomes including *S. incognitum* has not been reported in spite of the prevalence of eight schistosome species in Indian mammals. The present paper reports the results of experiments of heterologous immunity against *S. incognitum* in mice.

1783. **Agrawal, V. C.** 1979. Techniques for the study of rodent population. —*Zoologiana*, (2) [1978] : 74-80.

The present paper gives a brief review of the techniques employed for the study of rodent population.

1784. **Agrawal, V. C.** and **Bhattacharya, T. P.** 1979. Taxonomic status of *Macroxus punctatissimus* Grap (Rodentia : Sciuridae). —*Proc. zool. Soc. Calcutta.*, **30** (1977) : 57-59.

1785. **Agrawal, V. C.** and **Chakraborty, S.** 1979. Taxonomic notes on some Oriental squirrels. —*Mammalia*, **43** (2) : 161-172.

1786. **Agrawal, V. C.** and **Chakraborty, S.** 1979. Catalogue of mammals in the Zoological Survey of India. Rodentia. Part 1. Sciuridae. —*Rec. zool. Surv. India*, **74** (4) : 333-481.

This catalogue includes the collection upto the year 1970. The scope of work includes the cataloguing of specimens (Registration number, sex, nature of material, locality, collector or donor and date of collection or donation), their external and cranial measurements, remarks on variation or on taxonomic status wherever desirable and their distribution within the limits of the Indian subregion.

1787. **Ahmad, I.** 1979. Physiological udder oedema and congestion of cows and buffaloes. —*Pakist. J. Sci.*, **31** (1-2) : 13-15.

A study involving 150 cases consisting of 122 buffaloes and 28 cows brought to the outpatient hospital at the College of Veterinary Sciences, Lahore, with a history of physiological picture and ascertain the various etiological factors involved therein.

1788. **Akhter, M. H.** *et al.* 1979. Cholera toxin and vibrio in the adult rat intestinal loop. —*Indian J. Physiol. Pharmac.*, **23** (2) : 68-76.

1789. **Ali, S. M.** 1979. Deer and antelopes of India and their conservation.— *Zoologiana*, **2** [1978] : 7-15.

India was considered to be an animal paradise, but the cumulative effects of the needs of man and ceaseless poaching have brought such a decline in the country clings to small vestige of its former range. In the present article, only the deer and antelopes are being included.

1790. **Ambadkar, P. M.** and **Gangaramain, N. F.** 1979. Alterations in non-specific phosphomonoesterase activity under THR influence of sex hormones in rat liver. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 61-70.

The present study indicated that due to the removal of gonads alkaline phosphatase activity of rat liver was affected comparatively more than the acid phosphate activity.

1791. **Ambadkar, P. M.** and **Vyas, D. M.** 1979. Activities of certain dehydrogenases in the preputial gland of normal, castrated and adrenalectomized castrated rats. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 162-168.

A study of certain dehydrogenase viz., Lactate dehydrogenase (LDH) B-hydroxybutyrate dehydrogenase (BDH), Malate dehydrogenase (MDH), and Succinate dehydrogenase (SDH) was carried out on the preputial glands of normal intact, castrated and adrenalectomized castrated rats, with a view to know more about the metabolic peculiarities of the glands.

1792. **Ananthanarayanan, M., Subrahmanyam, D.** and **Gupta, N.** 1979. Immunity to rodent malaria-isolation and characterization of protective antibody.— *Indian J. med. Res.*, **69** (5) : 732-738.

1793. **Anjaneyulu, K., Singh, C.** and **Dua, R. D.** 1979. Studies of the levels of hydrolytic enzymes and insulin content in rat pancreas on perincubation with trasylol. —*Indian J. exp. Biol.*, **17** (11) : 1289-1290.

1794. **Anon,** 1979. Population explosion among buffaloes—serious threat to other animals. —*Loris*, **15** (2) : 96.

1795. **Anon,** 1979. The swamp deer in the Sathiana Block. —*Wld Wildl. India Newsl.*, 4th Q., No. 31. : 15-16.

1796. **Anon,** 1979. Pigmy hog in Assam.—*Oryx*, **15** (1) : 66-67.

1797. **Apte, H. G.** 1979. Use of mice for potency test of H. S. oil adjuvant vaccine. —*Indian vet. J.*, **56** (7) : 537-540.

Mice can be used as animals for potency test of Haemorrhagic Septicaemia oil adjuvant vaccine in place of buffalo bulls.

1798. **Arora, K. K.** and **Doharey, R. B.** 1979. Laboratory evaluation of Vacor (RH-787)—a new selective rodenticide against squirrel, *Funambulus pennanti*. —*Rodent Newsl.*, **3** (2) : 9.

1799. **Arora, K. K., Doharey, R. B.** and **Varma, B. K.** 1979. Influence of an ultrasonic sound device on the feeding behaviour of black rat (*Rattus rattus*). —*Rodent Newsl.*, **3** (3) : 18-19.

1800. **Asnani, M. V., Kathuria, P. D., Kishnani, K. J., Pilo, B.** and **Shah, R. V.** 1979. Wound healing and repair in the skin of alloxan diabetic rats. 4. Quantitative studies of glycogen and histochemical studies of the enzymes, glucose-6-phosphate dehydrogenase, lactate dehydrogenase and aldolase in the healing wounds of diabetic and non-diabetic rat skin. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 181-192.

1801. **Bai, K. M.** 1979. Does the presence of white rat keeps the premises free from other wild rodents ?—*Rodent Newsl.*, **3** (3) : 22.

1802. **Bansal, R.** and **Kidwai, J. R.** 1979. Isolation and characterisation of cathepsin—B from bovine pancreas.—*J. Biosci.*, **1** (4) : 401-408.

A simple method for purification of cathepsin-B and some of its kinetic characteristics from bovine pancreas are reported in this paper.

1803. Deleted.

1804. **Barnabas, J.** 1979. Evolution of haemoglobin in placental mammals. —*J. scient. ind. Res.*, **38** (3) : 133-144.

Placental mammals appeared for the first time in the fossil record at the end of the Cretaceous period. They appeared as primitive insectivores.

1805. **Barnwal, A. K.** and **Dhingra, L. D.** 1978. Lymphatic drainage of mammary gland of buffalo. —*Indian J. Anim. Sci.*, **48** (10) : 753-755.

1806. **Bastawade, D. B.** and **Mahabal, A.** 1977. Some behavioural aspects of the Indian flying fox, *Pteropus g. giganteus*. —*Biovigyanam*, **2** (2) : 209-212.

1807. **Basu, S. B.** and **Rao, M. K.** 1979. Growth pattern in murrah buffalo calves. —*Indian vet. J.*, **56** (7) : 570-574.

The body weights at different ages and growth rates from birth to different ages of 742 Murrah buffalo calves were analysed and its results were published in the paper.

1808. **Basu, S. K.** and **Reddy, J. C.** 1979. Comparative study of some economic traits of non-descripts Holstein—Friesion and Hariana Holstein—Friesion crosses under West Bengal conditions. —*Allahabad Fmr.*, **50** (2) : 163-175.

The study reveals that Non-descript ×Holstein cross—bred cows (F1) possesses good milk yielding potentialities and are well comparable with Hariana × Holstein—Friesian (F1) cows.

1809. **Bedwal, R. S.** and **Mathur, R. S.** 1979. Comparative histomorphological studies on the testes and male accessory reproductive organs of two Indian mirochiropterans, *Megaderma lyra lyra* (Geoffroy) and *Rhinopoma kinneari* (Wroughton). —*Rajasthan Univ. Stud. Zool.*, **1** : 1-7.

Studies pertaining to the histomorphology of the male accessory reproductive glands of the two Indian species inhabiting the arid and semi-arid zones of Rajasthan have been made.

1810. **Bhagi, H. K.** 1979. Serum cholesterol in Murrah buffaloes of various ages. —*Indian J. Hered.*, **11** (2) : 31-33.

1811. **Bhalchandra, B. L.** 1979. Colloid concretions in the pars anterior of the pituitary of *Megaderma lyra lyra* (Geoffroy). —*Curr. Sci.*, **48** (23) : 1052.

1812. **Bhardwaj, J. C.** and **Lal, S. B.** 1979. Epididymal acid phosphatases of the bat *Taphozous longimanus* Hardwicke : regional differences. —*Indian J. exp. Biol.*, 17 (8) : 793-795.

Histochemical study of acid phosphatase in the caput, corpus and canda epididymis of sexually mature males of *T. longimanus* showed differential activity.

1813. **Bhaskaran Nair, V.** and **Ananthasubramanian, C. R.** 1979. Studies on the nutritional requirements of the elephant (*Elephas maximus*). 1. Evaluation of the nutritive value of palm leaf (*Caryota urens*). —*Indian vet. J.*, **56** (8) : 667-671.

The nutritive value of palm leaf for elephants was determined in four animals divided equally into two age groups of 21 and 11 years, respectively. The nutrients in palm leaf are well-digested by the elephants, the growing young animals of 11 yrs. of age digesting the nutrients better than animals of 21 years of age.

1814. **Bhat, H. R.** and **Sreenivasan, M. A.** 1979. Recent sighting of *Macaca silenus* (Linnaeus, 1758), at Mastimane ghat, north Kanara dist., Karnataka. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 476-477.

1815. **Bhat, H. R., Sreenivasan, M. A.** and **Naik, S. V.** 1979. Susceptibility of common giant flying squirrel to experimental infection with KFD virus. —*Indian J. med. Res.*, **69** (5) : 697-700.

1816. **Bhat, P. N.** and **Singh, S. K.** 1979. Effect of genetic and non-genetic factors on linear body measurements in crosses of Holstein, Brown Swiss and Jersey with Hariana. —*Indian J. Anim. Sci.*, **48** (10) : 701-707.

1817. **Bhatia, A.** and **Dev, P. K.** 1979. Tritium toxicity in mice liver during postnatal development. —*Rajasthan Univ. Stud. Zool.*, **1** : 31-35.

1818. **Bhatia, I. S., Sharma, A. K., Gupta, P. P.** and **Ahuja, S. P.** 1979. Effects of feeding mustard oil to rats on the *in vivo* lipid metabolism in heart and lungs. —*Indian J. med. Res.*, **69** (2) : 271-283.

1819. **Bhatia, S. S.** and **Sharma, P. K.** 1979. Genetic studies on some economic traits in Landrace pigs. I. Individual body weight at birth and at weaning. —*Indian vet. J.*, **56** (1) : 45-48.

1820. **Bhatia, Y. S., Misra, S. S., Lavania, J. P.** and **Angelo, S. J.** 1979. A case of bilateral cryptorchidectomy in a bull calf. —*Indian vet. J.*, **56** (7) : 611-613.

A case of bilateral cryptorchidism in a graded Hariana bull calf is placed on record.

1821. **Bhattacharya, B.** and **Chakraborty, A. K.** 1979. Serum aminotransferase activity in normal and experimentally infected Jamunapuri goat with rinderpest virus. —*Indian vet. J.*, **56** (5) : 435-436.

1822. **Bhattacharya, T.** and **Chattopadhyay, B. N.** 1979. Population status of Indian blackbuck (*Antilope cervicapra*) and spotted deer (*Axis axis* Erxleben.) in Ballavpur Wild Life Sanctuary, West Bengal. —*Cheetal*, **20** (4) : 39-47.

1823. **Bhide, S. A.** 1979. Peyer's patches in some Indian bats. —*Curr. Sci.*, **48** (6) : 241-243.

The Peyer's patches in twelve Indian species of bats having different feeding habits were studied. In general, the Peyer's patches are more in number in the fungivorous species than in the insectivorous ones. It is suggested that the degree of development of the Peyer's patches is dependent on the bacterial content of the diet since the Peyer's patches are aggregations of lymph nodules.

1824. **Bhiwgade, D. A.** and **Gulhane, L. T.** 1979. Identification of thyrotrophin-secreting cells in the pituitary of the Indian fivestriped palm squirrel *Funambulus pennanti* (Wroughton). —*Indian J. exp. Biol.*, **17** (12) : 1291-1295.

1825. **Bhokre, A. P.** and **Deshpande, K. S.** 1979. Experimental study on anaesthesia and relaxation of bovine penis with special reference to pudic nerve block and epidural anaesthesia. II. Epidural anaesthesia. —*Indian vet. J.*, **56** (8) : 675-678.

Caudal epidural anaesthesia for relaxation and anaesthesia of penis was undertaken in 24 bovines. Planocaine and Xylocaine were used as local anaesthetics. Twenty five per cent of the cases remained in standing position with complete relaxation and anaesthesia of penis. Complete and partial relaxation of penis was observed in 62.5% cases showing severe locomotor incordination and recumbency, while failure was observed in 12.5% cases.

1826. **Bista, R. B.** 1979. Status of tiger in Nepal. —*Tiger Pap.*, **6** (2-3) : 28-29.

1827. Deleted.

1828. **Bohra, S. D. J., Nagarcenkar, R.** and **Sharma, K.N.S.** 1979. Factors affecting pre-weaving body weights in Malpura sheep. —*Indian vet. J.*, **56** (2) : 125-128.

1829. **Bongso, T.A.** and **Edirisinghe, R.** 1979. Studies on foetal fluids in goats.— *Indian vet. J.*, **56** (7) : 562-569.

The paper deals with a detailed information on colour, consistency and volumes of foetal fluid throughout the gestation period on a larger number of goats.

1830. **Borthakur, S.** and **Dhingra, L.D.** 1979. Anatomical studies on the blood vessels of the testis in buffalo (*Bubalus bubalis*).—*Indian J. Anim. Sci.*, **49** (4) : 266-272.

20 buffalo calves of approximately 1 to 2 yrs. of age were investigated through gross dissections and angiography to study the origin, course and final termination of the blood vessels of the testis.

1831. **Brahmachary, R. L.** 1979. Chemical communication in tiger. —*Sci. Reptr*, **16** (2) : 93-95.

1832. **Brahmachary, R. L.** 1979. The scent marking of tigers. —*Tiger Pap.*, **6** (2-3) : 19-20.

With our present knowledge of amines wer can postulate that the common amine signals the presence of a tiger, while the other amines indicate a particular tiger.

1833. **Chakrabarti, K.** 1978-79. Ecology of the Sunderbans tiger with particular reference to range of habitats and adaptability to changes. —*Cheetal*, **20** (2-3) : 3-15.

The present observations include the habitat zonations of Sunderbans tigers, soil and water salinity ranges of the habitats and the preponderance of the tiger in such zonations.

1834. **Chakraborty, B.** 1979. Some biochemical effects of ascorbic acid in rats in relation to electroshock stress.—*Indian med. Gaz.*, **113** (6) : 192-194.

1835. **Chakraborty, S.** 1979. Taxonomic notes on some Oriental squirrels.—*Mammalia*, **43** (2) : 33-44.

1836. **Chakraborty, S.** 1979. The Rusty spotted cat, *Felis rubiginosa* I. Geoffroy, in Jammu and Kashmir. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 478-479.

1837. **Chandna, I. S., Bhargava, A. K.** and **Tyagi, R. P. S.** 1979. Spinal meningocele and congenital scoliosis in a kid —a case report. —*Indian vet. J.*, **56** (3) : 240-241.

A case of spinal meningocele and congenital scoliosis, besides dislocation of thoracic vertebra in a day old kid was diagnosed by myeolography.

1838. **Chandhoke, N.** 1979. Scoparone ; Effect on reproductive processes in rats. —*Indian J. exp. Biol.*, **17** (8) : 740-742.

Scoparone, at dose levels of 10, 25 and 50 mg/kg, was investigated for its effects on various aspects of reproduction in male and female rats.

1839. **Chauhan, F. S.** and **Singh, M.** 1979. Anestrus in buffaloes. —*Indian vet. J.*, **56** (7) : 583-589.

Anestrus is the most common single cause of infertility in buffaloes and cattle. The cause of anestrus of the buffaloes and its treatment are dealt with in this paper.

1840. **Chauhan, U. P. S., Rastogi, V. K.** and **Jaggi, C. B.** 1979. Protein metabolism in various tissues of alloxan diabetic rats. —*Indian J. exp. Biol.*, **17** (8) : 783-785.

Protein, RNA and DNA contents and protein turnover were studied in heart, liver, kidney, skeletal muscle and plasma of rats 48 hr after treating them with a single dose of alloxan monohydrate.

1841. **Chavan, S.** 1979. Lions on a tree.—*Hornbill*, No. 13 : 26.

1842. **Chinoy, M. R.** and **Chinoy, N. J.** 1979. Effects of cyproterone acetate on the vas deferens of albino rat. —*Indian J. exp. Biol.*, **17** (11) : 1176-1181.

1843. **Chinoy, N. J., Rao, M. V.** and **Seethalakshmi, L.** 1979. Effect of gonadectomy and sexhormone replacement on tissue distribution of ascorbate in male and female albino rats. —*Indian J. exp. Biol.*, **17** (11) : 1171-1175.

1844. **Chinoy, N. J.** and **Rao, M. V.** 1979. Inter-relationships between ascorbic acid and sex hormones in steroidogenic tissues and ascorbic acid synthesizing tissues of albino rats.—*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 36-43.

The study was undertaken to elucidate the inter-relationships between tissue distribution and concentration of ascorbic acid in steroidogenic tissues and ascorbic acid synthesizing tissues of normal, gonadectomized and sex hormone treated gonadectomized male and female albino rats.

1845. **Chinoy, N. J.** and **Seethalakshmi, L.** 1979. Hormonal control of tissue distribution and matabolism of ascorbic acid in male rats. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 235-242.

The effects of androgen deprivation and testosterone replacement on tissue distribution and metabolic turnover of ascorbic acid in liver, kidney and adrenal of male rats were investigated.

1846. **Daflapurkar, D. K., Kaushik, S. N.** and **Katpatal, B. G.** 1979. Comparative studies on wool production and quality traits in Patanwadi and Deccani crosses. —*Indian vet. J.*, **56** (9) : 764-767.

An attempt was made to study the quantity and quality of wool of crossbreds and to determine their superiority, if any over the two parental breeds involved in cross-breeding scheme i.e. Patanwadi and Deccani.

1847. **Daniel, J. C.** 1979. Jawahar National Park. —*Hornbill*, No. 11 : 19-24.

The population habitat and protection of the fauna specially of mammals of this park have been discussed in this communication.

1848. **Das, D., Barua, R. N.** and **Sarmah, B. C.** 1979. Embryo transfer and twins production in cattle. —*Sci. Reptr*, **16** (2) : 124.

1849. **Das, L. N.** 1979. Gross histological and histochemical studies on the third eyelid of Indian buffalo. —*Indian J. Anim. Sci.*, **49** (7) : 523-530.

This study is aimed to elucidate the histomorphological as well as histochemical nature of the nictitating membrane of the buffalo.

1850. **Das, L. N.** 1979. Observations on subgross morphology of the hypophysis and histomorphology of the neurohypophysis of Indian buffalo. —*Indian J. Anim. Sci.*, **49** (7) : 531-542.

The morphological architecture of the hypophysis of Indian buffaloes has been described.

1851. **Dasgupta, A., Chatterjee, R.** and **Chawdhury, J. R.** 1979. Nuclear succinate dehydrogenase and glucose-6-phosphatase activities during hepatocellular carcinogenesis in thioacetamide fed rat. —*Indian J. exp. Biol.*, **17** (12) : 1380-1381.

1852. **Dasgupta, B., Pal, N.** and **Ghosh, B. N.** 1979. Trypanosomiasis in tigers and leopards in Darjeeling. —*Indian J. Parasit.*, **3** (1) : 61-62.

1853. **Dasgupta, S. R.** and **Maiti, A. K.** 1979. Proliferation of mast cells in peripheral nerve of alloxan diabetic rat. —*Indian J. exp. Biol.*, **17** (5) : 455-459.

1854. **Daspurakayastha, P. C.** and **Mazumder, S. C.** 1979. Genetic studies on breeding efficiency of Holstein×Hariana F_1 cows in State livestock farm, West Bengal. —*Indian vet. J.*, **56** (11) : 923-927.

The average breeding efficiency of Holstein×Hariana cross F_1 cows were found to be $71.48 \pm 1.07\%$, the C. V. being 2.63%.

1855. **Dave, B. K.** and **Graves, C. N.** 1979. Organic acid content of the bovine follicular fluid. —*Indian vet. J.*, **56** (9) : 744-747.

1856. **Davidar, E. R. C.** 1979. Distribution and status of the Nilgiri tahr (*Hemitraqus hylocrius*) —1975-78.—*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 815-844.

1857. **Davidar, P.** 1979. The tahr of Bison Hill. —*Hornbill*, No. 12 : 17-18.

1858. **De, S.** 1979. Mathematical theory to study the ecological balance and conjugation principle of wild animals in any closed environment. —*Cheetal*, **21** (1) : 33-38.

1859. **Deb Roy, S.** 1979. Socio-economic aspects of preservation of tigers. —*Tiger Pap.*, **6** (2-3) : 5-6.

1860. **Dechamma, P. A.** 1979. Seasonal weight changes in the preputial gland of the softfurred field rat, *Millardia meltada* (Gray). —*Rodent Newsl.*, **3** (4) : 25-26.

1861. **Deka, B. C.** and **Rao, A. R.** 1979. Semen characteristics of cross-bred rams.—*Indian vet. J.*, **56** (9) : 748-756.

Investigation was undertaken to study the semen characteristics of cross-bred rams.

1862. Deleted.

1863. **Deoras, P. J.** 1979. Breeding of *Rattus rattus*. —*Rodent Newsl.*, **3** (4) : 30-31.

1864. **Desai, H. B., Pande, M. B., Desai, M. C.** and **Shukla, P. C.** 1979. Haematological and chemical status of blood of Dangi cattle. —*Indian J. Anim. Res.*, **13** (1) : 43-46.

1865. **Deshmukh, A. P.** and **Chavan, J. G.** 1979. Raising buffalo calves on low cost formula. —*Res. Bull. Marathwada agric. Univ.*, **3** (8) : 99-102.

1866. **Despande, K. S.** and **Kudale, M. L.** 1979. Surgical management of a third degree perineal rupture in a brood mare. —*Indian vet. J.*, **56** (8) : 686-690.

A case of third degree rectovaginal fistula together with perineal lacerations in a thoroughbred brood mare, which was treated successfully with a a modified suturing technique is reported.

1867. **Devi, M. A., Venkataraman, L. V.** and **Rajasekaran, T.** 1979. Hypocholesterolemic effect of diets containing algae on albino rats. —*Nutr. Rep. Int.*, **20** (1) : 83-90.

1868. **Devi, S.** and **Singh, S.** 1979. Maternal administration of papain and its affect on the brain of rat foetuses. —*Indian J. med. Res.*, **69** (4) : 671-679.

1869. **Dhablania, D. C., Ramakumar, V.** and **Tyagi, R. P.** 1978. Skin transplantation in buffalo calves. —*Indian J. Anim. Sci.*, **48** (10) : 727-729.

1870. **Dhar, C.** and **Gautam, O. P.** 1979. Observations on anaemia in experimentally induced *Theileria annulata* infection of calves. —*Indian J. Anim. Sci.*, **49** (2) : 122-126.

1871. **Dhillon, J. S., Acharya, R. M., Singh, R. N.** and **Tiwana, M. S.** 1979. Relationships among libido, seminal characteristics and fertility in rams. —*J. Res. Punjab agric. Univ.*, **15** (2) [1978] : 198-203.

The relationships among libido, semen characteristics and fertility of 51 rams belonging to Nali, Lohi, Nellore and Mandya breeds and some of their crosses were studied during a period of two years.

1872. **Dhingra, L. D.** 1979. Angiographic and gross anatomical studies on the angioarchitecture of testis of Indian donkey stallion. —*J. Res. Haryana agric. Univ.*, **9** (4) : 366-372.

The study was carried out to furnish comprehensive information on the architectural organisation of blood vessels of the testis of donkey stallion.

1873. **Dhingra, L. D.** and **Sharma, D. N.** 1978. Topographic anatomy of the heart of adult female murrah buffalo (*Bubalus bubalis*). —*Indian J. Anim. Sci.*, **48** (10) : 729-736.

The anatomy of the pericardium and heart was investigated in 6 adult murrah buffaloes by gross dissections.

1874. **Dhoke, M. V.** and **Johar, K. S.** 1979. Factors affecting variability of lactation yield of Hariana cow. —*J. N. K. V. V. Res. J.*, **10** (2) [1976] : 154-157.

1875. **Dhume, V. G.** and **Bijlani, C. J.** 1979. Potentiation of barbiturate hypnosis in rats by Liv 52.—*Clinician, Panjim*, **43** (2) : 59-60.

1876. **Dindorkar, C.V.** and **Kohli, I. S.** 1979. Variations in blood serum inorganic phosphorus, calcium and magnesium values of cattle having regular estrus cycles and those in anestrum.—*Indian J. Anim. Hlth.*, **18** (2) : 25-27.

1877. **Dixit, U. P.** 1979. Effects of ∝-chlorohydrin on the testes and epididymides of immature monkey (*Presbytis entellus entellus*) a preliminary biochemical study. —*Rajasthan Univ. Stud. Zool.*, **1** : 56-62.

The present investigation undertakes to study the effects on the monkey after long term administration of low doses of ∝—chlorohydrin.

1878. **Dixit, V. P.** 1979. Effects of vas deferens clipping on the testicular function in dog. —*Indian J. med. Res.*, **69** (1) : 75-82.

1879. **Dobarey, R. B., Arora, K. K.** and **Verma, B. K.** 1979. Code of practice of rodent in urban areas. —*Pesticides*, **13** (4) : 54-55.

880. **D'souza, C., Bhat, P. N.** and **Mukundan, G.** 1979. Genetic studies on some important economic traits in Red Sindhi and its crosses. —*Indian J. Anim. Sci.*, **49** (4) : 247-250.

The data of Red Sindhi and its crosses with Friesian and Red Dane, maintained at the Military Dairy Farm, Bangalore, from 1937 to 1971 on birth weight, weight at calving, age at first fertile service, age at first calving, gestation period, service period, calving interval, lactation yield, lactation length, dry period, peak yield and peak week in Red Sindhi and its halfbreds were studied.

881. Deleted.

882. **Dutta, P.** and **Bhattacharjee, S.B.** 1979. A new mutant of Ranikhet disease (new castle disease) virus. —*Indian vet. J.*, **56** (2) : 156-158.

883. **Dwivedi, S. K., Mallick, K. P.** and **Malhotra, M. N.** 1979. Babesiosis : Clinical cases in Indian water buffaloes. —*Indian vet. J.*, **56** (4) : 333-335.

Two clinical cases of babesiosis in buffaloes due to *Babesia bovis* infection were recorded during July and Sept., 1977.

884. **Editor** 1979. The Deduru Oya Herd. —*Loris*, **15** (2) : 63.

885. **Editor** 1979. Sanctuary for elephants. —*Loris*, **15** (2) : 118.

886. **Editor** 1979. Rhino horn. —*Loris*, **15** (2) : 125.

887. **Editor** 1979. Lahugala elephants win the day. —*Loris*, **15** (2) : 126.

888. **Farook, S. M. S.** 1979. Primates of Ceylon-II. The society of Rilawas.— *Loris*, **15** (2) : 73-77.

1889. **Futehally, Z.** 1979. The core areas of Project Tiger. —*Cheetal*, **21** (1) : 15-20.

1890. **Gadgil, M.** 1979. Langurs and their seraglios. —*Hornbill*, No. **10** : 7-9.

1891. **Gadgil, M.** 1979. Selfish herds of the spotted deer. —*Hornbill*, No. **11** : 13-16.

1892. **Gadgil, M.** 1979. Baby elephants and their aunts. —*Hornbill*, No. **13** : 13-17.

1893. **Ganapathy, V., Hellier, M. D.** and **Radhakrishnan, A. N.** 1979. Interaction of amino acids with glycyl glycine transport in the mammalian intestine. —*J. Biosci.*, **1** (1) : 1-12.

1894. **Garg, A.** 1979. Effect of Ak *Calotropis procera* (Ait.) R. Br. flower extract on testicular function of the Indian desert male gerbil *Meriones hurrianae* Jerdon : a biochemical and histological study. —*Indian J. exp. Biol.*, **17** (9) : 859-862.

Oral administration of *C. procera* flower extract for 30 days every alternate day caused widespread testicular necrosis in *M. hurrianae*, has been studied.

1895. **Garg, S. L.** and **Nangia, O. P.** 1979. Change in levels of circulating metabolites related to energy metabolism in fasting male buffaloes. —*Indian J. Anim. Sci.*, **49** (7) : 504-506.

The objective of the present study was to define the changes in the levels of glucose, ketone bodies, volatile fatty acids and non-esterified fatty acids in blood of buffalo males 48-hr. post-feeding.

1896. **Gartlan, S.** 1979. Outlook grim in Bangladesh. —*Primate Rec.*, **8** (11) : 8.

1897. **Gharib, F. H., Singh, G., Jabar, A. A.** and **Kassab, S.** 1979. Physical, productive and reproductive characteristics of Janubi cattle. —*Pakist. J. Sci.*, **31** (3-6) : 170-174.

The study involved the analysis of records collected on 42 native Janbui cattle maintained at the Animal Husbandry station in Basrah. Different physical, productive traits were investigated. The body weight, height, length, heart girth, milk production, lactation period, age at first calving, gestation period, dry period and calving intervals were studied. Records on the calves birth weight and mortality were also examined.

1898. **Ghosal, A. K., Dwaraknath, P. K.** and **Jatkar, P. R.** 1979. Note on effect of zinc supplementation on canary colouration in Nali sheep. —*Indian vet. J.*, **56** (5) : 437-438.

1899. **Ghose, R. K.** 1978. Observations on the ecology and status of the hispid hare in Rajagarh forest, Darrang district, Assam in 1975 and 1976. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 206-209.

1900. **Ghosh, C.** and **Sanyal, A. K.** 1979. Certain biochemical characteristics of rat amniotic fluid. —*Indian J. med. Res.*, **70** (11) : 771-776.

A study was undertaken to estimate few biochemical parameters including proteolytic activity in the rat amniotic fluid, as gestational age can be accurately calculated in this species from the day the vaginal smear is positive for sperm.

1901. **Ghosh, D., Choudhury, G., Banerjee, G. C.** and **Ghosh, M. N.** 1979. Genetic studies on the birth weight in Jersey × Hariana Calves. —*Indian J. Anim. Hlth.*, **18** (1) : 45-48.

An attempt has been made in the present study to investigate the genetic and non-genetic factors affecting the variability of birth weight in Jersey × Hariana calves.

1902. **Ghosh, D., Choudhury, G., Banerjee, G. C.** and **Ghosh, M. N.** 1979. Studies on growth pattern and factors affecting it in the Holstein × Hariana cross-bred calves. —*Indian vet. J.*, **56** (8) : 656-659.

Growth pattern of 96 F_2 and 46 F_3 Holstein × Hariana cross-bred calves was ascertained in terms of live-weights gained at the ages of 1, 2, 3, 4 and 6 months. Influences of sex, generations and sire on the live-weights at different stages of development were also investigated.

1903. **Ghosh, M.** and **Saha, U.** 1978. Gazelle's bone found associated with the Harappa remains. —*Indian Mus. Bull.*, **10** (2) [1975] : 71-73.

1904. **Ghosh, P.** and **Bhattacharya, S. K.** 1979. Cannabis-induced potentiation of hexobarbitone hyponosis in mice : Role of brain monoamines. —*Indian J. exp. Biol.*, **17** (12) : 1387-1389.

1905. **Ghosh, P.K., Goyal, S.P.** and **Prakash, I.** 1979. Metabolism and ecophysiology of Rajasthan desert rodents. Thermoregulation at a moderately low temperature (21°C) during winter.—*J. Arid Environ.*, **2** (1) : 77-83.

Measurement of the metabolic rates of eight species of Rajasthan desert rodents at a moderately low temperature during winter has revealed that there is a significant negative correlation between oxygen consumption and body weight ; dry-active rodents have higher metabolic rates than nocturnal rodents of similar body weights.

1906. Deleted.

1907. **Ghosh, R. K.** 1979. Addition to the mammalian fauna of Assam with remarks on the status of *Herpestes edwardsi ferrugineus* Blandford, 1874 (Carnivora : Viverridae). —*Mammalia*, **43** (3) : 430-432.

1908. **Ghosh, S. K.** and **Guha, S. R.** 1979. Studies on brain maturation and growth. IV. Glycogen. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 214-219.

In the present investigation, attempt has been made to correlate changes in glycogen level to the developing brain to brain maturation and growth.

1909. **Girish, G. K.** and **Agrawal, N. S.** 1979. Rodent control week in India during May, 1978. —*Rodent Newsl.*, **3** (2) : 11-12.

1910. **Girish, G. K.** and **Agrawal, N. S.** 1979. Rodent control programme in save grain campaign during the year 1978-79. —*Rodent Newsl.*, **3** (3) : 21.

1911. **Girish, G. K., Agrawal, N. S.** and **Bhardwaj, G. N.** 1979. Rodent control programme at farm level in U. P. —*Rodent Newsl.*, **3** (2) : 13.

1912. **Girish, G. K.** and **Nishad, M. S.** 1979. Rodent control week: Assam. —*Rodent Newsl.*, **3** (4) : 27.

1913. **Goel, V. K., Joshi, B. C.** and **Kaushik, S. N.** 1979. Heat tolerance of Hariana × Holstein, Hariana × Brown Swiss and Hariana × Jersey cross-bred heifers. —*Indian J. Anim. Sci.*, **49** (7) : 507-510.

Thirty six F_1 unbred heifers, $1\frac{1}{2}$ to 2 years old, including 12 representations each from the crosses of Hariana females with Holstein-Friesian, Brown Swiss and Jersey males were tested for determining their individual Iberia heat tolerance index, Benezra coefficient of adaptability and Dairy search index. Simultaneously with these, the coat colour index was also prepared. The surface area and water and feed consumption of these animals were recorded. The differences in the three heat tolerance indices among breeds were not significant. There was no statistically significant correlation between these and coat colour index surface area per unit body weight, water consumption or feed consumption.

1914. **Gopalakrishna, A., Karim, K. B.** and **Banerjee, S.** 1979. Anatomy of the utero-vaginal junction in the Indian sheath tailed bat, *Taphozous longimanus* (Hardwicke). —*Curr. Sci.*, **48** (12) : 556-558.

1915. **Gopalakrishna, A., Karim, K. B.** and **Chari, G.** 1979. Pregnancy record of some Indian bats. —*Curr. Sci.*, **48** (16) : 716-718.

The present paper embodies observations on pregnancy and ovulation in 17 species of Indian bats.

1916. **Gopalakrishna, A.** and **Murthy, K.V.R.** 1979. Studies on the male genitalia of Indian bats. Part 1. Male genitalia of the Indian fruit bat *Rousettus leschenaulti* (Desmaret). —*J. zool. Soc. India*, **28** (1-2) [1976] : 12-24.

1917. **Gopalakrishna, R.** and **Nagarajan, B.** 1979. Effect of growth and differentiation on distribution of arginase and arginine in rat tissues. —*Indian J. Biochem. Biophys.*, **16** (2) : 66-68.

1918. **Gopalakrishna, T.** and **Ramamohan Rao, A.** 1979. Correlation between semen characteristics and fertility in Murrah buffalo bulls. —*Indian vet. J.*, **56** (6) : 491-493.

1919. **Gopal Dutt, N. H.** and **Madhyastha, N. A.** 1979. Further studies on the prolactin secreting (LTH) cells in the hypophysis of brown spiny mouse, *Mus platythrix* Bennett. —*Curr. Sci.*, **48** (1) : 44-45.

1920. **Goswami, C. S.** and **Bokadia, M. M.** 1979. Effect of extracts of *Aloe barbadensis* Mill leaves on the fertility of female rats. —*Indian Drugs*, **16** (6) : 124-125.

1921. **Govindaiah, M.G., Singh, B. P., Singh, M. R., Tyagi, J. C.** and **Saxena, R. P.** 1979. Factors affecting birth weight in Hariana cattle. —*Indian vet. J.*, **56** (4) : 300-305.

It is considered most important to study the birth weight in order to minimise the cost of labour, feed, space and time in raising uneconomical animals.

1922. **Goyal, R. P., Mathur, R. S.** and **Sharma, A.** 1979. Fructose, citric acid and sialic acid changes in the male accessory reproductive glands of *Hemiechius auritus collaris* Gray following administration of testosterone propionate and methallibure. —*Rajasthan Univ. Stud. Zool.*, **1** : 71-78.

The present paper includes observations on the effects of testosterone propionate (T. P.) and methallibure on the biochemical levels of fructose, citric acid and sialic acid in the sex accessory glands.

1923. **Goyal, S.P., Ghosh, P.K.** and **Prakash, I.** 1979. Some physiological adaptive mechanisms of the Indian desert gerbil. —*Rodent Newsl.*, **3** (3) : 17-18.

1924. **Gudi, A. K.** and **Sherikar, A. T.** 1979. Field observations on certain aspects of economic characters of Murrah buffaloes in Bombay stables. —*J. Maharashtra agric. Univ.*, **4** (3) : 299-300.

1925. **Gupta, A.** and **Gupta, R. M.** 1979. Immunosuppresive effect of antithymocytes serum (ATS) on experimental allergic orchitis (EAO) in guineapigs (*Cavia procellus*).—*Indian J. exp. Biol.*, **17** (9) : 941-943.

Guineapigs were treated with high potency of antithymocyte serum along with the allergizing dose of testes homogenate mixed with in complete Freund's adjuvant failed to show development of histopathological lesion in testis.

1926. **Gupta, A. K., Vyas, K.K., Dwaraknath, P. K.** and **Pareek, P. K.** 1979. Effect of breeding season, castration and exogenous testosterone on blood-glucose level and eosinophil count of male camels (*Camelus dromedarius*).—*Indian J. Anim. Sci.*, **49** (7) : 554-556.

The changes in blood-glucose level and eosinophil count during the breeding season was studied. The exogenous testosterone injections in adult males during non-rutting season when compared with castrated males on these parameters was also studied.

1927. **Gupta, G. C., Joshi, B. P.** and **Rai, P.** 1979. Observations on haematology of camel (*Camelus dromedarius* L. —*Indian vet. J.*, **56** (4) : 269-272.

Study on cellular constituents of blood is an important tool in the diagnosis of diseases, in relation to its nature and type. The authors have made observation on the cytological values of blood of camel.

1928. **Gupta, H. P., Singh, N. B., Mathur, I. S.** and **Gupta, S. K.** 1979. *Mycobacterium habana*, a new immunogenic strain in experimental tuberculosis of mice. —*Indian J. exp. Biol.* **17** (11) : 1190-1193.

1929. **Gupta, N. K.** and **Ashok Kumar**, 1979. Giant cells in the liver of Indian desert gerbil (*Meriones hurrianae* Jerdon) following radiacalcium administration. —*Natn. Acad. Sci. Lett.*, **2** (4) : 159-160, 1 pl.

14 day post treatment following radio calcium (Ca-45) administration in the liver of *Meriones hurrianae* show two types of giant cells, one having a large body of cytoplasm with a single nucleus and the other having many nuclei.

1930. **Gupta, P. P.** 1979. A note on Jaagziekte (Pulmonary adenomatosis) in a sheep. —*Indian vet. J.*, **56** (2) : 155.

1931. **Gupta, R. C.** and **Paul, B. S.** 1979. A note on the interaction of malathion and sumithion on their toxicity in *Bubalus bubalis*. —*Indian J. Anim. Sci.*, **49** (4) : 314-315.

The toxicological effects of simultaneous administration of various acute toxic doses of malathion and sumithion in buffalo calves have been reported.

1932. **Gupta, R. D.** and **Agarwal, K. N.** 1979. Effect of dietary protein composition on foetal hepatic changes in rats. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 188-197.

Foetal growth and hepatic functions have been studied to find out the possible effects of cereal and pulse protein diets.

1933. Deleted.

1934. **Haldar, S. K., Roychowdhury, M., Datta, S.** and **Sen, G. P.** 1979. Bovine brucellosis in relation to cross-breeding in organised farm. —*Indian vet. J.*, **56** (1) : 76-78.

1935. **Handa, S. M.** and **Kaur, S.** 1979. Chromosome number and DNA, RNA values in some Indian bats (Chiroptera). —*Curr. Sci.*, **48** (6) : 256-258.

The chromosomal number of nine species of bats has been studied. The studies also include the estimation of DNA and RNA in mg/gm of known weight of tissues like liver and spleen in order to find out the possible relationship between these biochemical components of the nucleus and the chromosome number in the various species of bats.

1936. **Hasan, S. M.** 1979. Recovery of wild buffalo from Panna. —*Cheetal*, **20** (4) : 29-32.

1937. **Heranjal, D. D., Sheth, A. R., Desai, R.** and **Rao, S. S.** 1979. Pituitary LH response to synthetic Gn-RH in buffaloes with cystic ovaries. —*Indian J. Anim. Res.*, **13** (1) : 40-42.

1938. **Htun, P. T.** and **Brooks, J. E.** 1979. Laboratory evaluation of zinc phosphide as a rodenticide against *Bandicota bengalensis*. —*Pest Artic. News Summ.*, **25** (3) : 246-250.

The toxicity and efficacy of the acute rodenticide zinc phosphide (Zn3 P2) was evaluated in the laboratory against the lesser bandicoot rat from Rangoon, Burma.

1939. **Hurkadli, K. S., Jayaraman, S.** and **Sheth, A. R.** 1979. Androgenic control of the secretion of accessory reproductive organs of *Macaca radiata*. —*Indian J. exp. Biol.*, **17** (8) : 775-776.

Effect of testosterone propionate (TP) on the accessory sex organ function in 4 bonnet monkeys was studied.

1940. **Hussain, M. M.** and **Mohan Rao, V. K.** 1979. Effect of experimental meningoencephalitis on the aminotransferase levels in mouse brain. —*Indian J. exp. Biol.*, **17** (8) : 779-781.

The effect of *H. culbertsoni* infection on the GOT and GPT activities in the mouse brain was studied.

1941. **Hutterer, R.** 1979. Ergebnisse der Bhutan-Expedition 1972 des Naturhistorischen Museums in Basel. Mammalia : Insectivora : Rodentia. —*Bonner zool. Beitr.*, **30** (1-2) : 1-6.

1942. **Jackson, P.** 1979. The world wildlife fund and the tiger. —*Tiger Pap.*, **6** (2-3) : 2-4.

1943. **Jacob, D., Lal, G.** and **Singh, A.** 1979. Effect of postcoital administration of sex hormones on uterine sialic acid of rabbit. —*Indian J. exp. Biol.*, **17** (12) : 1385-1387.

1944. Deleted.

1945. **Jain, A. P.** 1979. A note on the breeding season and litter—size in the rodents of Andhra Pradesh.—*Rodent Newsl.*, **3** (2) : 14.

1946. **Jain, R. K.** and **Gupta, M. L.** 1979. Effect of cold on lipid metabolism in rats. —*Clinician, Panjim*, **43** (3) : 89-93.

1947. **Jain, V. K., Kalia, V. K., Gopinath, P.M., Naqvi, S.** and **Kucheria, K.** 1979. Optimization of cancer therapy : Part III—effects of combining 2-deoxy-D-glucose treatment with gamma-irradiation on normal mice. —*Indian J. exp. Biol.*, **17** (12) : 1320-1325.

1948. **Jaiswal, U. C., Khanna, A. S., Chopra, S. C.** and **Balaine, D. S.** 1979. A note on conception rate with frozen semen of exotic bulls in Hariana and their crosses. —*J. Res. Haryana agric. Univ.*, **9** (4) : 400-402.

Conception rate and the number of services per conception are two important factors that determine the reproductive status of a herd.

1949. **Jamaluddin, M., Philip, M.** and **Chandra, H. S.** 1979. A rapid and gentle method for the salt extraction of chromatin core histones H_2A, H_2B, H_3 and H_4 from rat liver nuclei. —*J. Biosci.*, **1** (1) : 49-59.

1950. **Jarol, D. P.** and **Lall, S. B.** 1979. A comparison of acid phosphate activity in the non-pregnant uterus of *Taphozous longimanus* Hardwicke (Microchiroptera : Mammalia). —*Curr. Sci.*, **48** (23) : 1020-1022.

The report compares the histochemical site and distribution of acid phosphatase in the non-pregnant and pregnant uterus of an insectivorous Microchiroptera—*T. longimanus*.

1951. **Jayaramakrishna, V., Schalles, R. R., Menzies, C. S.** and **Wheat, J. D.** 1979. Comparative performance of breed crosses in sheep. II. Lamb production traits. —*Indian vet. J.*, **56** (4) : 312-316.

Records from 883 lambs produced by 135 ewes of three breeds mated to rams of four breeds were studied with regard to birth weight, carcass weight and carcass grade.

1952. **Jayaraman, S., Hurkadli, K. S.** and **Gopalakrishnan, K.** 1979. Initiation of menstrual cyclicity in laboratory maintained bonnet (*Macaca radiata*) and langur (*Presbytis entellus entellus*) monkeys. —*Indian J. exp. Biol.*, **17** (7) : 682-683.

1953. **Jeevaji, I. H.** 1979. Early development and implantation of the blastocyst in the bat, *Hipposideros speoris* (Schneider)-Hipposideridae-Microchiroptera. —*Proc. Indian Acad. Sci.*, **88**B (1) : 287-297.

The embryo of *H. speoris* enters the uterus at the morula stage of development. The blastocyst implants superficially and circumferentially. The most conspicuous progestational change in the uterus concerns the uterine glands which undergo hypertrophy and become wide thereby reducing the endometrial stroma to thin strands.

1954. **Jha, H. N.** and **Banerjee, N. C.** 1979. Distribution and biotransformation of sulfisomidine in goats. —*Indian vet. J.*, **56** (1) : 19-22.

1955. **Jiffry, M. T. M.** 1979. Effects of neuromuscular blocking agents on arterial blood pressure in the rat. —*Indian J. Physiol. Pharm.*, **23** (2) : 133-136.

1956. **Jit Singh, Nauriyal, D. C., Pattabi Raman, S. R.** and **Sharma, R. D.** 1979. Uterine torsion at mid-gestation in a buffalo. —*Indian vet. J.*, **56** (8) : 700.

A case of uterine torsion at 5th month of gestation in a buffalo is reported. The possible aetiology is briefly discussed.

1957. **Johar, K. S., Jogi, S.** and **Singh, B. N.** 1979. A note on the performance of Magra×Rambouillet cross breds and Magra sheep.—*J. N. K. V. V. Res. J.*, **10** (2) [1976] : 192.

1958. **Johnsingh, A. J. T.** 1978. A wildbear (*Sus scrofa*) sharing wilddogs (*Cuon alpinus*) kill. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 211-212.

1959. **Johnsingh, A.J.T.** 1979. Some aspects of the ecology and behaviour of the Indian fox—*Vulpes bengalensis* (Shaw). —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 397-405.

1959a. **Jhonson, J. M.** 1979. Lion-tailed macaque.—*Wildl. Newsl.*, **6** (1) : 16-19.

1960. Deleted.

1961. **Joshi, A. L.** and **Rangnekar, D. V.** 1979. Sugarcane bagasse based feed for growing cross-bred cattle. —*Indian vet. J.*, **56** (1) : 53-57.

1962. **Joshi, B. C., Goel, V. K.** and **Saxena, S. K.** 1979. Effect of acute heat exposure on the serum gamma globulin content in zebu and zebu cross cattle. —*Indian J. Anim. Sci.*, **49** (2) : 145-147.

1963. **Joshi, L. D., Singhal, P. C.** and **Gupta, R. K.** 1979. A convenient method of blood collection from rat for experimental studies. —*Curr. Sci.*, **48** (15) : 684.

1964. **Kanwar, K. C., Bawa, S. R.** and **Singal, P. K.** 1979. Testicular hyperthermia : Studies on phosphatases of the rat testes. —*Res. Bull. Panjab Univ.*, **27** (3-4) [1976] : 157-164.

The communication deals with integrated histochemical and the biochemical analyses of alkaline acid phosphatases and adenosine triphosphatase in the bilaterally heat-treated testes of rats.

1965. **Kapoor, P. D.** 1979. Studies on some of the physical characteristics of Hariana bull and Murrah bull semen. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 320-324.

The present investigation was conducted to find the differences, if any, in the various physical constituents of semen studied between the two species.

1966. **Kar, R. N.** and **Das, R. K.** 1979. Dominant lethalty and micronuclei in mice treated with diazepam. —*The Nucleus*, **22** (3) : 192-195.

1967. **Karim, K. B.** (Miss) 1979. Early development of the embryo and implantation in the Indian Vespertilionid bat, *Pipistrellus mimus mimus* (Wroughton). —*J. zool. Soc. India*, **27** (1-2) [1975] : 119-136.

1968. **Karim, K. B., Gopalakrishna, A.** and **Gadhoke, H.** 1979. Adrenal gland in two Indian bats. —*Curr. Sci.*, **48** (13) : 607-609.

1969. **Kashyap, S. K.** 1979. Occurrence and observations on *Tadarida aegyptica* (E. Geoffroy, 1818) (Molossidae : Chiroptera) : The wrinklelipped bat in East-Nimar district, Madhya Pradesh (India). —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 917-918.

1970. **Katpatal, B. G., Kaushik, S. N.** and **Singhal, R. A.** 1979. Factors affecting first lactation length in Holstein-Friesian X Sahiwal cross breds. —*Indian J. Anim. Sci.*, **49** (2) : 89-90.

1971. **Kaur, C.** and **Mangat, H. K.** 1979. Effects of a non-steroid, clomphene citrate on the biochemical composition of the testis and accessory sex organs of adult albino rats. —*Curr. Sci.*, **48** (17) : 761-764.

The treatment of adult male albino rats with clomphene citrate for 7, 14, 21 and 28 days affected the structure and functions of the testis and accessory sex organs as reflected by the decrease in the activity of acid phosphatases and succinic dehydrogenase and increase in alkaline phosphatases of testis.

1972. **Kaur, C.** and **Mangat, H. K.** 1979. Cyproterone acetate and components of mating behaviour in inexperienced male albino rats. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 77-84.

The effect of high doses of cyproterone acetate (CA) is reported on different components of sex behaviour in inexperienced male rats.

1973. **Khajuria, H.** 1979. On the status of the genus *Cynomacaca* Khajuria (Primates : Cercopithecidae). —*J. zool. Soc. India*, **28** (1-2) [1976] : 151.

974. **Khajuria, H.** 1979. Effectiveness of mist nets in collecting Indian bats. —*J. zool. Soc. India*, **28** (1-2) [1976] : 152.

975. **Khajuria, H.** 1979. Erythrims in *Rhinolophus l. lepidus* Blyth (Chiroptera : Rhinolophidae). —*J. zool. Soc. India*, **28** (1-2) [1976] : 155.

976. **Khajuria, H.** 1979. Studies on the bats (Chiroptera : Mammalia) of M. P., India. Pt. I. (Families : Pteropidae, Rhinopomatidae and Embalonuridae). —*Rec. zool. Surv. India Occ. Pap.*, No. 13 : 1-59.

This paper deals with studies on the bats of M. P., India.

977. **Khajuria, H.** and **Agrawal, V. C.** 1979. On the types of *Presbytis barbei* Blyth. —*Primates*, **20** (2) : 317-319.

An attempt was made to clarify the position regarding the types of *P. barbei* Blyth present in the Zoological Survey of India, Calcutta. The presence of asymmetrical white patch at the interior base of the thighs in the female specimen, which is in the nature of an individual variation, establishes its identity as one of the syntypes. The change in the colour of lips from white to black is probably due to use of chemicals on the soft parts of the face or subsequent falling of white hairs of the lips, as these specimens were exhibited in the galleries of the Indian Museum.

1978. **Khan, B. U., Sinha, N. K., Singhal, R. A.** and **Sahni, K. L.** 1979. Variability in body weight and size in Jamnapari kids at birth. —*Indian J. Anim. Res.*, **13** (1) : 19-22.

Body weight and size at birth are considered to be of economic importance in goats due to their positive relationship with kid survival (1) and post-natal development (2).

1978a. **Khan, M. S.** and **Ghosh, P. K.** 1979. The amazing desert goat. —*Indian Fmg*, **29** (2) : 25-26.

1979. **Khan, M. S., Sasidharan, T. O.** and **Ghosh, P. K.** 1979. Glomerular filtration rate and blood and urinary urea concentrations in Barmer goats of the Rajasthan desert. —*J. agric. Sci.*, **93** (1) : 247-248.

1980. **Khanna, N. D., Tandon, S. N.** and **Singh, H. P.** 1979. Blood groups studies in Indian buffaloes. —1. Blood group factors, their detection and frequencies. —*Indian vet. J.*, **56** (11) : 916-922.

22 blood typing reagents were produced in buffaloes for blood group studies. One reagent anti-J was produced through naturally occurring antibodies, while the rest were produced from immune sera produced through isoimmunisations.

1981. **Khaparde, M. S.** 1979. Foetal membrane and placentation in the Indian Sheath-tailed bat, *Taphozous melanopogon* (Temminck). —*J. zool. Soc. India*, **28** (1-2) [1976] : 25-34.

1982. **Kharole, M. U., Kalra, D. S., Dutta, B. M.** and **Singh, J.** 1979. A note on besnoitiosis in animals and chicken. —*Indian vet. J.*, **56** (11) : 969-971.

This report deals with the occurrence of besnoitiosis in 6 cases of sheep, 1 buffalo calf and 1 case of chicken from Haryana, Punjab and Assam.

1983. **Kotaiah, K.** and **Saxena, R. N.** 1979. Effect of cold stress on the Hypothalamo-Hypophyseal-Gonadal axis in male albino rat. —*Indian J. exp. Biol.*, **17** (8) : 736-739.

Adult male rats of Holtzman strain were exposed to cold stress for 7,15 and 30 days and changes in the body weight, testis weight and histology, the weights of accessory sex glands and thin secretions, pituitary LH and hypothalamic LH-RH were recorded.

1984. **Krishan, G.** 1979. A limerick on rodent pest management. —*Rodent Newsl.*, **3** (3) : 23.

1985. **Krishnakumari, M. K., Muktha Bai, K.** and **Majumder, S. K.** 1979. Evaluation of acute oral toxicity of zinc phosphide in *Rattus norvegicus* (albino.). —*Pesticides*, **13** (11) : 33-35.

Results of the acute oral toxicity of zinc phosphide to albino rats are communicated here.

1986. **Krishnamohan, D. V. G., Das, D. R., Ranjhan, S. K.,** and **Bisht, G. S.** 1979. Metabolic faecal nitrogen excretion at different ages in growing cross-bred calves. —*Indian J. Anim. Sci.*, **49** (2) : 104-107.

1987. **Krishna Murthy, D. S., Jayaraman, S.** and **Ambani, L. M.** 1979. Giemsa banding pattern in the langur monkey —*Presbytis entellus entellus* (Dufr.).— *Curr. Sci.*, **48** (4) : 180-181.

P. entellus entellus is a hylobate, commonly known as Indian Hanuman langur. Though cytogenetic studies in *Presbytis* have been reported earlier, the Giemsa banding pattern of the metaphase chromosomes have not been invested in this species.

1988. **Krishnan, M.** 1979. Emotive kinship in the study of Mammals.—*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 613-617.

1989. **Kshirsagar, S. G.** 1979. Removal of radioactive strontium from the rat by feeding stable strontium. —*J. Biosci.*, **1** (1) : 99-107.

1990. **Kumar, A., Sharma, S. N.** and **Singh, H.** 1979. A note on the healing of experimental peritoneal defects in buffaloes. —*Indian J. Anim. Sci.*, **49** (4) : 320-322.

1991. **Kumaratileke, W.L.J.S.** and **Buvanendran, V.** 1979. A survey of production characteristics of indigenous buffaloes in Sri Lanka. —*Ceylon vet. J.*, **27** (1-4) : 10-13.

1992. **Kurup, G. U.** 1979. Conservation of lion-tailed Macaque (*Macaca silenius*) and Nilgiri Langur (*Presbytis johnii*). —*Tiger Pap.*, **6** (4) : 17-19.

Following is a brief review of the status and the eco-biological factors of the two species in relation to their conservation.

1993. **Kurup, G.U.** 1979. Distribution, habitat and status survey of the Liontailed Macaque, *Macaca silenius* (Linnaeus). —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 321-337.

1994. **Lal, K. B.** and **Verma, B. B.** 1979. Clinico pathological studies of brain abscesses in buffalo (*Bubalus bubalis*). —*Indian vet. J.*, **56** (4) : 321-325.

1995. **Lal, K. B.** and **Verma, B. B.** 1979. Composition of normal cerebrospinal fluid of buffaloes (*Bubalus bubalis*).— *Indian vet. J.*, **56** (8) : 641-645.

The present studies were undertaken to find the composition of normal cerebrospinal fluid in buffaloes and also to see the effect of age on various constituents of CSF.

1996. **Lavania, J. P.** and **Angelo, S. J.** 1979. Therapeutic management of exophthalmos in a lamb—a case report.—*Indian vet. J.*, **56** (8) : 707-708.

Exophthalmos often occurs in the later life as a result of pathological changes in the orbit. It is not a constant feature but has been observed in lambs and calves. The successful treatment of such a malady in a lamb is reported.

1997. **Lohar, N. S.** and **Patil, V. K.** 1979. Goat production for profit. —*Kisan Wld*, **6** (9) : 39-41.

1998. **Luktuke, S. N., Purbey, L. N.** and **Parihar, N. S.** 1979. Studies on anoestrum in adult buffalo heifers.—*Indian vet. J.*, **56** (5) : 380-384.

1999. **Lyall, V., Mahmood, A.** and **Nath, R.** 1979. Zinc uptake by rat intestine *in vitro* and its interactions with cadmium and chromium. —*Indian J. Biochem. Biophys.*, **16** (2) : 80-83.

2000. **Madhavan, A.** 1979. Breeding habits and associated phenomena in some Indian bats. Part V. *Pipistrellus dormeri* (Dobson)—Vestpertilionidae. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 426-433.

2001. **Madhavan, A., Patil, D.R.** and **Gopalakrishna, A.** 1978. Breeding habits and associated phenomena in some Indian bats. Part IV—*Hipposideros fulvus fulvus* (Gray)—Hipposideridae). —*J. Bombay nat. Hist. Soc.*, **75** (1) : 96-103.

2002. **Madhyastha, N. A.** and **Dutt, N. H. G.** 1979. Cadmium induced hypertrophy and hyperplasia of pituitary gonadotrophs of the brown spiny mouse *Mus platythrix* (Bennett). —*Indian J. exp. Biol.*, **17** (7) : 637-639.

2003. **Mahajan, P. B.** *et al.*, 1979. Lactose synthetase enzyme in buffalo (*Bubalus bubalis*) milk purification and some kinetic parameters. —*Indian J. Biochem. Biophys.*, **16** (3) : 172-175.

2004. **Mahmood, A.** *et al.* 1979. Lipid composition of monkey intestinal brush border membrane—effect of DDT administration. —*Indian J. Biochem. Biophys.*, **16** (3) : 175-177.

2005. **Maitrya, B.** and **Maitrya, B. B.** 1979. Effect of sex hormones on gastric acid, pepsin and mucus secretion in rabbits. —*Indian J. exp. Biol.*, **17** (5) : 520-521.

2006. **Maitrya, B. B., Gahlot, S.** and **Maitrya, B.** 1979. Effect of estrogen and testosterone on the gastric secretion of rats and conscious rabbits. —*Indian J. Physiol. Pharm.*, **23** (2) : 104-109.

2007. **Majupuria, T. C.** 1979. Studies on the male genitalia of the vertebrates. —*J. nat. Hist. Mus.*, **3** (1-4) : 13-21.

The functional significance of reptilian and mammalian genitalia are given special consideration from the point of view of evolution.

2008. **Makwana, S. C.** 1979. Field ecology and behaviour of the rhesus macaque (*Macaca mulatta*). II. Food, feeding and drinking in Dehra Dun Forest. —*Indian J. For.*, **2** (3) : 242-253.

The present account deals with food (both plant and animal), feeding and drinking habits of *M. mulatta* of Asarori and Dhulkot Forests, Dehra Dun.

2009. **Makwana, S. C.** 1979. Infanticide and social change in two groups of the hanuman langur, *Presbytis entellus*, at Jodhpur. —*Primates*, **20** (2) : 293-300.

Infanticide and social change in two neighbouring bisexual groups of the langur, *Presbytis entellus*, at Jodhpur (at the eastern edge of the Great Indian Desert), during a two-year period are described.

2009a. **Makwana, S. C.** 1978. Reaction of Langur, *Presbytis entellus* to a snake. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 204.

2010. **Makwana, S. C.** 1979. Paternal behaviour of the Rhesus macaque, *Macaca mulatta* in nature. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 475-476.

2011. **Makwana, S. C.** 1979. Observations on ecology and behaviour of the Rhesus monkey *Macaca mulatta*, in Asarori. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 919-921.

2012. **Malhotra, R. K.** and **Asotra, K.** 1979. Growth metabolism or forelimb muscles in Swiss albino mice. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 225-234.

An attempt has been made to study the growth metabolism of three closely associated muscles of the forelimb of Swiss albino mice, i. e., *M. pectoralis*, *M. supracoracoideus* and *M. biceps*, with special reference to the rate of protein synthesis, the glycogen levels, the rate of oxidative metabolism in terms of succinate dehydrogenase activity and the nucleic acid levels, at a number of post-natal stages.

2013. **Malik, J. K., Singh, R. C. P., Roy, K. S., Gupta, P.** and **Paul, B. S.** 1979. Pesticides induced dermal changes in buffalo calves. —*Pesticides*, **13** (8) : 45-48.

2014. **Mallick, K. P., Dwivedi, S. K.** and **Malhotra, M. N.** 1979. Anaplasmosis in goats : report on clinical cases. —*Indian vet. J.*, **56** (8) : 693-694.

Anaplasmosis is an infectious disease mainly of cattle. The present report deals with five clinical cases of anaplasmosis in indigenous goats.

2015. **Malviya, H. C., Patnaik, B., Tiwari, H.C.** and **Sharma, B.K.** 1979. Measurement of the blood loss caused by *Haemonchus contortus* infection in sheep. —*Indian vet. J.*, **56** (8) : 709-710.

The sheep wireworm, *H. contortus* are voracious blood sucker producing anaemia and cause damage to the mucosa resulting in high mortality in lambs. In the present paper, the observation on the blood losses in lambs experimentally infected with *H. contortus* are reported.

2016. **Manchanda, V. P.** and **Garg, D. N.** 1979. Congenital cutaneous papillomatosis in equines. —*Indian vet. J.*, **56** (8) : 697-698.

Infectious cutaneous papillomatosis is a benign neoplastic disease of the skin. It occurs with some degree of frequency in cattle, horse, man, dog, goat, rabbit and monkey. A case of cutaneous papillomatosis in a prematurely born foal is described.

2017. **Manda, A. V.** and **Paranjape, V. L.** 1979. Isolation of infectious canine hepatitis virus from dog. —*Indian vet. J.*, **56** (7) : 618-620.

Isolation of ICHV was confirmed by histological, serological and immunological tests along with transmission experiments in dogs.

2018. **Mandal, A. K.** and **Ghosh, S.** 1979. Observations on the effect of floods on rodent population at Singur, W. Bengal. —*Rodent Newsl.*, **3** (2) : 13-14.

2019. **Manjunatha, K. R.** and **Aswathanarayana, N. V.** 1979. Studies on the chromosomes of the genus *Mus*. Autosomal polymorphism in the Indian pygmy mouse *Mus dunni* (Wroughton). —*Curr. Sci.*, **48** (14) : 657-659.

2020. **Mann, G. S.** and **Bindra, O. S.** 1979. Effect of continuous removal of field-rats on the movements and sex ratio of field-mice. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 297-303.

2021. **Manna, G. K.** and **Gupta, S.** 1979. Effect of penicillin on meningococcus associated chromosome aberrations and mitotic inhibition in mice. —*The Nucleus*, **22** (1) : 12-22.

2022. **Manna, G. K.** and **Karmakar, M.** 1979. Chromosome aberrations and mitosis in bone marrow cells of mice treated with tuberculostatic drugs. —*The Nucleus*, **22** (2) : 96-103.

2023. **Mathew, T.** *et al.* 1979. Serological investigations on arbovirus activity in and around Delhi—a five year study. —*Indian J. med. Res.*, **69** (4) : 537-566.

2024. **Maurya, D. C., Jaiswal, T. N.** and **Mittal, K. R.** 1979. Haemolytic, congulinating and bactericidal complement levels of apparently healthy buffaloes (*Bubalus bubalis*). —*Indian vet. J.*, **56** (2) : 81-86.

2025. **Maw, B., Clochon, R. L.** and **Savage, D. E.** 1979. Late Eocene of Burma yields earliest anthropoid primate, *Pondaungia cotteri*. —*Nature, Lond.*, **282**, No. 5734 : 65-67.

2026. **Medeiros, L. O., Nicolau, J., Medeiros, L.F.** and **Ferri, S.** 1979. Thorough-bred horses erythrocyte glycolytic capacity and glycolytic enzymes activities : Comparisons with human red blood cells. —*Indian vet. J.*, **56** (4) : 273-278.

The glucose metabolism of mature mammalian erythrocytes have been observed.

2027. **Mehra, U.** and **Ranjekar, P. K.** 1979. Buffalo (*Bos bubalus*) genome—occurrence and characterisation of repeated DNA sequences.—*Indian J. Biochem. Biophys.*, **16** (2) 56-60.

2028. **Mehrotra, P.** and **Singh, T.** 1979. Determination of blood constituents of camels (*Camelus dromedarius* Linne) infested with *Haematopinus tuberculatus* (Burmeister), a sucking louse. —*J. ent. Res.*, **3** (1) : 57-59.

The studies were undertaken to observe changes in the blood constituents of camels infested with *H. tuberculatus* (Burm.), a sucking louse.

2029. **Mehrotra, P.K., Prasad, M., Seth, M., Bhaduri, A.P.** and **Kamboj, V.P.** 1979. Assessment of new compounds for antiprogestational activity. —*Indian J. exp. Biol.*, **17** (12) : 1317-1319.

2030. **Mehta, S. N., Gangwar, P. C., Srivastava, R. K.** and **Dhingra, D. P.** 1979. Effect of cooling on reproductive behaviour in buffaloes (*Bos bubalis*).—*J. agric. Sci.*, **93** (1) : 249-252.

2031. **Mehta, V.** and **Singh, S.I.** 1979. Effect of tonicity on glucose absorption and histomorphology of rat intestinal mucosa. —*Indian J. Physiol. Pharm.*, **23** (2) : 77-85.

2032. **Mishra, H.R.** and **Smith, J.L.D.** 1979. Dispersal studies. —*Tiger Pap.*, **6** (2-3) : 9-11.

Current remnants of the tiger in Asia are disjunctly distributed mainly among small widely separated preserves.

2033. **Misra, B. S.** and **Mukherjee, D. P.** 1979. Quantitative morphological characteristics and enzymic activity of spermatozoa in semen samples of bucks with and without melanizing activity. —*Indian J. Anim. Sci.*, **49** (7) : 542-545.

A study was made of the dimensional characteristics, percentage unstained spermatozoa and enzymic activity of of spermatozoa in semen samples with melanizing activity of Barbari bucks.

2034. **Misra, D. N., Paulchoudhury, R.** and **Sadhukhan, P.** 1979. Electron microscopic studies of mitochondrial DNA from rat brain. —*Proc. Indian natn. Sci. Acad.*, (B) **45** (4) : 302-326.

2035. **Misra, R. K., Raina, B. L.** and **Bhat, P. N.** 1979. Studies on the genetic and non-genetic factors affecting lactational yield in pure-bred indigenous cattle and their crosses with Friesian. —*Indian J. Anim. Sci.*, **49** (4) : 250-256.

Production records of 1628 animals of Sahiwal, Red Sindhi, Gir, Tharparkar and Hariana breeds and their crosses with Friesian were examined for the effects of genetic and non-genetic factors on lactational yield.

2036. **Misra, S. N., Nath, C. P.** and **Venugopal Rao, S.** 1979. Toxic effect of greenish potato peels in rabbits—a preliminary trial. —*Indian vet. J.*, **56** (5) : 441-442.

2037. **Mittal, O. P.** and **Kaul, B.** 1979. Meiosis in common dog (*Canis familiaris*). —*Res. Bull. Panjab Univ.*, **28** (1-2) [1977] : 31-34.

The diploid number of chromosomes in the common street dog, *Canis familiaris*, comprises 76 acrocentric autosomes and 2 sex-chromosomes X and Y.

2038. **Mohanrao, P.** 1979. Synchronisation of oestrus in cattle. —*Livestk. Advis.*, **4** (2) : 27-29.

2039. **Mohan Reddy, N.** and **Raja, C.K.S.V.** 1979. Seasonal variations in fructose, citric acid and ascorbic acid contents of buffalo semen. —*Indian vet. J.*, **56** (8) : 660-662.

A detailed study was undertaken to find out the effect of seasonal variations on some of the important biochemical constituents of semen of Surti baffaloes under agroclimatic conditions in Kerala. The results of investigation carried out in respect of fructose, citric acid and ascorbic acid contents of semen are reported.

2040. **More, K. N.** and **Banerjee, K.** 1979. Homologues of the human A, B, O & M. N blood groups in *Macaca radiata* (Geaffroy) and *Presbytis entellus* (Dufresne) and the reaction of their erythrocytes with lectins. —*Indian J. exp. Biol.*, **17** (12) : 1330-1332.

2041. **More, T.** and **Sahni, K. L.** 1979. Some haematological changes during three months after birth of Chokla lambs under semi-arid conditions. —*Indian vet. J.*, **56** (8) : 646-649.

Present report deals with the cellular and chemical components and blood and urine with particular reference to post-natal pre-weaning growth of lamb.

2042. **More, T.** and **Sahni, K. L.** 1979. Effect of water deprivation on wool production of breeding ewes under semi-arid conditions. —*Indian vet. J.*, **56** (11) : 931-936.

39 adult Chokla ewes were examined to find out influence of water deprivation and reproductive functions on wool production.

2043. **More, T.** and **Sahni, K. L.** 1979. Effect of long-term intermittent watering on some blood and urine attributes of pregnant sheep under semi-arid conditions.—*Indian J. Anim. Sci.*, **49** (7) : 549-553.

A study was made to elucidate certain physio-chemical changes in the blood and urine of breeding ewes subjected to long-term intermittent water deprivation in a semi-arid environment.

2044. **Mukherjee, R.** and **Jain, A. P.** 1979. Relative acceptability of zinc phosphide and RH-787 baits by *Rattus rattus*. —*Rodent Newsl.*, **3** (3) : 20.

2045. **Mukherjee, R. P.** 1979. Manipur deer and its present status. —*Zoologiana*, (2) [1978] : 63-67.

The author has discussed about Manipur Brownantlered deer, also known as dancing deer or Sangai.

2046. **Mukherjee, S. S., Sethi, N., Roy, A. K., Srivastava, G. N.** and **Mukherjee, S. K.** 1979. Chronic toxicity studies of a hypoglycemic compound : Centpiperalone in rats and rhesus monkeys. —*Indian J. exp. Biol.*, **17** (12) : 1346-1349.

2047. **Mukku, V. R.** and **Moudgal, N. R.** 1979. *In vitro* responsiveness of hamster corpora lutea undergoing luteolysis to luteinizing hormone. —*J. Biosci.*, **1** (4) : 457-458.

The effect of *in vitro* addition of LH on progesterone synthesis and cholesterol levels in corpora lutea obtained from control and LH-deprived hamsters during different stages of pregnancy is reported in this communication.

2048. **Murti, A. S., Panda, P. C., Murthy, V. S.** and **Murthy, I. A. S.** 1979. Growth retardation and change in organ weights due to aflatoxicosis in rats and guineapigs. —*Indian vet. J.*, **56** (4) : 279-283.

The possible effects of aflatoxins on various species of animals have been studied.

2049. **Muzumdar, S. R.** and **Khandare, S. S.** 1979. Effect of bilateral submandibular salivary gland extirpation on body weight and gonads in adult male albino mice and rat. —*Clinician, Panjim*, **43** (3) : 94-97.

2050. **Naik, S. R., Sattur, P. B.** and **Sheth, U. K.** 1979. Studies on two new derivatives of N-aralkyl-O-ethoxybenzamides : Part III-pharmacological and biochemical studies on their anti-arthritic activity in rat. —*Indian J. exp. Biol.*, **17** (12) : 1353-1356.

2051. **Nair, R. V.** 1979. The mermaid or dugong. —*J. Kerala nat. Hist. Soc.*, **2** : 13-15.

A brief account of behaviour, ecology, distribution and reproduction is discussed in this paper.

2052. **Nandan, D., Singh, J. P.** and **Sengar, O. P. S.** 1979. Berseem (*Trifolium alexadrium*) as a substitute for concentrate feeding in rams for maintenance.—*J. Maharashtra agric. Univ.*, **4** (3) : 296-298.

2053. **Narang, V.** and **Talesara, C. L.** 1979. Histochemical and biochemical changes in SDH and m-At Pase activities in tenotomized gastrocnemius muscle in different age groups of albino rat *Rattus norvegicus*. —*Indian J. exp. Biol.*, **17** (10) : 1080-1086.

A combined histochemical and biochemical study, with reference to the enzymes, SDH and m-AT Pase, was carried out on albino rats of different age groups.

2054. **Narasimhan, K., Padma Bai, R.** and **Anandam, B.** 1979. Studies on chemical constituents of swine and bovine semen. —*Indian vet. J.*, **56** (4) : 297-299.

An attempt is made here to separate and isolate the chemical constituents of semen obtained under Indian conditions.

2055. **Narasimha Rao, A. V., Murty, K. P.** and **Murty, T. S.** 1979. Incidence of achondroplasia in a cross-bred calf. —*Indian vet. J.*, **56** (11) : 973-974.

A case of achondroplasia in a Jersey X Zebu cross-bred calf is reported.

2056. **Narasimha Rao, T. L.** and **Ramamohana Rao, A.** 1979. Fertility and its relationship with seven characteristics in cross-bred bulls. —*Indian vet. J.*, **56** (1) : 33-36.

2057. **Natarajan, K. N., Sundar Raj, T. S. P.** and **Shah, C. K.** 1978. Blackbuck (*Antilope cervicapra* Linn.) at point Calimere. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 209-211.

2058. **Nauriyal, D. C.** and **Pandey, N. N.** 1979. Bovine double monster in a buffalo. — *Indian vet. J.*, **56** (11) : 976.

2059. **Nayak, B. C., Rao, A. T., Panda, S. N.** and **Dutta, N. K.** 1979. Giant cell pneumonia in an aborted calf. — *Indian vet. J.*, **56** (4) : 262-264.

Giant cell pneumonia in calves and adult cattle has been reported from India in 1968 and in different countries during 1956 and 1965.

2060. **Nigam, J. M., Krishnamurthy, D.** and **Shetty, B. R.** 1979. Chronic laminitis in a horse. —*Indian vet. J.*, **56** (4) : 329-330.

2061. **Nityanand, S.** and **Kapoor, N. K.** 1979. Effect of chronic oral administration of Tween-80 in Charles Foster rats. —*Indian J. med. Res.*, **69** (4) : 664-670.

2062. **Oates, J. F.** 1978. The status of the South Indian black leaf-monkey (*Presbytis johnii*) in the Palni Hills. — *J. Bombay nat. Hist. Soc.*, **75** (1) : 1-12.

2063. **Oliver, W. L. R.** 1979. The doubtful future of the pigmy hog and the Hispid hare. Part I—A conservation report on Pigmy hog field survey 1977. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 341-372.

2064. **Om Prakash** and **Nagchaudhuri, J.** 1979. Effect of vinblastine on *in vitro* utilization of D-glucose and production of L-bactate by small intestine of rats. —*Indian J. med. Res.* **70** (10) : 669-673.

2065. **Pal, M.** 1979. Observations on the efficacy of myron in the genital disorders of dogs and cats. —*Indian vet. J.*, **56** (7) : 625-626.

A clinical trial of myron, an indigenous drug of alarsin was carried out in 19 small animals. The drug was

found cent per cent effective in 11 animals. Moderate relief was observed in 15 animals and 3 animals showed nil or partial effect.

2066. **Paliwal, O. P.** and **Sharma, A. N.** 1979. Congenital goitre in kids. —*Indian vet. J.*, **56** (2) : 154.

2067. **Pandit, R. V.** and **Panchadevi, S. M.** 1979. Milking males—two case studies. —*Indian vet. J.*, **56** (7) - 590-592.

2068. **Pant, H. C.** 1978-79. Encounter with wild elephant. —*Nth. Forest Rang. Coll. Mag.*, **27** : 19-21.

2069. **Pant, M. M.** and **Dhariyal, I. D.** 1979. White tiger breeding—its economic potentialities. —*Cheetal*, **21** (1) : 3-10.

2070. **Panwar, H. S.** 1979. Some aspects of population dynamics and land tenures of tiger in Kanha National Park. —*Tiger Pap.*, **6** (2-3) : 12-15.

The paper deals with the pugmark tracing which is interesting to field workers involved in the difficult task of making a census of tiger populations.

2071. **Panwar, H. S.** 1979. A note on tiger census techique based on pugmark tracings. —*Tiger Pap.*, **6** (2-3) : 16-18.

2072. **Pappu, A. S., Fatterpaker, P.** and **Sreenivasan, A.** 1979. Alterations in lipid composition of subcellular membranes of rat liver in vitamin E deficiency. —*Indian J. Biochem. Biophys.*, **16** (3) : 143-147.

2073. **Pathak, N. N.** 1979. A short note on some sexual behaviour and semen attributes of cross-bred bull calves raised on *Ad Libitum* feeding of urea —molasses liquid diet with restricted cereal forage and intact proteins. —*Indian vet. J.*, **56** (1) : 69-70.

2074. **Patro, B. N.** and **Bhat, P. N.** 1979. Effect of some non-genetic factors on production traits in Indian buffaloes. —*Indian J. Anim. Sci.*, **49** (2) : 91-98.

Effects of farms, breeds, periods and season of calving on milk yield and lactation length have been studied.

2075. **Pentiah, P. R.** *et al.* 1979. Evaluation of cyto-genetic effects of chloralhydrate in mice. —*Indian J. Hered.*, **11** (2) : 9-13.

2076. **Phadke, S. P., Bhagwat, S. V., Kapshikar, R. N.** and **Ghevari, S. D.** 1979. Listeriosis in sheep and goats in Maharashtra. —*Indian vet. J.*, **56** (8) : 634-637.

Circling disease known as listeriosis in sheep and goats has been bacteriologically proved for the first time in Maharashtra, in outbreaks in sheep and goats occurring simultaneously at two different places in the same winter season.

2077. **Pillai, K. S.** and **Nair, M. R. G. K.** 1979. Acceptance and relative intake of different foods by two species of rats, *Rattus rattus* Linn. and *Bandicota bengalensis* Gray, in Kerala. —*Agric. Res. J. Kerala*, **16** (2) [1978] : 235-236.

2078. **Pilo, B., Kishnani, K. J., Kathuria, P. D., Asnani, M. V.** and **Shah, R. V.** 1979. Wound healing and repair in the liver of alloxan diabetic rats. 5. A quantitative study of glycogen and histochemical study of enzymes such as glucose-6-phosphate dehydrogenase, lactate dehydrogenase and aldolase. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 201-213.

2079. **Prabhakaran, P., Soman, M.** and **Iyer, R. P.** 1979. A note on the carcass characteristics of castrated cross-bred goats. —*Indian J. Anim. Sci.*, **49** (4) : 325-326.

Preliminary studies conducted on two varieties of cross-bred castrated male goats and certain carcass characteristics are presented.

2080. **Pradhan, M. S.** 1979. Effect of urbanization and industrial developments on the suburb and rodent collections of greater Bombay. —*Indian J. Ecol.*, **4** (3) : 17-22.

2081. **Prakash, A., Prasad, M. R. N.** and **Anandkumar, T. C.** 1979. Light microscopic features of the rete testis, the vas efferens, the epididymis and the deferens in the adult rhesus monkey. —*J. Biosci.*, **1** (2) : 185-205.

The study was carried out to determine the detailed histological and cytological features of the excurrent ducts of the male reproductive system in the rhesus monkey.

2082. **Prakash, A., Rajalakshmi, M.** and **Prasad, M. R. N.** 1979. Ultrastructural changes in the principal and clear cells in the rat epididymis following the administration of Cyproterone acetate. —*Indian J. exp. Biol.*, **17** (11) : 1159-1165.

2083. **Prakash, A. O.** 1979. Acid and alkaline phosphatase activity in the uterus of rat treated with *Hibiscus rosa-sinensis* Linn. extracts. —*Curr. Sci.*, **48** (11) : 501-503.

In view of the antiestrogenic action of ethanolic and benzene extracts, the present communication deals with their effect on acid and alkaline phosphatase activity of the uterus in adult rats as these enzymes are estrogen dependent.

2084. **Prakash, I.** and **Mathur, R. P.** 1979. *Bandicota bengalensis* in Bikaner town. —*Rodent Newsl.*, **3** (2) : 12.

2085. **Prakash, L.** 1979. Rodent research in India. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 792-799.

2086. **Prasad, J.** 1979. *Atresia ani et recti* with absence of tail and external genitalia—a case report. —*Indian vet. J.*, **56** (8) : 701-702.

Congenital malformations are fairly common in farm animals. The present report puts on record a case of *atresia ani et recti* with absence of tail, external meatus in a cow calf.

2087. **Prasad, M. S. K.** and **Adiga, P. R.** 1979. Modulation of prolactin receptors in the male rat. —*Indian J. exp. Biol.*, **17** (11) : 1166-1170.

2088. **Prasad, M. S. K.** and **Adiga, P. R.** 1979. Isolation of sheep anterior pituitary messenger—RNA and its translation in a heterologous cell-free system. —*J. Biosci.*, **1** (3) : 317-326.

Studies are extended to the isolation and translation of sheep pituitary RNA in a heterologous cell free system with a view to quantitate directly the messenger activity and translational fidelity of the unfractionated total RNA as well as poly (A) rich RNA. Furthermore, an elegant method for enriching the specific polysomes engaged in the synthesis of prolaction (PRL) in relatively larger amounts by the isolated pituitary has been described in this paper.

2089. **Prasad, R., Bhaduri, A. P., Varma, V.** and **Rao, V. K. M.** 1979. Induction of tyrosine aminotransferase in rat liver by quinazolinone derivatives.—*Indian J. exp. Biol.*, **17** (12) : 1411-1412.

2090. **Prasad, R.** and **Sinha, R. D.** 1979. Histological and certain histochemical studies on sebaceous glands and their modifications in the eyelids of the Indian buffalo (*Bubalus bubalis*).—*Indian vet. J.*, **56** (8) : 672-674.

Morphologically, the Meibomian glands and glands of Zeis are modified sebaceous glands. All the sebaceous glands and their modifications are holocrine in nature and the cells contained diastase resistant PAS—positive substances, glycogen, acid mucopolysaccharide, mucin and alkaline phosphatase.

2091. **Prasad, S. N., Nair, P. V., Sharatchandra, M. C.** and **Gadgil, M.** 1979. On the factors governing the distribution of wild mammals in Karnataka.—*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 718-743.

2092. **Prasad, S. P.** 1979. A note on the characteristics of post partum oestrus in Barbari nannies. —*Indian J. Anim. Sci.*, **49** (7) : 583-585.

The duration and interval of post partum oestrus and its incidence in primiparous and biparous Barbari nannies were analysed and the results are presented.

2093. **Prema, P.** and **Kurup, P.A.** 1979. Effect of feeding cooked whole tubers on lipid metabolism in rats fed cholesterol free and cholesterol containing diet. —*Indian J. exp. Biol.*, **17** (12) : 1341-1345.

2094. **Purbey, L. N.** and **Sane, C. R.** 1979. Studies on sexual maturity in Dangi heifers. —*Indian J. Anim. Hlth.*, **18** (1) : 9-11.

Studies on sexual maturity were undertaken in Dangi heifers.

2095. **Purbey, L. N.** and **Sane, C. R.** 1979. Post-partum oestrus interval in Dangi breed of cows.—*Indian vet. J.*, **56** (1) : 67-68.

2096. **Puri, N., Mathur, M.** and **Deo, M. G.** 1979. Spermatogonial stem cell population dynamics : Study of the effects of malnutrition in rats. —*Indian J. exp. Biol.*, **17** (5) : 469-474.

2097. Deleted.

2098. **Qureshi, S. H.** 1979. A study on the conception rate in Kumaon hill cattle inseminated by deep frozen semen of brown Swissbulls. —*Indian vet. J.*, **56** (1) : 37-40.

2099. **Rahman, H.**, and **Parthasarthy, M. D.** 1979. Behavioural variants of Bonnet macaque (*Macaca radiata*) inhabiting cultivated gardens. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 406-425.

2100. **Rahman, T.** and **Iyer, P. K. R.** 1979. Studies on pathology of ovine pneumonias. —*Indian vet. J.*, **56** (6) : 455-461.

2101. **Rai, A. K., Mehta, B. S., Gour, D.** and **Singh, M.** 1979. Sweating in sheep and goats. —*Indian J. Anim. Sci.*, **49** (7) : 546-548.

The sweating responses of sheep and goats were recorded for different age groups and a comparison of this trait in male and female animals maintai-

ned under conditions of high ambient temperature was made to find out their relative efficiency of surface evaporative cooling for purpose of thermo regulation.

2102. **Rai, A. K., Singh, N. P.** and **Patnayak, B. C.** 1979. Influence of feeding formaldehyde-treated protein in sheep, I—Changes in rumen fermentation characteristics. —*Indian vet. J.*, **56** (11) : 949-951.

The concentration of total volatile fatty acids, ammonia nitrogen and pH in rumen liquor was recorded at 0, 1, 2, 4 and 6 hour, after feeding one p.c. formaldehyde treated and untreated groundnut cake and casein in 4 rumen fistulated rams, on a basal ration of cow pea hay.

2103. **Rai, H. S., Pandey, B. B.** and **Rai, P.** 1979. Some pathological observations in dog opisthorchiasis. —*Indian vet. J.*, **56** (2) : 89-90.

2104. **Rajamahendran, R., Thangarajah, D.P.** and **Thangarajah, M.** 1979. Preservation of buffalo semen at 4°C : A comparative study of three diluents. —*Ceylon vet. J.*, **27** (1-4) : 20-22.

2105. **Rajaram** and **Chandra, G.** 1979. A note on the aplasia of caruncles in a gravid uterus of buffalo. —*Indian J. Anim. Sci.*, **49** (7) : 575-578.

2106. **Raja Ram** and **Chandra, G.** 1979. Gross observation on the development of placentome in buffalo (*Bubalus bubalis*). —*Indian J. Anim. Hlth.*, **18** (2) : 11-16.

Development of placentome was studied in fourteen buffaloes at different stages of gestation. The present paper is a part of extensive investigation carried out in Murrah buffaloes at Mathura (U. P.).

2107. **Ramakrishna, O., Joshi, M. R., Rao, K. V.** and **Reddy, K. K.** 1979. Diverticulum of the colon in a bullock. —*Indian vet. J.*, **56** (6) : 512-514.

2108. **Ramakrishna, O., Krishnamurthy, D.** and **Nigam, J. M.** 1979. Haemodynamic changes in buffalo calves with experimentally induced traumatic pericarditis. —*Indian vet. J.*, **56** (8) : 679-681.

In the present paper, an attempt is made to study the haemodynamic changes in early stages of experimentally induced traumatic pericarditis in 18 buffalo calves.

2109. **Ramakrishna, O., Vijaya Kumar, D. S., Mohan Reddy, N.** and **Haragopal, V.** 1979. An unusual case of dystokia in a she-buffalo. —*Indian vet. J.*, **56** (8) : 691-692.

Dystokia is defined as difficult birth of the foetus. A case of foetal dystokia in a she-buffalo is described.

2110. **Ramakrishna, P. A.** 1979. Parturition in the Indian Rufous bat, *Rhinolophus rouxi* (Temminck). —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 473-474.

2111. **Raman, V. R.** 1979. Wildlife sanctuaries—Kalakad and Mundanthurai. —*Kisan Wld*, **6** (11) : 49-50.

2112. **Ramanna, B. C.** *et al.* 1979. Effect of rabies virus infection in irradiated animals. —*Bull. postgrad. Inst. med. Educ. Res.*, **13** (1) : 30-36.

2113. **Ramarao, P., Sriraman, P. K., Madhava Reddy, M., Ahmed, M. N.** and **Sastry, G. A.** 1979. Effect of BHC spraying on pigs : Haematological and histopathological studies. —*Indian vet. J.*, **56** (6) : 462-465.

2114. **Rana, B. D.** 1979. Aversion to RH-787 by three rodent species. —*Rodent Newsl.*, **3** (3) : 22-23.

2115. **Rana, S. V. S., Agrawal, V. P.** and **Gautam, R. K.** 1979. Histochemical approach to mucin in the trachea and lungs of squirrel, exposed to three chief air-pollutants (CO, SO_2 and NO_2). —*Mikroskopie*, **35** (3-4) : 77-81.

2116. **Rana, S. V. S.** and **Gupta, V. K.** 1979. On the enzyme modifying character of PGA_2 in the kidney of the squirrel *Funambulus pennanti*. —*Indian J. exp. Biol.*, **17** (8) : 799-801.

Enzyme histochemical studies have been made to establish the enzyme modifying character of the prostaglandins of A group.

2117. **Rana, S. V. S.** and **Kumar, A.** 1979. A histochemical study of nucleic acids after lead poisoning. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 220-224.

2118. **Rangnekar, D. V., Patil, B. R., Prasad, V. L.** and **Joshi, A. L.** 1979. Raising cross-bred calves (Holstein × Gir) on milk replacer based on lucerne extract. —*Indian vet. J.*, **56** (4) : 306-311.

24 new born male, cross-bred calves were divided on the basis of their sex and birth weight, into three groups of eight each and from 10th day after birth, they were subjected to the treatments till 3 months of age.

2119. **Rao, A. R.** and **Rao, T. L. N.** 1979. Changes in the morphology of bovine spermatozoa during preservation and storage. —*Indian vet. J.*, **56** (4) : 294-296.

2120. **Rao, A. S., Amonkar, S. V.** and **Phondke, G. P.** 1979. Cytotoxic activity of the S endotoxin of *Bacillus thurinjiensis* var. *thurinjiensis* (Berliner) on fibrosarcoma in Swiss mice. —*Indian J. exp. Biol.*, **17** (11) : 1208-1212.

2121. Deleted.

2122. **Rao, C. K., Russel, S.** and **Chandrasekharan, A.** 1979. Some aspects of epidemiology of *Brugia malayi* in India. —*J. Com. Dis.*, **10** (4) [1978] : 261-267.

2123. **Rao, N. V.** and **Rao, S. V.** 1979. Effect of largactil on electroanaesthesia in buffaloes—An experimental study. —*Indian vet. J.*, **56** (1) : 31-32.

2124. **Rao, R. L. N.** 1979. Foreign body movement in the alimentary tract of a dog. —*Indian vet. J.*, **56** (4) : 331-332.

2125. **Rao, S. K.** and **Aswathanarayana, N. V.** 1979. On the occurrence of horsefield's shrew, *Crocidura horsefieldi* (Tomes) in Peninsular India. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 473.

2126. **Rao, V. S. N.** and **Satyanarayana Rao, K.** 1979. Effect of glucose and insulin on pentobarbital anaesthesia in dogs. —*Indian vet. J.*, **56** (7) : 623-624.

2127. **Rashid, M. A.** 1979. The tiger in Gujarat state. —*Hornbill*, No. 13 : 23-25.

2128. **Rashid, M. A.** 1979. Status of the tiger in Gujarat State. —*Cheetal*, **20** (4) 21-24.

2129. **Rashid, M. A.** 1979. Result of Lion Census—12th to 17th May, 1979. —*Cheetal*, **21** (1) : 13-14.

2130. **Rashid, M. A.** 1979. Tiger census in Gujarat State—April, 1979. —*Cheetal*, **21** (1) : 39-42.

2131. **Rashid, M. A.** 1979. Census of blackbucks in the Velavadar National Park of Gujarat State. —*J. Bombay nat. Hist. Soc.*, **75** (2) [1978] : 479-482.

2132. **Raut, K. C., Singh, S.** and **Chandra, V.** 1979. Production traits and economic worth of cows in a rural area. —*Indian Fmg.*, **29** (8) : 41-42.

2133. **Rawal, U. M.** and **Rao, G. N.** 1979. Effect of galactose on the metabolism of guineapig lens *in vitro*. —*J. Anim. Morph. Physiol.*, **26** (1 & 2) : 236-242.

Since the anaerobic glycolysis and the hexose monophosphate shunt (HMP) are the major metabolic pathways, which supply most of the energy for the lens, the present investigation is concerned with the effect of galactose on these two metabolic pathways.

2134. **Reddy, N. M.** and **Raja C. K. S. V.** 1979. Seasonal variations in sodium, potassium, calcium and magnesium contents of buffalo semen. —*Indian vet. J.*, **56** (11) : 928-930.

A total of 49 pooled semen samples collected from 3 Surti buffaloes over a period of one year were analysed to study seasonal variation in the level of sodium, potassium, calcium and magnesium contents.

2135. **Reddy, P. S.** 1976. Conflict in courtship. —*Wildl. Newsl.*, **6** (1) : 13.

2136. **Roonwal, M. L.** 1979. Field observations on distribution and tail carriage in the Central Himalayan langur, *Presbytis entellus schistaceous* (Primates). —*Proc. Indian natn. Sci. Acad.*, **44**B (1) : 43-55.

This account is largely based on field studies in the Sub-Himalayan and Himalayan districts of Saharanpur, Dehra Dun, Pauri, Chamoli and Naini Tal in North Western U. P.

2137. **Roy, A. K.** 1979. Rickettsiosis in hill cattle of Darjeeling district in West Bengal. —*Indian vet. J.*, **56** (8) : 699.

An outbreak of rickettsiosis has been reported in the hill cattle of Darjeeling district in W. Bengal.

2138. **Roychoudhury, G. K.** and **Gautam O. P.** 1979. Experimental studies on the pathogenicity of *Babesia bigemina* in buffalo calves. —*Trop. Anim. Hlth. Prod.*, **11** (2) : 91-93.

In a group of 6 non-splenectomized Murrah buffalo calves, neither intracorpuscular *Babesia* nor clinical symptoms of babesiosis were detectable 21 days after inoculation with blood parasitized by *B. bigemina*.

2139. **Rudramadevi, K.** and **Reddy, P. O.** 1979. Effect of different mode of administration of thiotepa on the bone marrow erythrocytes of mice. —*Indian J. Hered.*, **11** (2) : 73-79.

2140. **Sadhana Km.** and **Ogra, J. L.** 1979. Sheep rumen bacteria as influenced by rations. —*Balwant Vidyapeeth J. agric. scient. Res.*, **18** (2) [1976] : 77-81.

2141. **Saha, S. M., Sharma, S. B.** and **Balasubrahmanyan, M.** 1979. Antibodies against measles antigen in the laboratory housed rhesus and bonnet monkeys. —*Indian J. med. Res.*, **69** (2) : 213-216.

2142. **Saharan, B. R., Verma, A.** and **Bhartiya, H. C.** 1979. Testes weight loss as a quantitative measure of gamma rays injury in the germinal epithelium of Indian desert gerbil (*Meriones hurrianae* Jerdon). —*Rajasthan Univ. Stud. Zool.*, **1** : 48-51.

2143. **Sahay, P. N., Singh, D. P., Khan, A.A.** and **Agrawal, K. B. P.** 1979. Gynaecomastia with sertoli cell tumour in a cryptorchid mongrel dog. —*Indian vet. J.*, **56** (7) : 614-615.

A case of sertoli cell tumour associated with gynaecomastia and its surgical correction in a cryptorchid dog has been reported.

2144. **Sahni, A.** 1979. Eocene mammal from the Sabathu—Dagshai transition Zone, Dharampur, Simla Hills. —*Bull. Indian geol. Ass.*, **12** (2) : 259-262.

Recovery of a well preserved Sivenian dorsal vertebra has also been reported from Lower Eocene marine shales. This constitutes the oldest record of Tertiary mammals of the Indian subcontinent.

2145. **Sahu, S.** and **Rao, G. S.** 1979. Surgical studies on the spine cord of the buffalo. I. Motor function following laminectomy and unilateral intradural rhizotomy. —*Indian vet. J.*, **56** (1) : 27-30.

2146. **Saini, M. R.** and **Devi, P. U.** 1979. Modification of radiation injury in thymus of Swiss albino mice by 2-Mercaptopropionylglycine. —*Indian J. exp. Biol.*, **17** (8) : 782-783.

Effect of 2-Mercaptopropionylglycine (MPG) on the thymus weight loss was studied in adult Swiss albino mice.

2147. **Saini, M. R.** and **Devi, P. U.** 1979. Biphasic mode of depletion of the bone marrow cells in Swiss albino mice after gamma irradiation. —*Rajasthan Univ. Stud. Zool.*, **1** : 36-40.

The present study has been undertaken to evaluate quantitatively the changes in bone marrow cells of the mice after exposure to 1000 R of gamma rays.

2148. **Sakya, K.** 1979. Pygmy hog conservation—a challenge. —*Tiger Pap.*, **6** (1) : 8-11.

2149. **Salwi, D. M.** 1979. How does a sperm whale achieve neutral buoyancy ? —*Sci. Reptr.*, **16** (3) : 184-185.

2150. **Sanghvi, P. K.** and **Bhasker, C. R.** 1979. *In vivo*, and *in vitro*, effect of 7, 12—dimethylbenz (A) anthracene in succinic dehydrogenase activity in mouse tissues. —*Indian Drugs*, **16** (5) : 110-112.

2151. **Sankhala, K.** 1978-79. Tigers in the wild—their distribution and habitat preferences. —*Cheetal*, **20** (2-3) : 35-57.

The study deals with the population and distribution of the tiger in the diversified ecosystems of the subcontinent of India. It covers a wide range of habitat types varying from the tropical wet evergreen forests to dry deciduous thorn forests and from the tropical submontane forests to the saline swamps of Sunderban delta.

2152. **Sapkal, V. M. (Mrs.)** and **Gadegone, M. M.** 1979. Cyclical changes in the mucus secreting cells of the cervical epithelium of *Pteropus giganteus giganteus*. —*Curr. Sci.*, **48** (1) : 38-40.

2153. **Sareen, M. L.** and **Goyal, V. K.** 1979. Quantitative analysis and histochemical studies of proteins and nucleic acids in fallopian tubes of *Suncus murinus* and *Rattus rattus*. —*Res. Bull. Panjab Univ.*, **27** (1 & 2) [1976] : 115-117.

2154. **Sareen, M. L.** and **Goyal, V. K.** 1979. Morphological and histochemical studies on the oviduct in *Suncus murinus* and *Rattus rattus*. —*Res. Bull. Panjab Univ.*, **27** (3 & 4) [1976] : 147-155.

The oviduct, both in *Suncus* and *Rattus*, consists of three parts, viz. isthmus, ampulla and infundibulum. The wall of the oviduct consists of three layers, i. e. tunica mucosa, tunica muscularis and tunica serosa. The muscular layer is not present in the fimbriated portion. In *Rattus* there are radial muscles among the longitudinal muscles ; these muscles are not present in *Suncus*.

The secretory droplets in the epithelial cells in both cases consist of mucopolysaccharides, acid and alkaline phosphates, phospholipids triglycerides and R. N. A. The chart of summarized histochemistry of the oviduct in both cases has been prepared.

2155. **Sarin, K.** and **Saxena, A. K.** 1979. Thimet induced biochemical changes in male Indian desert gerbil, *Meriones hurrianae* (Jerdon). —*Pesticides*, **13** (3) : 31-32.

In the present study, the biochemical changes have been observed after a single exposure of Thimet in the desert gerbil.

2156. **Sarkar, S. R., Chaudhuri, B. N., Singh, L. R.** and **Mazumdar, S. K.** 1979. Thyroid function and myocardial lacitic dehydrogenase enzyme system in rats. —*Indian J. exp. Biol.*, **17** (11) : 1252-1253.

2157. **Sarwar, M.** 1979. A new elephant from the upper Siwaliks of Pakistan. —*Pakist. J. Sci.*, **31** (3-6) : 133-138.

Antelephas tatrotensis, new genus and species, from Tatrot zone of the Upper Siwaliks is described.

2158. **Saxena, A. K.** and **Sarin, K.** 1979. Effect of repeated administration of Thimet (Phorate) on testes of the desert gerbil *Meriones hurrianae* Jerdon : Biochemical and histopathological studies. —*Indian J. exp. Biol.*, **17** (9) : 863-865.

Mild to severe structural and functional changes were observed in testis of *Meriones* after repeated administration of 0.6 mg/kg/day, ip of Thimet for 7 days has been studied.

2159. **Selvaraj, K. M.** 1979. Backyard dairy goat-keeping. —*Kisan Wld*, **6** (6) : 48-50.

2160. **Sen, A.** and **Sen Gupta, K. P.** 1979. Effect of feeding common edible oils to rats on the lipid profile of heart tissue. —*Indian J. exp. Biol.*, **17** (11) : 1277-1279.

2161. **Sen, A. K.** and **Uppal, P. K.** 1979. Studies on plaque reduction test in foot and mouth disease vaccinated animals. —*Indian vet. J.*, **56** (1) : 6-9.

2162. **Sensharma, G. C., Singh, S.** and **Deb, S.** 1979. Changes in the brain following experimental extirpation of pia. —*Indian J. med. Res.*, **69** (2) : 338-343.

2163. **Serrao, J. S.** and **Amladi, S. R.** 1979. Of macaques-Bonnet and Rhesus. —*Hornbill*, No. 12 : 29-32.

2164. **Seshadri, C., Suganthan, D.** and **Santhakumari, G.** 1979. Biochemical changes in the uterus and cervix of ovariectomized rats treated with embelin. —*Indian J. exp. Biol.*, **17** (12) : 1389-1390.

2165. **Sethi, U., Tripathi, L. M.** and **Rao, V. K. M.** 1979. Effect of centazolone on biogenic amine levels in rat brain and liver. —*Indian J. exp. Biol.*, **17** (9) : 907-910.

Biogenic amines are neurotransmitters and are known to be altered by psychotropic drugs.

2166. **Sethuraman, V.** and **Rathor, S.S.** 1979. Clinical studies and therapy of experimental rumen acute acid and alkaline indigestion in bovines. —*Indian vet. J.*, **56** (1) : 23-26.

2167. **Sethuraman, V.** and **Verma, B.B.** 1979. Liver function tests in buffalo calf.— *Indian vet. J.*, **56** (4) : 284-288.

The present investigation was undertaken to observe the suitability of the liver function tests for the diagnosis of hepatitis in buffalo calves.

2168. **Shah, M. P.** 1979. Population explosion of rodents in groundnut fields in Gujarat. —*Rodent Newsl.*, **3** (3) : 19-20.

2169. **Shah, R. V., Kishnani, K. J., Kathuria, P. D., Asnani, M.V.** and **Pilo, B.** 1979. Wound healing and repair in the liver of alloxan diabetic rats. 4. Histochemical studies on nucleic acids during wound healing. —*J. Anim. Morph. Physiol.*, **25** (1 & 2) [1978] : 193-200.

2170. **Shah, V. C.** and **Bhatavdekar, J. M.** 1979. The effect of x-irradiation on cholesterol content of guinea pig liver, adrenal and testis. —*Curr. Sci.*, **48** (24) : 1092-1093.

2171. **Shanmugasundaram, S.** 1979. Swine enterprise. —*Kisan Wld*, **6** (12) : 54-56.

The breeding and rearing of pigs.

2172. **Sharma, I. K.** 1979. The wolf in the Indian desert. —*Wld Wildl. India Newsl.*, (30) : 5.

2173. **Sharma, M. M., Lal, G.** and **Jacob, D.** 1979. Sialic acid concentration in the male generative structures of the rat, rabbit and the north Indian langur (*Presbytis entellus entellus* Dufresne). —*Rajasthan Univ. Stud. Zool.*, **1** : 18-22.

The present report attempts to describe the distribution of sialic acid in the three laboratory animals.

2174. **Sharma, O. P.** 1979. Ascorbic acid, iron and non-enzymic lipid peroxidation in rat brain mitochondria. —*Indian J. Biochem. Biophys.*, **16** (3) : 139-142.

2175. **Sharma, R. S., Arora, R. R., Rahman, S. J., Datta, K. K.** and **Lahiri, S. K.** 1979. Epidemiological study of an outbreak of dengue fever at Beawar, District Ajmer, in Rajasthan, 1976. — *J. Com. Dis.*, **10** (4) : 248-256.

2176. **Sharma, S. K.** 1979. Rabbit breeding. —*Kisan Wld*, **6** (5) : 49-51.

2177. **Sharma, S.S.** and **Luktuke, S.N.** 1979. Prenatal development of buffalo. — *Ceylon vet. J.*, **27** (1-4) : 23-25.

2178. **Sheela Rani, C. S., Susheela, A. K.** and **Moudgal, N. R.** 1979. Effect of neutralization of endogenous follicle stimulating hormone (FSH) or luteinizing hormone (LH) on ovarian lipids in the hamster : a histochemical and biochemical evaluation. —*Biol. Rep.*, **21** (1) : 117-124.

2179. **Sheikh, N. A.** 1979. Humoral response of laboratory animals to ticks *Rhpicephalus appendiculatus*, Neumann 1901. —*Pakist. J. scient. Res.*, **31** (3-4) : 115-122.

Humoral response was studied by infestation of nymphs on rabbits and compared with control of rabbits.

2180. **Siddappa, T. N.** and **Patil, S. H.** 1979. Seasonality of breeding and calving of buffaloes. —*Indian vet. J.*, **56** (2) : 122-124.

2181. **Siddiqui, H. H.** *et al.* 1979. Factors affecting blood glucose and liver glycogen in chlorpromazine treated mice subjected to simulated altitudes. —*Indian J. med. Res.*, **70** (11) : 833-840.

Shifting the mice from cage to hypoxic chamber and running the vacuum pump (without producing hypoxia) significantly increased the blood glucose level.

2182. **Singal, S. P.** 1979. Artificial insemination under field conditions-problems and solutions. —*Livestk. Advis.*, **4** (2) : 17-23.

2183. **Singh, A.** 1979. Baiting : yes or no ? —*Tiger Pap.*, **6** (4) : 29-30.

2184. **Singh, B.** and **Bhat, P. N.** 1978. Factors affecting lactation curve in Hariana cattle. —*Indian J. Anim. Sci.*, **48** (10) : 716-719.

2185. **Singh, B., Bhat, P. N.** and **Kumar, R.** 1979. Factors affecting the shape of the lactation curve in Hariana cattle. —*Indian J. Anim. Sci.*, **49** (7) : 495-498.

The present investigation was undertaken to examine critically the effect of some important non-genetic factors on the shape of the lactation curve, as estimated by fitting the gamma-type function to the individual lactation curves in Hariana cattle.

2186. **Singh, B., Bhat, P. N.** and **Kumar, R.** 1979. A note on the effect of some non-genetic factors on the weekly milk production in Hariana cows. —*Indian J. Anim. Sci.*, **49** (7) : 568-570.

The effect of various non-genetic factors on weekly milk yield of Harians cows and extent of their influence in a given lactation were examined.

2187. **Singh, B., Khanna, J. M., Khan, A. S.** and **Shukla, B. R.** 1979. Reproductive performance of certain exotic breeds of swine under tropical climate. —*Indian J. Anim. Hlth.*, **18** (2) : 17-20.

From a study of the reproductive performance of 4 breeds of swine under the hot climatic conditions prevailing at Aligarh, it was observed that the length of the oestrus cycle, gestation period and sex-ratio were not influenced by the hot climate of the locality.

2188. **Singh, C.** and **Rekib, A.** 1979. Effect of feeding natural grass and berseem hay on the growth rate and nutrient utilisation by Barbari kids. —*Indian vet. J.*, **56** (9) : 784-788.

Attempts were made to study the nutritive value of berseem hay and to see its feeding value in goats when mixed with natural grasses in different combinations.

2189. **Singh, C. S. P.** and **Mishra, H. R.** 1979. A case of superfecundation in pig. —*Indian vet. J.*, **56** (4) : 338.

2190. **Singh, J. (Major)** and **Chib, S. K. (Col.)** 1979. Prevalence of intestinal parasites and haemoglobin level in school children in Ambala cantt.— *J. Com. Dis.*, **10** (4) [1978] : 218-225.

[The paper records : *Ascaris*, Hookworm, Tapeworms, *Entamoeba* etc.]

2191. **Singh, K.** 1979. Degenerative changes in the testis of the Indian desert gerbil *Meriones hurrianae* Jerdon following the administration of an alkylating agent 'isopropylmethane'—sulphonate). —*Rajasthan Univ. Stud. Zool.*, **1** : 80, figs. 2.

2192. **Singh, K. B.** 1979. Chronic pseudoluxation of patella in bovines—some observations. —*Indian vet. J.*, **56** (8) : 704-706.

Two hundred and eighteen cases of chronic pseudoluxation of patella in cattle and buffaloes were studied and operated. The findings, not so far recorded, were noted.

2193. **Singh, K. B.** and **Rao, S. V.** 1979. Pelvic urethrotomies in bulls. —*Vet. Rec.*, **105** (7) : 137.

2194. **Singh, K. P.** and **Rajya, B. S.** 1979. Pulmonary schistosomiasis in pigs. — *Indian J. Anim. Sci.*, **48** (10) : 764-767.

2195. **Singh, L. B., Dwarakanath, P. K., Rakhimov, A.** and **Prasad, S. P.** 1979. Blood electrolytes (K and Na) and Hb-variants in Karakul sheep. — *Indian vet. J.*, **56** (7) : 554-556.

Blood samples from 166 Karakul sheep were analysed for Hb-type and K-type and concentration.

2196. **Singh, N.** 1979. General performance of sheep flock of Rajasthan desert under arid conditions. —*Indian J. Anim. Sci.*, **49** (4) : 273-277.

Studies were conducted on 6 different breeds of sheep, maintained under arid conditions with respect to the climatic factors affecting them.

2197. **Singh, N.** and **Mukherjee, S. K.** 1979. Introduction of atherosclerosis histopathological and histochemical changes in different tissues of pigs kept under different treatments. —*Indian vet. J.*, **56** (11) : 907-911.

16 male piglets were divided into 4 comparable groups of 4 each. First 3 groups received cholesterol enriched diet. In addition II group received 3 methyl palmitate injections, while III and IV groups received single injections of buffalo serum. Incidence of aortic atherosclerosis was more remarkable in the aorta of pigs treated with buffalo serum and cholesterol.

2198. **Singh, L. B., Singh, M., Dwaraknath, P. K.** and **Lal, A.** 1979. Effect of some biochemical characters on production traits in sheep. II. Some wool traits. —*Indian J. Anim. Hlth.*, **18** (1) : 27-33.

Studies have been carried out in order to see the effect of certain biochemical traits on production characters in the Indian sheep breeds.

2199. **Singh, R. K.** and **Roy, S. K.** 1979. Uterine RNA synthesis during protein deficiency and steroid-maintained pregnancy in rats. —*J. Biosci.*, **1** (2) : 135-142.

An attempt has been made to elucidate the changes in uterine RNA synthesis at the transcriptional level, during protein deficiency and steroid-maintained pregnancy. It was also examined whether the changes are due to change in RNA synthesis or degradation or a combination of the two.

2200. **Singh, P. H. U.** 1978-79. Mammals —Their Specialities. —*Nth. Forest Rang. Coll. Mag.*, **27** : 27-28.

2201. **Singh, S.** and **Kalla, J. C.** 1979. Population dynamic and milk production potential of bovines in the arid region of western Rajasthan. —*Ann. Arid Zone*, **18** (4) : 211-224.

2202. **Singh, S. K.** and **Dominic, C. J.** 1979. Effect of DL-6-(N-∝-pipecolinomethyl) -5-hydroxyindane maleate (PMHI) on the testis of the musk shrew *Suncus murinus* L. —*Indian J. exp. Biol.*, **17** (8) : 724-728.

Administration of DL-6(N-∝-pipecolinomethyl)-5-hydroxyindane maleate (PMHI) induced rapid reduction in testicular size and weight with seven degenerative changes in the seminiferous tubules.

2203. **Singh, V.** and **Desai, R. N.** 1979. Calving/breeding season and calving interval of buffaloes in northern India. —*Indian J. Anim. Sci.*, **49** (4) : 256-260.

Heifers calved mostly in July to September and adults during August to October. Over 5 lactations, 66.85% of the buffaloes calved during the first part of calving season, 21.97% in the 2nd part of calving season and the rest during the off season.

2204. **Singh, V. B.** 1978. The elephant in U. P. (India)—A resurvey of its status after 10 years. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 71-82.

2205. **Singh, V. B.** 1979. Some observations on Jamunapari goats and their crosses with Toggenburg. —*Balwant Vidyapeeth J. agric. scient. Res.*, **18** (2) [1976] : 82-85.

2206. **Singh, V. P.** and **Bhat, P. N.** 1979. Studies on growth curve in crosses of Hariana with Holstein—Friesian, Brown Swiss and Jersey. —*Indian J. Anim. Sci.*, **49** (2) : 81-86.

2207. **Singh, Y., Swaroop, A.** and **Misra, U. K.** 1979. Kidney lipids of weanling rats fed lysine threonine deficient rice diets. —*Nutr. Rep. int.*, **20** (1) : 75-78.

2208. **Singhvi, A.** and **Johnson, S.** 1979. Interaction of nutrition and helminth infestation in the house rat, *Rattus rattus*. —*Comp. Physiol. Ecol.*, **4** (1) : 28-30.

An attempt was made to ascertain the relationship, if any, between the natural diet and the level of helminth infection in the two sexes of rats.

2209. **Singhvi, M. S.** and **Lall, S. B.** 1979. Testicular lactate dehydrogenases of *Rhinopoma kinneari* Wroughton. —*Indian J. exp. Biol.*, **17** (11) : 1182-1185.

2210. **Sinha, B. P.** and **Prasad, S.** 1979. Bilateral pleurisy in buffaloes.—*Indian vet. J.*, **56** (6) : 515-517.

2211. **Sinha, B. P., Verma, B. B.** and **Gill, B. S.** 1979. Ascites of nephrotic origin in a buffalo. —*Indian vet. J.*, **56** (5) : 432-434.

2212. **Sinha, J. P.** 1979. A way to estimate the number of tigers. —*Cheetal*, **20** (2-3) : 58-60.

After undertaking various tests under conditions capable of influencing the impression of pug marks in the Palamau Tiger Reserve, it has been possible to arrive at fairly accurate estimate of the number of tigers.

2213. **Sinha, P. M.** *et al.* 1979. Relationship between plasma progesterone concentration and litter size in superovulated goats. —*J. nucl. Agric. Biol.*, **8** (2) : 7-9.

2214. **Sodhi, A.** 1979. Ultrastructural observations on the effect of cis-Dichlorodiammine platinum (II) on the cells of ascites fibrosarcoma in mice : Part I—Interaction of macrophages with fibrosarcoma cells. —*Indian J. exp. Biol.*, **17** (7) : 623-627.

2215. **Soman, J. P.** 1979. Evaluation of buffalo serum for the growth of lamb kidney monolayer cell culture. —*Indian J. Anim. Res.*, **13** (1) : 50-52.

2216. **Sood, M. L.** and **Dilber, D. S.** 1979. A note on food consumption and preferences of northern palm squirrel, *Funambulus pennanti* Wroughton. —*J. Res. Punjab agric. Univ.*, **15** (1) [1978] : 132-133.

2217. **Sood, P. P., Bohra, M. H.** and **Banu, H.** 1979. Species variation in the localisation of esterases in the cerebellar cortex of mouse and bat. —*J. Biosci.*, **1** (2) : 179-183.

A comparative study of the distribution of a simple esterase and acetylcholinesterase in the cerebellar cortex of mouse and bat has been made.

2218. **Sreenivasan, M. A.** *et al.* 1979. Susceptibility of *Rousettus leschenaulti* to infection with Kyasanur forest disease virus. —*Indian J. med. Res.*, **69** (4) : 535-537.

2219. **Sreeraman, P. K.** and **Sastry, G. A.** 1979. A note on the cytochemical study of the leukocytes of buffaloes. —*Indian J. Anim. Sci.*, **49** (4) : 310-313.

2220. **Sridhara, S.** and **Krishnamoorthy, R. V.** 1978. Cereal preference and intake of four species of field rodents. —*J. Bombay nat. Hist. Soc.*, **75** (1) : 128-136.

2221. **Sridhara, S.** and **Srihari, K.** 1979. Field and laboratory evaluation of zinc phosphide. —*Curr. Res. mon. Newsl.*, **8** (5) : 80-82.

The result of the observation on the toxicity, acceptency and mortality caused by this acute poison is reported here. The species evaluated were the lesser bandicoot rat, Indian gerbil and the field mouse.

2222. **Sridhara, S.** and **Srihari, K.** 1979. Comparison of poison aversion behaviour in *Bandicota bengalensis* and *Tatera indica*. —*Rodent Newsl.*, **3** (2) : 9-10.

2223. **Sridhara, S.** and **Srihari, K.** 1979. Increased amino acids and protein degradation in the tissues of *Bandicota bengalensis* poisoned with RH-787. —*Rodent Newsl.*, **3** (4) : 26.

2224. Deleted.

2225. **Srihari, K.** and **Sridhara, S.** 1979. Food hoarding behaviour of *Bandicota bengalensis* and *Tatera indica*. —*Rodent Newsl.*, **3** (2) : 11.

2226. **Srihari, K.** and **Sridhara, S.** 1979. Haematological changes as a consequence of rodenticide treatment in *Bandicota bengalensis* and *Tatera indica*. —*Rodent Newsl.*, **3** (4) : 25.

2227. **Srinivasan, R., Natarajan, N.** and **Shanmugam, A. M.** 1979. A study on the normal haematology of rabbits. *Indian vet. J.*, **56** (7) : 550-553.

A study of the haemogram of 62 normal rabbits was made and the mean values of haemoglobin, packed cell volume, red blood cell count, white blood cell count, neutrophiles, basophiles, lymphocytes, eosinophiles and monocytes were worked out.

2228. **Sriraman, P. K., Christopher, K. J., Ramarao, P.** and **Sastry, G. A.** 1979. Multiple neoplasia in a bullock. —*Indian vet. J.*, **56** (1) : 10-12.

2229. **Srivastava, A. S., Mathur, Y. K.** and **Bhadauria, A. S.** 1979. Vacor (RH-787)—an effective rodenticide against field rats. —*Rodent Newsl.*, **3** (2) : 10.

2230. **Srivastava, A. S., Mathur, Y. K.** and **Bhadauria, A. S.** 1979. Utilization of essence as attractant to field rodents. —*Rodent Newsl.*, **3** (2) : 15.

2231. **Srivastava, A. S., Mathur, Y. K.** and **Bhadauria, A. S.** 1979. Rodent control training programme to railway officers. —*Rodent Newsl.*, **3** (3) : 21.

2232. **Srivastava, B. P.** 1979. Status of tiger in India. —*Tiger Pap.*, **6** (2-3) : 24-27.

2233. **Srivastava, M.** and **Kapoor, N. K.** 1979. Levels of biogenic amines in the different tissues of developing rats. —*Indian J. exp. Biol.*, **17** (12) : 1413-1414.

2234. **Srivastava, S. K.** 1979. Effect of tyrosine and iodine in experimental colloid goitre in rat. —*Indian J. exp. Biol.*, **17** (7) : 691-693.

2235. **Srivastava, S. K., Ranjhan, S. K.** and **Pathak, N. N.** 1979. Effect of feeding all-roughage ration during the early life on growth utilization of nutrients and feed-conversion efficiency in cross-bred calves (*Bos indicus* × *Bos taurus*). —*Indian J. Anim. Sci.*, **49** (7) : 499-503.

An attempt was made to rear the cross-bred calves on all-roughage ration, especially the legume fodders, during the early age of 3 to 6 months.

2236. **Subba Rao, K.** and **Shrivastaw, K. P.** 1979. Distribution of acid and alkaline deoxyribonucleases in white and grey matter regions of growing and aging chick brain. —*J. Biosci.*, **1** (1) : 69-74.

2237. **Sugiyama, Y.** 1978. Population change of the Hanuman Langur (*Presbytis entellus*). 1961-1976, in Dharwar area, India. —*J. Bombay nat. Hist. Soc.*, **75** (3) [1978] : 860-867.

2238. **Sukumarapillay, K. R.** 1979. Duration of pregnancy in elephants. —*Indian vet. J.*, **56** (1) : 75.

2239. **Sunquist, M. E.** 1979. Tiger Ecology Project, Nepal : Radio tracking and its application to the study and conservation of tigers. —*Tiger Pap.*, **6** (2-3) : 7-8.

2240.

2241.

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2244.

Ecological information was needed for designing longterm conservation strategies for the tiger. During the past 5 years the research has concentrated on the ecology and behaviour of the tiger in the Royal Chitawan National Park.

Suneja, I. J. 1979. Dinotherium—an extinct fossil elephant. —*Sci. Reptr.*, **16** (2) : 127.

Suryanarayana Murty, T. and **Narasimha Rao, A. V.** 1979. Congenital cutaneous melanowa in a bull calf. —*Indian vet. J.*, **56** (6) : 522.

Swami, D. R. and **Lall, S. B.** 1979. Prostatic phosphatases of the bat *Taphozous longimanus* Hardwicke. —*Indian J. exp. Biol.*, **17** (8) : 791-793.

Histochemical localization of acid phosphatase and adenosine triphosphatase in the prostate gland of sexually mature adult males of *T. longimanus* revealed differences of intensity

Swami, D. R. and **Lall, S. B.** 1979. Testicular acid phosphatases of the bat *Taphozous longimanus* Hardwicke. —*Indian J. exp. Biol.*, **17** (8) : 796-797.

Histochemical localization of acid phosphatase in the testes of sexually mature breeding males of *T. longimanus* showed varying intensities of enzymic reaction in the spermatogenic, sertoli and Leydig cells.

Swami, D. R. and **Lall, S. B.** 1979. Adenosine triphosphatase activity in the spermatogenic and androgenic components of the testis of *Taphozous longimanus* Hardwicke (Microchiroptera : Mammalia). —*Curr. Sci.*, **48** (10) : 431-433.

2245. **Swami, D. R.** and **Lall, S. B.** 1979. Glucose-6-phosphatase activity in the epididymis of *Taphozous longimanus* (Microchiroptera : Mammalia). —*Curr. Sci.*, **48** (19) : 873-875.

2246. **Talesara, C. L.** and **Narang, V.** 1979. Histochemical and biochemical changes in SDH and m-AT Pase activities during regeneration of autotransplanted minced gastrocnemius muscle in different age groups of albino rat *Rattus norvegicus*. —*Indian J. exp. Biol.*, **17** (10) : 1074-1079.

A combined histochemical and biochemical studies with reference to enzymes m-AT Pase and SDH has been carried out on albino rats of different age groups.

2247. **Takkar, O. P.**, **Chauhan, F. S.**, **Tiwana, M. S.**, and **Singh, M.** 1979. Breeding behaviour of buffalo cows. —*Indian vet. J.*, **56** (3) : 168-172.

The present investigation was undertaken to study the breeding behaviour of buffalo cows during different seasons under improved management practices including proper methods of heat detection.

2248. **Tambat, R. V.** and **Chavan, I. G.** 1979. Calving distribution pattern of the animals at the agricultural college dairy farm, Pune. —*J. Maharashtra agric. Univ.*, **4** (2) : 191-193.

2249. **Tehsin, R. H.** 1979. Origin of the false notion. —*Cheetal*, **21** (1) : 26.

2250. **Tewari, B. S.** and **Badam, G. L.** 1979. The biometrical analysis of cheek teeth of some ungulates. —*Res. Bull. Panjab. Univ.*, **27** (3 & 4) [1976] : 185-202.

Twenty-six cheek teeth of Equidae and fiftyseven of Bovidae, collected from the Upper Siwaliks around Chandigarh, have been subjected to biometrical study with IBM 1620 digital computer. The study reveals that the external parameters of length, width and height in the case of Equidae and Bovidae are not positively diagnostic in delimiting the species, whereas the parameters which take into consideration the elements of the crown are important. In Equidae, the correlation co-efficient between width and length is much larger than the correlation coefficients between width and height and between height and length. In Bovidae, the correlation coefficients between width and length and between height and length are much larger than the correlation coefficient between width and height.

2251. **Tewari, N. P.** and **Swarup, K.** 1979. Studies of calcitonin cells and parathyroid glands of the Indian jackal *Canis aureus* (Linn.-lex) in response to experimental hypercalcaemia. —*Indian J. exp. Biol.*, **17** (8) : 748-751.

Indian jackal puppies were subjected to experimental hypercalcaemia. Calcitonin cells of treated specimens show marked increase in number.

2252. **Thakur, J. R.**, **Sharma, P. L.** and **Kakar, K. L.** 1979. Monkey, *Macaca mulatta* Zimmerman damaging wheat crop in Himachal Pradesh. —*Indian J. Ent.*, **41** (2) : 193.

2253. **Thampan, T. N. R. V.**, **Dinakar, N.** and **Prasad, M. R. N.** 1979. Androgen binding and metabolism in epididymis and accessory glands of the male Rhesus monkey *Macaca mulatta*. —*Indian J. exp. Biol.*, **17** (3) : 290-292.

The binding and metabolism of 1, 2^3 −H testosterone *in vivo* by different androgen-responsive tissues of castrated male rhesus monkey was studied.

2254. **Tiwary, S. N.**, **Singh, C. D. N.** and **Jha, G. S.** 1979. Pathology of acute flourine poisoning in sheep. —*Indian vet. J.*, **56** (8) : 638-640.

The object of the present study is to throw light on the pathologic changes in acute experimental poisoning of sheep with flourine and also correlate these changes with those occurring in natural cases of flourine poisoning.

2255. **Tomar, S. S.** 1979. Genetic studies on birth weight of calves. —*Indian J. Anim. Res.*, **13** (1) : 35-39.

2256. **Tomar, S. S.** and **Mahajan, J. M.** 1979. Genetic variations in conception rates of sheep under sub-temperate conditions. —*Indian vet. J.*, **56** (3) : 178-183.

Information regarding the conception rate of rams of temperate Indian breeds of sheep and also of exotic rams used on indigenous, exotic and cross-bred ewes under sub-temperate Himalayan conditions are reported in this paper.

2257. **Tomar, S. S.** and **Mahajan, J. M.** 1979. Genetic and non-genetic variation in the mating behaviour of ewes under sub-temperate himalayan conditions. —*Indian vet. J.*, **56** (5) : 393-399.

2258. **Tripathi, S. S., Bhattacharya, A. R.** and **Luktuke, S. N.** 1979. Influence of administration of massive doses of oestrogens and progesterone on reproduction in heifers and cows. —*Indian vet. J.*, **56** (1) : 14-44.

2259. **Tripathi, S. S.** and **Saxena, V. B.** 1979. Cholesterol content in the semen of Jersey, Red Dane and Murrah bulls. —*Indian J. Anim. Res.*, **13** (1) : 12-14.

The present investigation deals with the volume and sperm concentration of the semen, total cholesterol content of the semen and keeping quality of semen at 3°C in standard conventional dilutors.

2260. **Tyagi., A. Joshi, B. C., Kumar, S.** and **Dixit, V. P.** 1979. Antispermatogenic activity of cyclohexanol in gerbil (*Meriones hurrianae* Jerdon) house rat (*Rattus rattus* Rufescens). —*Indian J. exp. Biol.*, **17** (12) : 1305-1307.

2261. **Umapathy, E., Manimekalai, S.** and **Govindarajulu, P.** 1979. Effect of anti-androgens on accessory sex gland lipids. —*Indian J. exp. Biol.*, **17** (2) : 1308-1313.

2262. **Upadhye, A.S., Krishnappa, G., Ahmed, S. N.** and **Krishnamurthy, B. S.** 1979. Serological evidence of leptospiral antibodies in elephants. —*Curr. Sci.*, **48** (16) : 733.

As part of the epidemiological survey of leptospirosis infection the screening of elephants was taken up and the observations are presented.

2263. **Upreti, B. N.** 1979. Himalayan musk deer. —*J. nat. Hist. Mus.*, **3** (1-4) : 109-120.

A general review of the present knowledge mainly about morphology, ecology and general behaviour of the deer has been made alongwith some field observation by the author.

2264. **Urs, Y. L.** 1979. Damage to coconuts in a nursery plantation by *Bandicota bengalensis*. —*Pest Artic. News Summ.*, **25** (2) : 147-149.

2265. **Usha Devi, S. V.** and **Krishnamoorthy, R. V.** 1979. Liver necrosis and hypertrophy in 'Vacor' administered field rats. —*Curr., Sci.* **48** (18) : 830-832.

The objective is to study the effects of sublethal doses of vacor on the histopathology of the liver and liver function in rats and thereby gauge the effects of application of the rodenticide on non-target animals.

2266. **Vadlamudi, V. P.** and **Paul, B. S.** 1979. Acute oral taxicity of malathion and its effect on blood cholinesterases in Indian buffalo. —*Indian vet. J.*, **56** (8) : 650-655.

Acute oral toxicity of malathion and its effects on blood cholinesterase in male buffalo calves was investigated. Matathion produced greater inhibition of plasma cholinesterase than red blood cell cholinesterase. The extent of either plasma or red cell cholinesterase inhibition was not related to the degree of toxicity.

2267. **Vaish, K. C., Shrivastava, A. M.** and **Jamdar, M. N.** 1979. The studies on haematological and clinical indices in correlation with adaptability to heat stress in Gir-Holstein F_1 generation calves. —*J. N. K. V. V. Res. J.*, **10** (2) [1976] : 185-186.

2268. **Varadarajan, S.** 1979. Control of rats by the use of phorate.—*Rodent Newsl.*, **3** (4) : 29-30.

2269. **Varshney, T. R.** and **Singh, Y. P.** 1979. A comparative study of anthelmintic effect of naphthalophos and parbendazole against natural infection of gastro-intestinal worms of sheep. —*Indian vet. J.*, **56** (3) : 207-210.

Comparative efficacy of naphthalophos 80% and parbendazole 4% was studied against natural infection of gastro-intestinal worms in sheep under controlled conditions.

2270. **Vatsala, T. M.** and **Singh, M.** 1979. *In vitro* changes and recovery of erythrocytes shape in induced atherogenesis in rabbits. —*Curr. Sci.*, **48** (18) : 797-799.

To observe the effects of various factors which may contribute toward the alteration and restoration of normal shape during atherogenesis, the erythrocytes were obtained from normal and atherosclerotic rabbits and were studied *in vitro*.

2271. **Verma, B. B.** and **Gautam, O. P.** 1979. Observations on pathological changes in experimental surra in bovines. —*Indian vet. J.*, **56** (1) : 13-15.

2272. **Vichare, V. B.** and **Phansalkar, R. B.** 1979. Observations on the salivary glands in the Indian house shrew, *Suncus murinus* L. —*J. zool. Soc. India*, **27** (1-2) [1975] : 57-68.

2273. **Vidyachand, E.** and **Sen Gupta, B. P.** 1979. Preservation of buffalo semen at variable room temperature in some modified diluents. —*Indian vet. J.*, **56** (4) : 289-293.

An attempt was made here to evaluate tue relative merit of some modified basic diluents for effective preservation of buffalo semen at 20-24°C.

2274. **Vidyachand, E.** and **Sengupta, B. P.** 1979. Studies on certain factors influencing preservation of buffalo semen at variable room temperature. —*Indian vet. J.*, **56** (7) : 575-582.

Effect of various factors on room temperature preservation of buffalo semen was investigated.

2275. **Viswanath, K. S., Rama Rao, P.** and **Sastry, G. A.** 1979. Biometrical study of female genital system of pigs. —*Indian vet. J.*, **56** (11) : 940-942.

Biometry of sixty non-gravid female genitalia of different age groups of swine was carried out.

2276. **Wesley, D. G.** 1978-79. A brief note on Project Tiger, Bandipur, Karnataka. —*Cheetal*, **20** (2-3) : 61-65.

To save the tiger from total annihilation and to restore its numbers to a viable population a special project. The Project Tiger was launched by the Govt. of India with the help of International Organisations W. W. F. and I. U. C. N.

2277. **Wesley, D. G.** 1979. A brief note on Project Tiger, Bandipur, Karnataka. —*Cheetal*, **20** (4) : 15-17.

2278. **Yonzon, P. B.** 1979. Studies on the Chital (*Axis axis*) in their rutting period. —*J. nat. Hist. Mus.*, **3** (1-4) : 23-30.

Field observations made at Royal Chitwan National Park suggest that rut activities increase markedly amongst adult males with hard antlers from March till June.

2279. **Younas, M., Nazir Ahmad Ch.** and **Khan, B. B.** 1979. Effect of heat stress on respiration rate, pulse rate, body temperature and body weight of buffalo calves. —*Pakist. J. scient. Res.*, **31** (3-4) : 181-186.

The study was carried out to demonstrate the effect of heat stress on certain physiological norms of the buffalo calves.

2280. **Zaidi, S. N. A., Shipstone, A. C.** and **Garg, N. K.** 1979. Effect of phospholipase—D on rat kidney mitochondria. —*J. Biosci.*, **1** (1) : 75-82.

II. LIST OF NEW TAXA

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

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

I. PHYLUM : PROTOZOA

I. Class : Mastigophora

(1) Order : Polymastigina

Family : Polymastigidae

1. *Monocercomonoides dobelli* Krishnamurthy & Madre (52)

(2) Order : Protomonadina

(i) Family : Cryptobiidae

2. *Cryptobia indica* Mandal (54)

(ii) Family : Trypanosomatidae

3. *Trypanosoma batai* Joshi (50)
4. *Trypanosoma bengalensis* Mandal (54)
5. *Trypanosoma stigmai* Joshi (50)

II. Class : Sporozoa

(1) Order : Gregarinida

Family : Monocystidae

6. *Monocystis pontorili* Subba Rao, Kalavati & Narasimhamurti (71)

(2) Order : Coccidia

Family : Eimeriidae

7. *Dorisiella harpia* Sinha (70)

(3) Order : Myxosporidia

(i) Family : Chloromyxidae

8. *Kudoa sphyraeni* Narasimhamurti & Kalavati (59)
9. *Kudoa tetraspora* Narasimhamurti & Kalavati (58)

(ii) Family : Myxosomatidae

10. *Myxosoma lairdi* Narasimhamurti & Kalavati (60)

II. PHYLUM:CNIDARIA(COELENTERATA)

Family : Actiniidae

Paratealia Mathew & Kurian (gen.n) (76)

11. *Paratealia keralensis* Mathew & Kurian (76)

III. PHYLUM : PLATYHELMINTHES

I. Class : Trematoda

(a) Sub-class : Monogenea

Family : Dactylogyridae

12. *Ancyrocephaloides indicus* Karyakarte & Das (93)

Sub-class : Digenea

(i) Family : Acanthostomidae

13. *Brientrema cavasiustus* Bilqees (84)

(ii) Family : Bucephalidae

14. *Bucephaloides cancilatus* Bilqees (84)

(iii) Family : Dicrocoelidae

15. *Lubens khairabadensis* Ahmad (82)
16. *Stromitrema khairabadensis* Ahmad (82)

(iv) Family : Erenteridae

Karyakartia Hafeezullah (g.n.) (92)

(v) Family : Hemiuridae

17. *Liopyge indica* Singh (111)

(vi) Family : Lepocreadiidae

18. *Pseudolepoceadioides secundus* Ahmad (81)

(vii) Family : Lissorchiidae

19. *Brahmputrotrema gwaliorensis* Dantotia & Bhadauria (86)

(viii) Family : Monorchidae

20. *Opisthomonorchis thapari* Varma & Singh (113)

(ix) Family : Opistholebetidae

21. *Pyenadena bariliusi* Vasantha Kumari & Srivastava (114)

(x) Family : Opisthorchiidae

22. *Cercaria bithyniaea* Gupta & Sharma (89)

23. *Cercaria* sp. II kerala Mohandas (95a)

24. *Opisthorchis caudalspinutum* Bhadauria & Dandotia (83)

II. Class : Cestoda

(i) Family : Dilepididae

25. *Amoebotaenia gallusina* Srivastava (128)

26. *Joyeuxiella vulpursi* Capoor & Srivastava (117)

(ii) Family : Locanicephalidae

Flapocephalus Deshmukh (gen. n.) (119)

27. *Flapocephalus trygonis* Deshmukh (119)

(iii) Family : Onchobothriidae

28. *Yorkeria southwelli* Deshmukh (118)

(iv) Family : Hymenolepididae

29. *Pseudohymenolepis ratus* Mahapatra & Chatterji (123)

30. *Vampirolepis molus* Srivastava & Capoor (127)

IV. PHYLUM : ASCHELMINTHES

Class : Nematoda

(i) Family : Acuariidae

31. *Desportesius skrjabini* Ilyas (194)

32. *Synhimantus bubulcus* Kumar & Gupta (221)

(ii) Family : Aphelenchoididae

33. *Aphelenchoides sanwali* Chaturvedi & Khera (164)

34. *Seinura hechlerae* Chaturvedi & Khera (164)

(iii) Family : Belondiridae

Yubeldus Khan, Azmi & Chawla (gen.n.) (209)

35 *Yubeldus glandulosus* Khan, Azmi & Chawla (209)

(iv) Family : Cephalobidae

36. *Acrobeloides sativus* Nama & Soni (238)

(v) Family : Criconematidae

37. *Hemicycliophora index* Jairajpuri & Khan (203)

(vi) Family : Cucullanidae

38. *Cucullanus egrettae* Kumar & Gupta (220)

(vii) Family : Dolichodoridae

39. *Dolichodorus kishansinghi* Jairajpuri & Rahmani (204)

(viii) Family : Goeziidae

Amphibiogoezia Rao (gen. n.) (257)

40. *Amphibiogoezia spinosoma* Rao (257)

(ix) Family : Hemicycliophoridae

Hemicaloosia Ray & Das (gen. n.) (260)

41. *Hemicaloosia americana* Ray, & Das (260)

(x) Family : Heterakidae

42. *Heterakis cameroni* Kumar & Gupta (222)

(xi) Family : Heteroderidae

43. *Heterodera delvii* Jairajpuri, Khan, Setty & Govindu (202)

(xii) Family : Hoplolaimidae

44. *Orientylus geraerti* Jairajpuri & Siddiqi (205)

45. *Rotylenchus dalhousiensis* Sultan & Jairajpuri (294)

46. *Rotylenchus neorobustus* Sultan & Jairajpuri (294)

47. *Scutellonema imphalus* Sultan & Jairajpuri (294)

(xiii) Family : Iotonchidae

48. *Iotonchus prabhooi* Mohandas (231)

(xiv) Family : Leptonchidae

49. *Dorylaimoides loofi* Baqri & Khera (154)
50. *Dorylaimoides siddiqii* Baqri & Khera (154)

(xv) Family : Neoactionlaimidae

51. *Alaimus siddiqii* Chaturvedi & Khera (164)
52. *Neoactinolaimus thornei* Chaturvedi & Khera (164)

(xvi) Family : Onchocercidae

53. *Aproctoides singhi* Ramnivas (255)
54. *Aproctoides tuberculata* Ramnivas (255)

(xvii) Family : Oxydiridae

Oxybelondira Ahmad & Jairajpuri (gen. n.) (139)
55. *Oxybelondira paraperplexa* Ahmad & Jairajpuri (139)

(xviii) Family : Panagrolaimidae

56. *Acrobeles timmi* Chaturvedi & Khera (164)
57. *Panagrolaimus burdwanensis* Chaturvedi & Khera (164)
58. *Panagrolaimus migophilus* Poinar & Bai (248)
59. *Plectonchus cucumis* Nama & Soni (239)

(xix) Family : Paraphelenchidae

60. *Metaphelenchus goldeni* Chaturvedi & Khera (164)

(xx) Family : Paratylenchidae

61. *Gracilacus raskii* Phukan & Sanwal (247)
62. *Paratylenchus pseuduncinatus* Phukan & Sanwal (247)

(xxi) Family : Physalopteridae

63. *Pseudophysaloptera multipapillata* Naidu & Thakare (236)

(xxii) Family : Plectidae

64. *Chronogaster indica* Bajaj & Bhatti (149)
65. *Chronogaster loofi* Chaturvedi & Khera (164)

(xxiii) Family : Pratylenchidae

66. *Helicotylenchus indentatus* Chaturvedi & Khera (164)
67. *Hoplolaimus dubius* Chaturvedi & Khera (164)
68. *Pratylenchus barkati* Das & Sultan (171)
69. *Pratylenchus capitatus* Das & Sultan (171)
70. *Pratylenchus crassi* Das & Sultan (171)
71. *Pratylenchus exilis* Das & Sultan (171)
72. *Pratylenchus singhi* Das & Sultan (171)

(xxiv) Family : Rhabditidae

Indorhabditis Chaturvedi (sub gen. n.) & Khera (164)
73. *Rhabditis* (*Indorhabditis*) *olitorius* Chaturvedi & Khera (164)

(xxv) Family : Rhabdochonidae

74. *Rhabdochona gondae* Kumar & Gupta (220)

(xxvi) Family : Thornematidae

75. *Thornema caudatum* Jairajpuri, Ahmad & Dhanachand (200)
76. *Thornema longicaudatum* Jairajpuri, Ahmad & Dhanachand (200)

(xxvii) Family : Tylenchidae

Aerotylenchus (gen. n.) Fotedar & Handoo (175)
77. *Aerotylenchus safroni* Fotedar & Handoo (175)
78. *Basiria nasikensis* Darekar & Khan (169)
79. *Circonemoides mongomorgum* Darekar & Khan (169)

Duosulciinae Siddiqi (sub fam. n.) (273)

Duosulcius Siddiqi (gen. n.) (273)

Heomalenchus Siddiqi (gen. n.) (273)

Merilinius macrophasmidus Khan & Darekar (211)

Telotylenchus impar Khan & Darekar (210)

Telotylenchus teres Khan & Darekar (210)

Tylenchorhynchus punensis Khan & Darekar (211)

Zanenchus Siddiqi (gen. n) (273)

(xxviii) Family : Xiphinematidae

Xiphinema luci Bajaj & Jairajpuri (151)

PHYLUM : ACANTHOCEPHALA

Family : Micracanthorhynchidae

Cleaveius leiognathi Jain & Gupta (312)

Cleaveius port-blairensis Jain & Gupta (312)

VI. PHYLUM : Brachiopoda

Family : ?

Waagenoconcha delectus Waterhouse & Gupta (335)

VII. PHYLUM : MOLLUSCA

Family : ?

Sub-family : Lenticeratinae

Eulophoceras phansalkari Ghare (350)

Pseudoschloenbachia mettalensis Ghare (350)

Family : ?

Macrocephalites (Dolikephalites) spathi Singh, Agrawal & Kacker (384)

VIII. PHYLUM : ARTHROPODA

I. Class : Arachnida

(1) Order : Araneae

(i) Family : Agelenidae

Agelena oaklandensis Barman (394)

Tegenaria shillongensis Barman (394)

(ii) Family : Filistatidae

Pritha dharmakumarsinhjii Patel (429)

Sahastata ashapuriae Patel (429)

(iii) Family : Gnaphosidae

95. *Sosticus dherikanalensis* Gajbe (410)
96. *Sosticus nainitalensis* Gajbe (410)
97. *Sosticus solanensis* Gajbe (410)
98. *Sosticus sundargarhensis* Gajbe (410)
99. *Zelotes choubeyi* Tikader & Gajbe (447)
100. *Zelotes mandae* Tikader & Gajbe (447)
101. *Zelotes naliniae* Tikader & Gajbe (447)
102. *Zelotes sajate* Tikader & Gajbe (447)
103. *Zelotes sataraensis* Tikader & Gajbe (447)

(iv) Family : Theraphosidae

104. *Phlogiodes satynus* Barman (393)

(v) Family : Thomisidae

105. *Tharpyna himachalensis* Tikader & Biswas (446)
106. *Tharpyna indica* Tikader & Biswas (446)
107. *Xysticus jaharai* Basu (396)

(2) Order : Acarina

(i) Family : Camissiidae

Sigmonothrus Chakrabarti & Kundu (gen.n.) (400)

108. *Sigmonothrus bistriatus* Chakrabarti & Mandal (400)
109. *Sigmonothrus ovatus* Kundu & Mondal (400)
110. *Sigmonothrus quadristriatus* Chakrabarti & Kundu (400)

(ii) Family : Digamasellidae

111. *Dendrolaelaps bengalensis* Paramanik & Raychaudhuri (430)

(iii) Family : Eremobelbidae

112. *Eremobelba indica* Ghosh & Bhaduri (412)

(iv) Family : Eriophyidae

113. *Calacarus jasmini* Chakrabarti & Mondal (402)

114. *Phyllocoptes salmaliae* Chakrabarti & Mondal (402)

115. *Tegolophus calotropi* Chakrabarti & Mondal (403)

116. *Tegolophus ficusi* Mondal & Chakrabarti (425)

117. *Tegolophus indica* Chakrabarti & Mondal (403)

118. *Tegolophus nerii* Mondal & Chakrabarti (425)

(v) Family : Liponyssidae

119. *Liponyssoides bengalensis* Gupta (414)

(vi) Family : Malaconothridae

120. *Malaconothrus assamensis* Chakrabarti & Roy Talukdar (401)

(vii) Family : Otocepheidae

121. *Pseudotocepheus gobletus* Chakrabarti & Mondal (399)

122. *Pseudotocepheus hammerae* Chakrabarti & Kundu (399)

(viii) Family : Phytoseiidae

Tropicoseius Gupta (subgen. n.) (413)

123. *Paraphytoseius* (*Tropicoseius*) *nucifera* Gupta (413)

(ix) Family : Rhyncophytoptidae

124. *Diptilomiopus bengalensis* Chakrabarti & Mondal (403)

(x) Family : Tetranychidae

125. *Eotetranychus syzygii* Gupta & Gupta (418)

(xi) Family : Trhypochthoniidae

126. *Allonothrus monensis* Ghosh & Bhaduri (412)

(xii) Family : Trombiculidae

127. *Gahrliepia* (*Schoengastiella*) *doratanae* Nadchatram (428)

128. *Neotrombicula guptai* Nadchatram (428)

(xiii) Family : Tuckerellidae

129. *Tuckerella kumaonensis* Gupta (415)

(3) Order : Opiliones

Family : Gagrellidae

130. *Metagagrella koyamai* Suzuki (444)

II. Class : Crustacea

(a) Sub-class : Copepoda

Order : Caligoida

Family : Synodontidae

131. *Metataeniacanthus nudus* Cressey & Cressey (464)

(b) Sub-class : Malacostraca

(1) Order : Decapoda

Family : Palaemonidae

132. *Macrobrachium srilankense* Costa (463)

(2) Order : Isopoda

Family : Armadillidae

133. *Akermania besucheti* Argamo & Manicastri (458)

134. *Cubaris pataliputraensis* Ram & Kumar (500)

(c) Sub-class : Ostracoda

(1) Order : Podocopa

Family : Cyprididae

135. *Cypricerus munshi* Deb & Nasar (467)

136. *Sclerocypris bhatiai* Jain (474)

(2) Order : ?

Family : Cytheridae

137. *Occultocythereis elongatum* Bhalla (461)

III. Class : Myriapoda

(i) Family : Pseudoclididae

138. *Tianella bobanga* Shear (526)

139. *Tianella lughla* Shear (526)

140. *Tianella martensi* Shear (526)

(ii) Family : Conotylidae

Nepalellinae Shear (subfam. n.) (526)

Nepalella Shear (gen. n) (526)

141. *Nepalella khumbua* Shear (526)

142. *Nepalella thodunga* Shear (526)

(iii) Family : ?

143. *Allothereura wilsonae* Dobroruka (523)

IV. Class : Insecta

(1) Order : Odonata

(i) Family : Chlorolestidae

144. *Megalestes lieftincki* Lahiri (584)

(ii) Family : Coenagriidae

145. *Agriocnemis corbeti* Kumar & Prasad (583)

(2) Order : Orthoptera

Family : Acrididae

146. *Azarea indica* Singh (606)

147. *Brachyorotaphus hoshiarpurensis* Singh (607)

(3) Order : Dermaptera

(i) Family : Carcinophoridae

148. *Euborellia manipurensis* Srivastava (614)

(ii) Family : Forficulidae

149. *Allodahlia julkai* Srivastava (613)

150. *Paradohrnia longiforceps* Srivastava (612)

151. *Paradohrnia punctata* Srivastava (612)

(iii) Family : Pygidicranidae

152. *Cranoygia manipurensis* Srivastava (614)

(4) Order : Dictyoptera

Family : Blaberidae

153. *Salganea cavagnaroi* Roth (619)

154. *Salganea kodaikanalensis* Roth (619)

155. *Salganea rehni* Roth (619)

(5) Order : Isoptera

Family : Kalotermitidae

156. *Neotermes nilamburensis* Thakur (643)

157. *Neotermes paratensis* Sen-Sarma & Thakur (641)

158. *Procryptotermes valeriae* Bose (625)

(ii) Family : Termitidae

159. *Angulitermes mishrai* Sen Sarma & Thakur (641)

160. *Bulbitermes emersoni* Maiti (628)

161. *Dicuspiditermes tripurensis* Sen Sarma & Thakur (641)

162. *Microcerotermes labioangulatus* Sen Sarma & Thakur (641)

163. *Nasutitermes lambai* Verma & Thakur (648)

(6) Order : Hemiptera

(a) Sub-order : Homoptera

(i) Family : Agallidae

164. *Austroagallia afganistanensis* Kameswar Rao, Ramakrishnan & Ghai (705)

(ii) Family : Aphididae

165. *Brevitrichosiphon nungsireiae* Singh, Raychaudhuri & Raychaudhuri (779)

166. *Dactynotus* (*Uromelon*) *lambersi* Ghosh, Basu & Raychaudhuri (693a)

167. *Eutrichosiphum jugeshwari* Singh, Raychaudhuri & Raychaudhuri (779)

168. *Eutrichosiphum manipurense* Singh, Raychaudhuri & Raychaudhuri (779)

169. *Eutrichosiphum* (*E.*) *tapatii* Mandal, & Raychaudhuri (726)

170. *Eutrichosiphum* (*Neoparatrichosiphum*) *betulae* Mandal, Chatterjee & Raychaudhuri (726)

Indumasonaphis Ghosh, Basu & Raychaudhuri (gen. n.) (693a)

171. *Jacksonia sikkimensis* Ghosh, Basu & Raychaudhuri (693a)

(iv) Family : Eriophyidae

113. *Calacarus jasmini* Chakrabarti & Mondal (402)

114. *Phyllocoptes salmaliae* Chakrabarti & Mondal (402)

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Family : Palaemonidae

132. *Macrobrachium srilankense* Costa (463)

(2) Order : Isopoda

Family : Armadillidae

133. *Akermania besucheti* Argamo & Manicastri (458)

134. *Cubaris pataliputraensis* Ram & Kumar (500)

(c) Sub-class : Ostracoda

(1) Order : Podocopa

Family : Cyprididae

135. *Cypricerus munshi* Deb & Nasar (467)

136. *Sclerocypris bhatiai* Jain (474)

(2) Order : ?

Family : Cytheridae

137. *Occultocythereis elongatum* Bhalla (461)

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III. Class : Myriapoda

(i) Family : Pseudoclididae

Tianella bobanga Shear (526)

Tianella lughla Shear (526)

Tianella martensi Shear (526)

(ii) Family : Conotylidae

Nepalellinae Shear (subfam. n.) (526)

Nepalella Shear (gen. n) (526)

Nepalella khumbua Shear (526)

Nepalella thodunga Shear (526)

(iii) Family : ?

Allothereura wilsonae Dobroruka (523)

IV. Class : Insecta

(1) Order : Odonata

(i) Family : Chlorolestidae

Megalestes lieftincki Lahiri (584)

(ii) Family : Coenagriidae

Agriocnemis corbeti Kumar & Prasad (583)

(2) Order : Orthoptera

Family : Acrididae

Azarea indica Singh (606)

Brachyorotaphus hoshiarpurensis Singh (607)

(3) Order : Dermaptera

(i) Family : Carcinophoridae

Euborellia manipurensis Srivastava (614)

(ii) Family : Forficulidae

Allodahlia julkai Srivastava (613)

Paradohrnia longiforceps Srivastava (612)

Paradohrnia punctata Srivastava (612)

(iii) Family : Pygidicranidae

Cranoygia manipurensis Srivastava (614)

(4) Order : Dictyoptera

Family : Blaberidae

Salganea cavagnaroi Roth (619)

Salganea kodaikanalensis Roth (619)

Salganea rehni Roth (619)

(5) Order : Isoptera

Family : Kalotermitidae

156. *Neotermes nilamburensis* Thakur (643)

157. *Neotermes paratensis* Sen-Sarma & Thakur (641)

158. *Procryptotermes valeriae* Bose (625)

(ii) Family : Termitidae

159. *Angulitermes mishrai* Sen Sarma & Thakur (641)

160. *Bulbitermes emersoni* Maiti (628)

161. *Dicuspiditermes tripurensis* Sen Sarma & Thakur (641)

162. *Microcerotermes labioangulatus* Sen Sarma & Thakur (641)

163. *Nasutitermes lambai* Verma & Thakur (648)

(6) Order : Hemiptera

(a) Sub-order : Homoptera

(i) Family : Agallidae

164. *Austroagallia afganistanensis* Kameswar Rao, Ramakrishnan & Ghai (705)

(ii) Family : Aphididae

165. *Brevitrichosiphon nungsireiae* Singh, Raychaudhuri & Raychaudhuri (779)

166. *Dactynotus* (*Uromelon*) *lambersi* Ghosh, Basu & Raychaudhuri (693a)

167. *Eutrichosiphum jugeshwari* Singh, Raychaudhuri & Raychaudhuri (779)

168. *Eutrichosiphum manipurense* Singh, Raychaudhuri & Raychaudhuri (779)

169. *Eutrichosiphum* (*E.*) *tapatii* Mandal, & Raychaudhuri (726)

170. *Eutrichosiphum* (*Neoparatrichosiphum*) *betulae* Mandal, Chatterjee & Raychaudhuri (726)

Indumasonaphis Ghosh, Basu & Raychaudhuri (gen. n.) (693a)

171. *Jacksonia sikkimensis* Ghosh, Basu & Raychaudhuri (693a)

Macromyzella Ghosh, Basu & Raychaudhuri (gen. n) (693a)

172. *Macrosiphum (Sitobion) mimosae* Ghosh, Basu & Raychaudhuri (693a)

Neomegouropsis Ghosh, Basu & Raychaudhuri (gen. n.) (693a)

173. *Taiwanaphis dineni* Mandal, Agarwala & Raychaudhuri (725)

174. *Taiwanomyzus darjeelingensis* Ghosh, Basu & Raychaudhuri (693a)

175. *Vesiculaphis sikkimensis* Mandal, Agarwala & Raychaudhuri (725)

(iii) Family : Cicadellidae

176. *Alebroides clavalus* Sohi & Dworakowska (783)

177. *Alebroides falcatus* Sohi & Dworakowska (783)

178. *Alebroides fumosus* Sohi & Dworakowska (783)

179. *Alebroides haedus* Sohi & Dworakowska (783)

180. *Alebroides luteus* Sohi & Dworakowska (783)

181. *Alebroides montanus* Sohi & Dworakowska (783)

182. *Balocha bifurcata* Rao & Ramakrishnan (754)

183. *Dikraneura grisea* Dworakowska, Singh & Nagaich (687)

184. *Dikraneura zlata* Dworakowska, Singh & Nagaich (687)

185. *Idioscopus bellus* Viraktamath (801)

186. *Idioscopus dworakowskae* Viraktamath (801)

187. *Idioscopus indicus* Viraktamath (802)

188. *Idioscopus lalithae* Viraktamath (802)

189. *Idioscopus pretiosus* Viraktamath (801)

190. *Idioscopus robustipennis* Viraktamath (801)

191. *Idioscopus spectabilis* Viraktamath (801)

192. *Idioscopus virscens* Viraktamath (801)

193. *Idioscopus webbi* Viraktamath (802)

Jogocerus Viraktamath (gen. n.) (801)

194. *Jogocerus freytagi* Viraktamath (801)

195. *Macropsis delhiensis* Rao & Ramakrishnan (753)

196. *Macropsis kundui* Rao & Ramakrishnan (753)

197. *Singapora karnatakana* Viraktamath & Dworakowska (803)

(iv) Family : Coccidae

198. *Cerostegia ajmerensis* Avasthi & Shafee (663)

(v) Family : Diaspididae

199. *Fiorinia himalaica* Takagi (786)

(vi) Family : Membracidae

200. *Coccosterphus bengalensis* Ahmad, Khan & Yasmeen (657)

201. *Tricentrus gibbiformis* Ahmad & Yasmeen (658)

202. *Tricentrus kashmirensis* Ahmad & Yasmeen (658)

203. *Tricentrus migra* Ahmad & Yasmeen (658)

204. *Tricentrus pseudobifurcus* Ahmad & Yasmeen (658)

205. *Tricentrus russellae* Ahmad & Yasmeen (658)

206. *Tricentrus varibilis* Ahmad & Yasmeen (658)

(vii) Family : Pseudococcidae

207. *Peliococcus indicus* Avasthi (662)

(viii) Family : Psyllidae

Cryptotrioza Lahiri & Biswas (gen. n.) (718)

208. *Cryptotrioza mathuri* Lahiri & Biswas (718)

(b) Sub-order : Heteroptera

(i) Family : Aradidae

Axapisocoris Kormilev & Heiss (gen. n.) (710)

209. *Axapisocoris brachypterus* Kormilev & Heiss (710)

(ii) Family : Corixidae

210. *Micronecta wroblewskii* Polhemus (747)

(iii) Family : Naucoridae

211. *Aphelocheirus clivicolus* Polhemus (747)

(iv) Family : Veliidae

212. *Microvelia pererai* Polhemus (747)
213. *Pseudovelia gnoma* Polhemus (747)
214. *Rhagovelia karunaratnei* Polhemus (747)
215. *Tetraripis asymmetricus* Polhemus (747)
216. *Xiphovelia iota* Polhemus (747)

(7) Order : Coleoptera

(i) Family : Bruchidae

217. *Conicobruchus alpina* Arora & Singal (825)

(ii) Family : Carabidae

218. *Chlaenius (Chlaeniellus) loebli* Sen & Sengupta (893)
219. *Chlaenius (Chlaeniellus) mussardi* Sen & Sengupta (893)
220. *Chlaenius (Lissauchlaenius) besucheti* Sen & Sengupta (893)

(iii) Family : Meloidae

221. *Cyaneolytha rajasthanica* Saha (891)
222. *Cylindrothorax nagarjunkondaensis* Saha (891)
223. *Denierella kaszabi* Saha (891)
224. *Eolydus meghalayaensis* Saha (891)
225. *Epicauta punjabensis* Saha (891)
226. *Lytta selanderi* Saha (891)
227. *Meloe arunachalae* Saha (891)
228. *Mylabris ajantaensis* Saha (891)
229. *Mylabris damohensis* Saha (891)
230. *Mylabris goaensis* Saha (891)
231. *Mylabris himalayaensis* Saha (891)
232. *Mylabris mandibularis* Saha (891)
233. *Mylabris nathi* Saha (891)
234. *Mylabris solanensis* Saha (891)
235. *Sybaris burmaensis* Saha (891)
236. *Sybaris cylindricus* Saha (891)
237. *Sybaris garhwalensis* Saha (891)
238. *Sybaris yakkala* Mohamed Said (868)
239. *Psalydolytta antennata* Saha (891)
240. *Zonitoschema krombeini* Mohamed Said (868)

(iv) Family : Rhizophagidae

241. *Mimemodes bhutus* Sengupta (895)
242. *Mimemodes kimbhutus* Sengupta (895)
243. *Mimemodes nigratus* Sengupta (895)

(v) Family : Scarabaeidae

244. *Onthophagus (Strandius) subansiensis* Biswas (829)
245. *Oxyadoretus notomaculatus* Mittal (865)

(vi) Family : Silphidae

246. *Apatetica sulcata* Madge (859)

(8) Order : Strepsiptera

(i) Family : Halicotophagidae

247. *Halicotophagus orientalis* Chaudhuri & Dasgupta (921)

(ii) Family : Menegeidae

248. *Triozocera pugiopennis* Chaudhuri & Dasgupta (921)

(9) Order : Diptera

(i) Family : Asilidae

249. *Clephydroneura anamalaiensis* Joseph & Parui (961)
250. *Clephydroneura gravelyi* Joseph & Parui (961)

251. *Clephydroneura indiana* Joseph & Parui (961)
252. *Clephydroneura lali* Joseph & Parui (961)
253. *Clephydroneura martini* Joseph & Parui (961)
254. *Clephydroneura nelsoni* Joseph & Parui (961)
255. *Clephydroneura nilaparvata* Joseph & Parui (961)
256. *Clephydroneura wilcoxi* Joseph & Parui (961)
257. *Pseudomerodontina indica* Joseph & Parui (962)

(ii) Family : Bombyliidae

Meganthrax Evenhuis (gen. n.) (945)

(iii) Family : Chironomidae

258. *Cryptochironomus fuscitarus* Guha & Chaudhuri (950)

(iv) Family : Drosophilidae

259. *Amiota shillongensis* Dwivedi, Singh & Gupta (943)
260. *Curtonotum neoangustipensis* Dwivedi & Gupta (942)
261. *Drosophila* (*Drosophila*) *guptai* Dwivedi (941)
262. *Drosophila* (*Drosophila*) *novaspinofera* Gupta & Singh (953)
263. *Drosophila* (*Drosophila*) *penispina* Gupta & Singh (953)
264. *Drosophila* (*Drosophila*) *rammensis* Dwivedi (941)
265. *Drosophila jagri* Prakash & Reddy (1005)
266. *Liodrosophila angulate* Dwivedi, Singh & Gupta (943)
267. *Liodrosophila okadai* Dwivedi & Gupta (942)
268. *Liodrosophila penispinosa* Dwivedi, Singh & Gupta (943)
269. *Leucophenga shillongensis* Dwivedi & Gupta (942)

(v) Family : Itonididae

270. *Neolestremia orientalis* Sharma & Rao (1028)
271. *Xylopriona indica* Sharma & Rao (1029)

(vi) Family : Lonchopteridae

272. *Lonchoptera brunettii* Joseph & Parui (963)

(vii) Family : Tabanidae

273. *Hybomitra bhutanensis* Datta (937)

(10) Order : Lepidoptera

(i) Family : Gracillariidae

274. *Ectropina raychaudhurii* Kumata (1114)

(ii) Family : Pyralidae

275. *Tamraca moorei* Bose & Pajni (1167)

(11) Order : Hymenoptera

(i) Family : Ampulicidae

276. *Ampulex ceylonica* Krombein (1245)
277. *Dolichurus albifacies* Krombein (1245)
278. *Dolichurus aridulus* Krombein (1245)
279. *Dolichurus lankensis* Krombein (1245)
280. *Dolichurus silvicola* Krombein (1245)
281. *Trirogma regalis* Krombein (1245)

(ii) Family : Aphelinidae

282. *Physcus gunturensis* Ahmed & Shafee (1219)

(iii) Family : Aphidiidae

283. *Praon pakistanum* Kirkland (1244)

(iv) Family : Bethylidae

284. *Heterocoelia karunaratnei* Moc'zar (1251)
285. *Heteroceolia rufa* Moc'zar (1251)
286. *Sulcomesitius ceylonicus* Moc'zar (1251)
287. *Sulcomesitius gunawardaneae* Moc'zar (1251)
288. *Sulcomesitius srilankai* Moc'zar (1251)
289. *Sulcomesitius vechti* Moc'zar (1251)

(v) Family : Braconidae

290. *Aspilota bengalensis* Bhat (1224)
291. *Aspilota bhutanensis* Bhat (1224)
292. *Aspilota bovefemora* Bhat (1224)
293. *Aspilota brunneus* Bhat (1224)
294. *Aspilota himachali* Bhat (1224)
295. *Aspilota indica* Bhat (1224)
296. *Aspilota longiflagellata* Bhat (1224)
297. *Aspilota magna* Bhat (1224)
298. *Aspilota marshi* Bhat (1224)
299. *Aspilota minuta* Bhat (1224)
300. *Aspilota nigra* Bhat (1224)
301. *Aspilota sandaraca* Bhat (1224)
302. *Aspilota sikkimensis* Bhat (1224)
303. *Cremnops indica* Bhat (1222)
304. *Cremnops sculpturalis* Bhat (1222)
305. *Phaenocarpa abbreviata* Bhat (1223)
306. *Phaenocarpa angostura* Bhat (1223)
307. *Phaenocarpa antisulcata* Bhat (1223)
308. *Phaenocarpa burmensis* Bhat (1223)
309. *Phaenocarpa cracentis* Bhat (1223)
310. *Phaemocarpa flavomandibula* Bhat (1223)
311. *Phaenocarpa jawahari* Bhat (1223)
312. *Phaenocarpa kashmirensis* Bhat (1223)
313. *Phaenocarpa lobidentis* Bhat (1223)
314. *Phaenocarpa minutus* Bhat (1223)
315. *Phaenocarpa shiva* Bhat (1223)
316. *Phaenocarpa sikkimensis* Bhat (1223)
317. *Phaenocarpa similis* Bhat (1223)
318. *Phaenocarpa superficialis* Bhat (1223)
319. *Phaenocarpa tridentata* Bhat (1223)

(vi) Family : Chalcididae

320. *Smicromorpha keralensis* Narendran (1253)

(vii) Family : Diapriidae

321. *Aclista chambaensis* Sharma (1266)
322. *Aneuropria nilgiriensis* Sharma (1266)
323. *Aulacopria ahalensis* Sharma (1266)
324. *Belyta indica* Sharma (1266)
325. *Belyta siwalikensis* Sharma (1266)
326. *Cyathopria dalhousieanus* Sharma (1266)
327. *Dolichopria indica* Sharma (1266)
328. *Entomacis indicus* Sharma (1266)
329. *Miota dhauladharensis* Sharma (1266)
330. *Oxypria kodaikanalensis* Sharma (1266)
331. *Pantoclis dalhousieanus* Sharma (1266)
332. *Paramesius deccanus* Sharma (1266)
333. *Paramesius nilamburensis* Sharma (1266)
334. *Psilus bharatvarshus* Sharma (1266)
335. *Psilus dalhousieanus* Sharma (1266)
336. *Psilus madaraspatana* Sharma (1266)
337. *Psilus saraswati* Sharma (1266)
338. *Spilomicrus anamalensis* Sharma (1266)
339. *Spilomicrus karnatakensis* Sharma (1266)
340. *Spilomicrus nilamburensis* Sharma (1266)
341. *Spilomicrus nilgiriensis* Sharma (1266)
342. *Spilomicrus poroensis* Sharma (1266)
343. *Spilomicrus siwalikensis* Sharma (1266)
344. *Spilomicrus yercandensis* Sharma (1266)
345. *Trichopria contiguus* Sharma (1266)
346. *Trichopria khandalus* Sharma (1266)
347. *Trichopria lacustris* Sharma (1266)
348. *Trichopria montanus* Sharma (1266)
349. *Trichopria munnarensis* Sharma (1266)
350. *Trichopria pedicellatus* Sharma (1266)
351. *Trichopria shevroyensis* Sharma (1266)
352 *Xyalopria agraensis* Sharma (1265)

(viii) Family : Encyrtidae

Acridencyrtus Subba Rao (gen. n.) (1271)
353. *Acridencyrtus ambiguous* Subba Rao (1271)
354. *Anagyrus longiventris* Hayat (1237)

355. *Anagyrus shahidi* Hayat (1237)

Anomalencyrtus Hayat & Verma (gen. n) (1238)

356. *Anomalencyrtus longicornis* Hayat & Verma (1238)

357. *Thomsonisea sankarani* Subba Rao (1271)

(ix) Family : Eupelmidae

Cladanastatus Boucek (subgen. n.) (1226)

358. *Anastatus (Cladanastatus) umae* Boucek (1226)

(x) Family : Ichneumonidae

359. *Echthronomas heinrichi* Gupta (1234)

360. *Klutiana brevipetiolata* Gupta (1233)

361. *Klutiana khasiana* Gupta (1233)

362. *Menaforia indica* Gupta & Saxena (1235)

363. *Menaforia nigrominiata* Gupta & Saxena (1235)

(xi) Family : Scelionidae

364. *Scelio bengalensis* Mukherjee (1252)

365. *Scelio dhupgarhi* Mukherjee (1252)

366. *Scelio mallapura* Mukherjee (1252)

367. *Scelio munnaricus* Mukherjee (1252)

368. *Scelio nilamburensis* Mukherjee (1252)

369. *Scelio satfurus* Mukherjee (1252)

370. *Scelio spinifera* Mukherjee (1252)

371. *Scelio travancoricus* Mukherjee (1252)

(IX) PHYLUM : CHORDATA

I. Class : Pisces

(1) Order : Cypriniformes

(i) Family : Cobitidae

372. *Lepidocephalus dibruensis* Sen (1476)

(ii) Family : Cyprinidae

373. *Salmostoma sardinella poonpuni* (subsp. n.) Tilak (1520)

(2) Order : Scorpaeniformes

Family : Scorpaenidae

374. *Ebosia falcata* Eschmeyer & Rama Rao (1346)

II. Class : Amphibia

Order : Anura

Family : Ranidae

375. *Rana murthi* Pillai (1548)

III. Class : Reptilia

Order : Serpentes

Family : Elapidae

376. *Bungarus andamanensis* Biswas & Sanyal (1571)

IV. Class : Mammalia

Order : Proboscidea

Family : Elephantidae

Antelephas Sarwar (gen. n.) (2157)

377. *Antelephas tatrotensis* Sarwar (2157)

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Trematoda	13
Cestoda	6
SCHELMINTHES	
Nematoda	54
CANTHOCEPHALA	2
RACHIOPODA	1
MOLLUSCA	3
RTHROPODA	
Arachnida	40
Crustacea	7
Myriapoda	6
Insecta	
Odonata	2
Orthoptera	2
Dermaptera	5
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3. **Coelenterata (Cnidaria)**
4. **Platyhelminthes**
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   - (b) Cestoda
5. **Aschelminthes**
   - (a) Rotifera
   - (b) Nematoda
6. **Acanthocephala**
7. **Annelida**
8. **Bryozoa**
9. **Brachiopoda**
10. **Mollusca**
11. **Arthropoda**
    - (a) Arachnida
    - (b) Crustacea
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13. **Hemichordata**
14. **Protochordata**
15. **Chordata**
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