

100/1964

THE AUSTRALIAN NATIONAL UNIVERSITY
SCHOOL OF GENERAL STUDIES
DEPARTMENT OF ZOOLOGY
ANNUAL REPORT - 1963

Staff: Professor: J. D. Smyth, M.A., Sc. D.

Senior Lecturers: W.L. Nicholas, B.Sc., Ph.D.

A. H. Weatherley, M.Sc., Ph.D

R. D. Hughes, B.Sc., Ph.D.

Lecturers: J. A. Clegg, B.Sc., Ph.D.

C.H. Tyndale-Biscoe, M. Sc., Ph.D.

C. Bryant, M.Sc., Ph.D

R. D. Barwick, H.Sc.

Research Assistants: Meredith J. Thomson, B.Sc.

Ritva M. Jantunen, Cond.phil.

Judith.W.Fletcher, B.Sc.

Judith Hoy, B.Sc.

Helen E. MacIndoe, B.Sc.

Senior Demonstrators: H. H. Tait, B.Sc.

Accommodation:

The Department remained in temporary accommodation throughout the year, but, fortunately, the new Zoology building is taking shape and the Department can look forward to occupying the new building in the coming year.

Enrolments and Examinations.

<u>Course</u>	<u>Enrolments</u>	<u>Sat for Examination</u>	<u>Passed</u>
Zoology I	61	57	47
Zoology II.	15	15	13
Zoology III	7	6	6
Honours Zoology	4	4	4
M.Sc.	3		
Ph.D.	7		

Teaching Activities

This year saw the first honours students complete their four year course within the Department. There were more students enrolled in each year of the course than last year, but, the proportion of students satisfactorily completing their courses remained gratifyingly high.

Conferences and Overseas Visits.

Professor Smyth read a paper at a meeting in New York, sponsored by the New York Academy of Science, on "Some Biochemical and Immunological Aspects of Host Parasite Relationships". Dr. Clegg visited Washington for the International Congress of Zoology where he read a paper at a symposium devoted to "Mucus in Invertebrates". Dr. Tyndale-Biscoe attended a symposium on the "Delayed Implantation in Mammals" which was held at the Rice University, Houston, Texas as part of the semi-centennial celebrations of that University. Professor, Smyth, Dr. Clegg and Dr. Tyndale-Biscoe visited scientific institutions in Great Britain on their way back.

On his way to New York, Professor Smyth visited the Hydatid Research Unit of the New Zealand Medical Research Council, University of Otago Medical School, Dunedin. Mr. M. A. Gemmell, Director of the Unit who was in Canberra earlier in the year for discussions on the Hydatid Disease, invited Mr. A. Howkins, Senior Technical Officer of this Department, to work for a period under him in Dunedin. Mr. Howkins was able to do this.

Research:

Research projects undertaken by members of staff and post-graduates during the past year are now too numerous to receive individual comment; they formed a part of the long term research programme pursued in the Department. The physiology of each of the major groups of parasitic worms is being investigated. The reproductive physiology and ecology of marsupials, the ecology of reptiles, amphibia, fresh water fish and invertebrates and the population dynamics of insects are being studied. One post-graduate student (Mr. J. Ling) has visited Macquarie Island to study the Elephant Seal and another (Mr. R. Bustard) visited Cape York to study reptiles.

Research Grants

The Department has been fortunate in the continued support of the National Institutes of Health, U.S. Public Health Service, and the Wool Research Committee, for the work on parasitic worms. Grants have been received from the C.S.I.R.O., Nuffield Foundation and the Rockefeller Foundation, New York, for work on marsupials. Financial aid has also been received from the National Capital Development Commission to support work on the biological problems inherent in the Canberra Lakes Scheme.

Developments

Planning of additional laboratory space for the Zoology building and for an associated Animal House has been going on throughout the year.

Publications

- BRYANT, C. The inhibitions of malic dehydrogenase by salicylate and related compounds. (With M.J.H. Smith) J. Pharm. Pharmacol. 15, 189, 1963
- BRYANT, C. Effects of salicylate and χ -resorcyate on the metabolism of radioactive succinate and fumarate by rat liver mitochondria and dehydrogenase enzymes. (With M.J.H. Smith & W.J.W. Hines.) Biochem. J. 86, 391, 1963.
- BRYANT, C. Some aspects of intermediary metabolism in Fasciola hepatica and Polycelis negra. (With M.J.H. Smith.) Comp. Biochem. Physiol. 9, 189, 1963.
- BRYANT, C. Effects of some anthelmintic drugs on intermediary metabolism of Fasciola hepatica. (With M.J.H. Smith & J.P.G. Williams) Exp. Par. 14, 218, 1963.
- BRYANT, C. Intermediary metabolism in Hela and human foetal liver cells. (With M.J.H. Smith). Brit. J. Cancer 17, 360, 1963.
- BRYANT, C. Effects of salicylate, χ -resorcyate and gentisate on oxidase enzyme systems from guinea pig liver mitochondria. (With W.J.W. Hines & M.J.H. Smith). Biochem. Pharm. 12, 1109, 1963.
- BRYANT, C. The metabolism of juvenile liver flukes. (With J.P.G. Williams) Nature 200, 489, 1963
- BUSTARD, R. Notes on the Eyed Gecko (Pachydactylus caitie) with special reference to incubation. Copeia, (2) 433-434, 1963.
- BUSTARD R. Sexual dichromatism in Sceloporus cyanogenys. Herpetologica, 19, (2): 149-150, 1963.
- BUSTARD, R. The Marbled Gecko (Phyllodactylus porphyreus) with special reference to egg incubation. Brit. J. Herpetol. 3, (4), 1963.
- BUSTARD, R. Gecko behavioural trait: tongue wiping spectacle. Herpetologica. 19 (3): 217-8. 1963.
- BUSTARD, R. Notes on growth, sloughing, feeding, mating, gestation, lifespan and poor health of chameleons in captivity. Copeia. 1963 (4): pagination not known)
- DIXON, K.E. Incidence of Liver Fluke (Fasciola hepatica) in Queensland Cattle. Aust. vet. J. 39, (2) 53-56. 1963.

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- HUGHES, R. D. The Use of an Electronic Counter in Population Studies of the Cabbage Aphid (Brevicoryne brassicae L.). (With L.T. Woolcock.) N.Z.A. agric. Res. 6: 320-7, 1963.
- HUGHES, R.D. The population dynamics of the Cabbage Aphid (Brevicoryne brassicae L.) J. Anim. Ecol. 33: 393-424, 1963.
- LING, J.K. Immobilization of elephant seals using succinylcholine chloride. (With D.G. Nicholls). Nature, Lond. 200, 1021-1022, 1963.
- NICHOLAS, WL.. Embryology, Post embryonic development and Phylogeny of the Acanthocephala in the Lower Metazoa: Comparative Biology and Phylogeny. Ed. Dougherty E.C. et al. 1963. (With H.B.N. Hynes)
- NICHOLAS W.L. The importance of the Acanthocephalan Polymorphus minulus as a parasite of domestic ducks in the United Kingdom. (With H.B.N. Hynes.) J. Helminth. 37: 185-198. 1963.
- NICHOLAS, W.L. A Beotin Requirement for Caenorhabditis briggsae (Rhabditidae). Nematologica. 9, 1963.
- RAI, S.L. Morphological variations in Xenopharynx solus Nicoll, 1912 and their bearing on the Systematics of genus Xenopharynx Nicoll, 1912 (Trematoda: Plagiorchiidae). J. Parasit. 49. (3) 468-470, 1963 (With Agarwal, S.M.)
- RAI, S.L. On a new trematode Episthmium chauhanii n. sp., of the genus Episthmium Luhe, 1909. (Trematoda: Echinostomatidae). Ind. J. Helminth 15 (1) 20-25, 1963
- RAI, S.L. Studies on larval flukes of Vivipara bengalensis (Lamarck). Part I. On a new Furcocystocercous cercaria of the Azygiid group. Ind. J. Helminth. 15 (1) 26-30, 1963.
- RAI, S. L. Further observations on Chauhonocephalus ferox (Rud. 1795) Dietz, 1909 (Trematoda: Echinostomatidae): Part I. Ind. J. Helminth. 15 (1): 6-13. 1963.
- RAI, S.L. On the egg and miracidium of Chauhonocephalus ferox (Rud. 1795) Dietz, 1909 (Trematoda: Echinostomatidae) Part II. Ind. J. Helminth. 15 (1) 14-19. 1963
- RAI, S.L. Observations on the life history of Phyllodistomum srivastavai n.sp. (Trematoda:Gordogeridae) Part I: Metacercaria and Experimental adult. Parasitology Nov. issue 1963.
- RAI, S.L. Studies on Azygia stunkardi n.sp. (Trematoda:Azygiidae). Parasitology Nov. issue 1963.

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- SMYTH, J. D. The Biology of Cestode Life-Cycles.
Technical Communication No. 34. of the
Commonwealth Bureau of Helminthology,
St. Albans, Herts, England. pp. 33 +, 1963.
- SMYTH, J. D. Secretory Activity by the Scolex of
Echinococcus granulosus in vitro.
Nature, 199, 402-403, 1963.
- TYNDALE-BISCOE, C.H. Effects of Ovariectomy in the Marsupial
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- TYNDALE-BISCOE, C.H. Blastocyst transfer in the marsupial
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- TYNDALE-BISCOE, C.H. The Role of the corpus luteum in the
delayed implantation of marsupials.
In Delayed Implantation Edit. Allen C.
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Chicago Press, 1963.
- WEATHERLEY, A.H. Notions of niche and competition among
animals, with special reference to
freshwater fish. Nature 197, 14-17, 1963.
- WEATHERLEY, A.H. A note on the head kidney and kidney of
the perch Perca fluviatilis (Linnaeus),
with special reference to the blood
vascular system. Proc. Zool. Soc. Lond.
140, 161-167, 1963.
- WEATHERLEY, A.H. Thermal stress and interrenal tissue in
the perch Perca fluviatilis (Linnaeus).
Proc. Zool. Soc. Lond. 141, 527-555,
1963.
- WEATHERLEY, A.H. Zoogeography of Perca fluviatilis
(Linnaeus) and Perca flavescens (Mitchill)
with special reference to the effects of
high temperature. Proc. Zool. Soc.
Lond. 141, 557-576, 1963.