ROYAL ZOOLOGICAL SOCIETY OF NEW SOUTH WALES

Established 1879
REGISTERED UNDER THE COMPANIES ACT 1899 (1917)

Patrons:
The Right Honourable Sir John Greig Latham, G.C.M.G.
Sir Philip Woolcott Game, G.B.E., K.C.B., D.S.O.

COUNCIL, 1948-49
President: Emil Herman Zeck

Vice-Presidents:
Garnet Halloran, M.D., B.Sc., F.R.C.S. (Ed.), F.R.A.C.S.
Edward John Lees Hallstrom, F.R.Z.S.
Albert Sherbourne Le Souef, C.M.Z.S.
Frank Marshall, C.M.G., D.D.S.

Members:
Norman Chaffer
Aubrey Halloran, B.A., LL.B.
Percy Fincham Harvey
James Roy Kinghorn, C.M.Z.S.
Charles Francis Laseron
Keith Collingwood McKeown, F.R.Z.S.

Officers:
Honorary Secretary: Theo Athol Everitt
Honorary Treasurer: Roy P. Cooper, F.F.C.A.
Honorary Editor: Gilbert Percy Whitley, F.R.Z.S.
Honorary Librarian: Percival Edgar Lockie
Assistant Honorary Secretary: Miss B. Broderick
Assistant Honorary Treasurer: W. R. Moore, B.Ec.
Assistant Honorary Librarian: Mrs. M. D. Scott-Sim
Honorary Auditor: Robert John Stiffe, F.C.A. (Aust.)

OFFICERS OF SECTIONS, 1948-49

Avicultural Section:
Chairman: A. H. Brain
Hon. Secretary: R. W. Stewart

Budgerigar Section:
Chairman: H. Yardley
Hon. Secretary: J. L. Bright

Marine Zoological Section:
Chairman: Mrs. L. H. Woolacott
Hon. Secretary: Miss Winifred Crofts

Ornithological Section:
Chairman: Wm. R. Moore
Hon. Secretary: A. R. McGill
Royal Zoological Society of New South Wales

The sixty-eighth Annual Meeting was held at Taronga Zoological Park, Mosman on Saturday, 31st July, 1948. One hundred and sixty-one members and friends were present. The Honorary Secretary read the

SIXTY-EIGHTH ANNUAL REPORT

Membership at 21st July, 1948.—The total membership of the Society numbers 727, consisting of 1 Endowment member, 4 Associate Benefactors, 9 Honorary members, 49 Life members, 486 Ordinary members, 3 Honorary Associates, 20 Life Associates, 155 Associate members.

It is gratifying to know that membership continues to increase, although removals from the register of members totalled 62 : resignations 9, deaths 6, and 47 in terms of Article 9.

Council.—During the year 11 meetings of Council were held, with an average attendance of 13. Mr. N. W. Cayley resigned owing to ill health and, due to pressure of private affairs, the resignations of Messrs. K. A. Hindwood, N. L. Roberts and F. Shipway (the Honorary Treasurer) were accepted. To fill the vacancies created Messrs. E. H. Zeck, P. F. Harvey, P. E. Lockie and A. I. Ormsby were appointed in terms of Article 26. Mr. R. P. Cooper undertook to carry out the duties of honorary treasurer until the end of the financial year.

The Society’s Assistant Honorary Secretary, Mrs. B. Irving, resigned after rendering valuable service for many years, and in her stead Miss B. Broderick has been appointed.

Sections.—The various Sections of the Society continue their excellent work, as will be seen from the reports and individual articles published in the Society’s journals.

Fellows.—The strength of our Fellowship has been weakened by the death of Dr. A. Jefferis Turner, of Brisbane, a member and Fellow of many years, also an untiring worker in the field of entomology. (See obituary notice on page 10.)

Honorary Member.—In recognition of his services to the Society over a period of many years and active participation in the affairs of the Ornithological Section, Mr. N. W. Cayley, F.R.Z.S., was appointed an Honorary Member by the Council.

Publications.—Since my last report, Vol. XI, Part 3, of the Australian Zoologist has been issued, together with the Proceedings for the year 1946-47.

The sale of K. McKeown’s “Australian Insects” is proceeding satisfactorily, and our other handbook now in the course of preparation, “Fishes of Australia” , Part 2, may be ready for the press towards the end of 1948.

Faunal Reserves in the Australian Capital Territory.—Some months ago a committee of this Society interviewed Mr. Johnson, Minister for the Interior, with regard to the establishment of a faunal park in the city of Canberra, and at the same time urged the development of the Tidbinbilla Reserve with regard to conservation and breeding of our rarer fauna. To date, the interest shown by the authorities has been most gratifying. Within the last fortnight the Hon. Minister has accorded official recognition to the Society’s committee and approved of a plan of action; he has also had funds set aside and appointed a local committee to assist in the planning and preliminary work.
Uniform Protection.—A conference of kindred organizations is at present formulating plans to place on a practical basis a scheme of uniform protection and conservation of the wild life throughout the Commonwealth, as propounded by Mr. Palmer, one of our members. Over many years the Royal Zoological Society of N.S.W. has at various times endeavoured to bring about this most desirable uniformity and co-ordination of the different protection Acts in the Commonwealth. Apathy and State jealousies generally have been responsible for a discontinuance of our efforts.

Finances.—The Acting Honorary Treasurer presented his report with regard to the Society’s finances.

HONORARY TREASURER’S REPORT

The audited balance sheet appended to this report (see page 4) continues to reflect the soundness of the Society’s position.

During the year it was necessary to realize on some of our investments in government securities to enable the publication of Mr. McKeown’s “Australian Insects” to be made. This has caused a redistribution of the assets, and it is hoped that, in time, the sales of the publication will enable us to repurchase the bonds.

A continued drain on the funds of the Publication Account is the high cost of printing the Zoologist, which has increased in price by over 100 per cent, in the last two years. Each part is now costing approximately 10s., and as it is sold to members for 2s. 6d., a loss of 7s. 6d. is made on each sale. Obviously this cannot continue, and the Council is at present considering the steps that are to be taken to recoup this loss.

In the General Account, despite rigid economies, the expenditure exceeds the income by £26 12s. 1d. The large increase in membership has been offset by additional costs of stationery, postages and printing. The Proceedings, like the Zoologist, has more than doubled in cost.

A more searching investigation of the accounts has been made in an endeavour to stop the depletion of the Society’s assets. Unfortunately there does not appear to be any alternative to an increase in members’ subscriptions. Allowing for a slight falling off in membership, it would appear as if the minimum increase should be £1 5s. each for full members and 10s. 6d. each for associate members.

I emphasize the word minimum, for although this sum should be sufficient to cover current expenses and allow the work of the Society to be carried out in a similar manner as in the past, it is extremely difficult to foresee the future.

Should it be decided that this recommendation be adopted, it will not become effective until the year 1949-50, and we are still faced with a deficit for the current year. However, all members may be assured that the Council will do its utmost to preserve the Society’s assets.

Mr. Hallohan then moved the adoption of the annual report and commented on the work done by the Society in the past. He emphasized the need to continue that work and hoped that younger people will feel the need of guidance in matters relating to natural history and therefore join the Society in greater numbers.

The motion of adoption was seconded by Mr. P. F. Harvey and carried on the voices.

At this stage a ballot was conducted, the scrutineers being Messrs. Brain and Dellow, to elect six members to Council. The result was the election of the following gentlemen: Messrs. P. F. Harvey, P. E. Lockie, Dr. F. Marshall, Messrs. A. I. Ormsby, G. P. Whitley and E. H. Zeck.

The President, Dr. F. Marshall, declared the meeting open for general business, and the only motion on the business paper was that moved by Mr. C. Lasoner:

‘That from the 1st July, 1949, Article 9 be amended to read: ‘Every ordinary member of the Society shall pay an annual subscription of £1 5s., and every associate member of the Society shall pay an annual subscription of 10s. 6d.’”
In this Mr. Laseron was supported by Messrs. Everitt and Halloran, all speakers stressing the need to meet rising costs of publications. The motion was carried on the voices.

The presidential address was then delivered (see pages 7-9) and the meeting closed after a vote of thanks to the retiring President, Dr. F. Marshall, had been moved by Mr. G. P. Whitley.

OFFICERS FOR THE YEAR 1948-49

President : Mr. E. H. Zeck.
Vice-Presidents : Dr. Garnet Halloran, Messrs. E. J. L. Hallstrom, A. S. Le Souef and Dr. F. Marshall.
Honorary Secretary : Mr. T. A. Everitt.
Honorary Assistant Secretary : Miss B. Broderick.
Honorary Treasurer : Mr. R. P. Cooper.
Honorary Assistant Treasurer : Mr. W. R. Moore.
Honorary Editor : Mr. G. P. Whitley.
Honorary Librarian : Mr. P. E. Lockie.
Honorary Assistant Librarian : Mrs. M. D. Scott-Sim.
Honorary Auditor : Mr. R. J. Stiffe, F.C.A. (Aust.).
ROYAL ZOOLOGICAL SOCIETY OF NEW SOUTH WALES
REVENUE ACCOUNTS FOR THE YEAR ENDED 30th JUNE, 1948
GENERAL ACCOUNT

<table>
<thead>
<tr>
<th>Item</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
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</thead>
<tbody>
<tr>
<td>To Office Rent</td>
<td>325</td>
<td>0</td>
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<tr>
<td>Office Stationary, Postages and Sundry Expenses</td>
<td>68</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>Telephone</td>
<td>23</td>
<td>10</td>
<td>8</td>
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<tr>
<td>Electricity</td>
<td>10</td>
<td>14</td>
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<tr>
<td>Insurance Premiums</td>
<td>11</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Expenses Annual Meeting</td>
<td>15</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>Gratuities</td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Repairs, Office Fittings, etc.</td>
<td>15</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Affiliation Fees</td>
<td>0</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Life Passes</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Publication of Proceedings</td>
<td>162</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Sundry Expenses—Avicultural and Marine Sections</td>
<td>6</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>650</td>
<td>12</td>
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PUBLICATION ACCOUNT

<table>
<thead>
<tr>
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<th>£</th>
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<th>d.</th>
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</thead>
<tbody>
<tr>
<td>To Publication of <em>Australian Zoologist</em> and various Handbooks, including postages</td>
<td>1,133</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,133</td>
<td>9</td>
<td>0</td>
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BUILDING FUND

<table>
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<tr>
<th>Item</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
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</thead>
<tbody>
<tr>
<td>To Amount Transferred to Building Fund</td>
<td>23</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>23</td>
<td>18</td>
<td>1</td>
</tr>
</tbody>
</table>

By Subscriptions                                     | 491| 15 | 0  |
Rent—Sub-letting Office                              | 110| 0  | 0  |
Sale of Badges                                       | 0  | 6  | 0  |
Telephone Collections                                | 7  | 18 | 5  |
Interest on Bank Account                             | 4  | 4  | 3  |
Sales—Proceedings                                    | 1  | 14 | 3  |
Deficit—Excess of Expenditure over Income, for the year ended 30th June, 1948 | 623| 19 | 11 |

Deficit—Excess of Expenditure over Income, for the year ended 30th June, 1948 | 26 | 12 | 1  |

**Total**                                            | 650| 12 | 0  |

**Deficit**                                           | 275| 1  | 5  |
**Total**                                            | 858| 7  | 7  |

**Total**                                            | 1,133| 9  | 0  |

**Total**                                            | 23 | 18 | 1  |
## ROYAL ZOOLOGICAL SOCIETY OF NEW SOUTH WALES
### BALANCE SHEET AS AT 30th JUNE, 1948

<table>
<thead>
<tr>
<th>LIABILITIES</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accumulated Funds—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balance as at 30th June, 1947</td>
<td>3,756</td>
<td>14</td>
<td>4</td>
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<tr>
<td>Less Deficits for year ended 30th June, 1948</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>General Fund</td>
<td>26</td>
<td>12</td>
<td>1</td>
<td></td>
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<td></td>
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<tr>
<td>Publication Fund</td>
<td>888</td>
<td>7</td>
<td>7</td>
<td></td>
<td></td>
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<tr>
<td>Building Fund—</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Balance as at 30th June, 1947</td>
<td>748</td>
<td>17</td>
<td>9</td>
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<td></td>
</tr>
<tr>
<td>Add Interest Received for Year</td>
<td>23</td>
<td>18</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Subscriptions Paid in Advance</td>
<td>102</td>
<td>17</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sundry Creditors</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td>3,758</td>
<td>8</td>
<td>0</td>
<td></td>
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<table>
<thead>
<tr>
<th>ASSETS</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
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</thead>
<tbody>
<tr>
<td>Furniture and Equipment—</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Office and Lecture Room Furniture and Equipment at Valuation, plus Additions</td>
<td>515</td>
<td>7</td>
<td>11</td>
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<td></td>
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<tr>
<td>Library Books—at Valuation, plus Additions</td>
<td>302</td>
<td>11</td>
<td>0</td>
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<tr>
<td>&quot;Parrot&quot; Paintings—at Valuation</td>
<td>500</td>
<td>0</td>
<td>0</td>
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<td>Investments (at Face Value)—</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Australian Commonwealth Inscribed Stock</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Metropolitan Water, Sewerage and Drainage Board—</td>
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<tr>
<td>Inscribed Stock</td>
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<td>Debentures</td>
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<td><strong>Total Investments</strong></td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Commonwealth Savings Bank—</td>
<td></td>
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<td></td>
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<tr>
<td>General Account</td>
<td>180</td>
<td>6</td>
<td>3</td>
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<tr>
<td>Publication Fund Account</td>
<td>41</td>
<td>3</td>
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<tr>
<td><strong>Total Commonwealth Savings Bank</strong></td>
<td>221</td>
<td>10</td>
<td>2</td>
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<tr>
<td>Cash on Hand</td>
<td>36</td>
<td>3</td>
<td>1</td>
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<td>Building Fund Investments—</td>
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<td>Commonwealth Savings Bank</td>
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<td>15</td>
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<tr>
<td><strong>Total Building Fund Investments</strong></td>
<td>772</td>
<td>15</td>
<td>10</td>
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<td></td>
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<tr>
<td><strong>Total Assets</strong></td>
<td>3,758</td>
<td>8</td>
<td>0</td>
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</tr>
</tbody>
</table>

Auditor's Report to the Members of the Royal Zoological Society of New South Wales.

I hereby report that I have audited the books and accounts of the Royal Zoological Society of New South Wales for the year ended 30th June, 1948, and have obtained all the information and explanations I have required, and in my opinion the above Balance Sheet exhibits a true and correct view of the state of the Society's affairs as at 30th June, 1948, according to the best of my information and the explanations given to me and as shown by the books of the Society, but subject to the non-inclusion therein of the value of various publications on hand at 30th June, 1948.

I have examined the register of members and other records which the Society is required to keep by law or by its Articles and am of opinion that such records have been properly kept.

SYDNEY, 30th July, 1948.

E. H. ZECK, President.
F. MARSHALL, Vice-President.
R. P. COOPER, Hon. Treasurer.

(Sgd.) ROBT. J. STIFFE, F.C.A. (Aust.),
Hon. Auditor.
Presidential Address

THE SOCIETY

By Frank Marshall, C.M.G., D.D.S.

It is the unfortunate duty of the President to address the members of this Society at the annual meeting. I have stated "unfortunate" because it is a difficult task to select some subject which will appeal to all members, as this Society caters for all tastes in zoological matters. There are members who are most interested in the preservation of wild life, others who are in their element when they study avian and other animal life under restraint, others again who are more delighted with the multitudinous members of insect life, and still those whose hobby is the life of the seaside, and many whose field covers all these in a general way. Another and important section includes those who deal with the technical and scientific classification of the objects the others find pleasure in. To address such a mixed assemblage of benevolent critics is really a problem, as the speaker must bear in mind the heavy weight of the scientific listener while endeavouring to entertain with some worthwhile thoughts the mass of the members present.

After much consideration it has been thought that the doings of the Society deserve some comment. It has been found that a little attention is paid to the spoken word although the utterance has been often printed. This is well proved by the entertaining radio session entitled "Nature Speaks", which is becoming one of the most attractive on the air. In that session members (it is pleasant to record) of this Society answer in plain language questions on zoological matters sent in by any of the listening public. The session is also sponsored by one of our leading and most enthusiastic members, whose name is well known to all of you. This session is outside of the Society's activities, but is mentioned as the outcome of the personal effort of one of the members to popularize the knowledge of the members.

The first aim of this Society is to give to all its members the value of the information accrued through the many years of its existence. It may be recalled that the Society had in its birthright the introduction and acclimatization of foreign birds and other animals into this State. At that time this seemed to be a good idea, but it turned out to be generally far from it, and now the Society, through its bitter lessons, keeps a very wary eye upon any suggestion of the introduction of any foreign animal, large or small. Another aim was the preservation of wild life, and this is one of the most difficult of its many services, as the Society has to fight commercial interests continually. Almost every year there comes a plea for the destruction of this or that animal on the ground of its harmful activities. In nine cases out of ten the animal so persecuted proves to have a commercial value, and its destruction is desired from that viewpoint rather than from its harmful acts. A very recent case, unfortunately outside the limits of this State, is the attempt to destroy the few seals remaining in a neighbouring State. The reason stated is the destruction of the fishermen's nets, etc., but some time ago when the matter was investigated this was found to be almost a negligible factor. The nigger in the woodpile is discovered when the request is accompanied by the statement that the dead seals will be sold. Even worse is the proposed attempt to exterminate the sea elephants on Heard Island and Macquarie Island. It may be recalled that these quaint helpless creatures lived on the islands of Bass Straits over a century ago but were exterminated very quickly. The
promoters of the Heard Island and Macquarie Island massacres do not propose to exterminate entirely (so they say) the sea elephants of these localities, but neither did the sealers of Bass Straits, but the result differed. The Society makes its protest against all such attempts to destroy wild life for commercial reasons while keeping an eye upon all destructive forms of animal life without favour in any sense. It is imperative that the balance of nature be as little disturbed as possible, as no one can foretell the accompanying changes. The case of the rabbit is always a grave indicator of the unanticipated effects of an apparently harmless introduction. It may be mentioned that the learned founders of this Society were not averse to, but rather in favour of the rabbit, so that the Society at present has that object lesson always in view.

The formation and carrying on of a zoological gardens was a primary object of the founders of this Society, and the wonderful zoo at Taronga Park is the outcome of its efforts. This zoo is now one of the best in the world, while its site is probably the best, and this stands also to the credit of the Society. Thus the first two aims have been modified by experience, and instead a wider knowledge gained for further use in the conservation of wild life, while the zoo is now a great educational institution as well as a home of beauty for the animals housed and well cared for there.

The Society has long been freed from the anxieties of this care, now entrusted to a separate body, which however is in close touch with the Society, and we share its aims. Through this separation the Society developed itself as an educational body on the field and literary side, making itself a great complementary aid. It inaugurated an almost unique method of expression through the development of Sections, whereby the members interested in any special branch could unite and hold meetings on their special study. To begin with, an Ornithological Section was founded, and the founders deserve great credit for their foresight as this Section receives praise from all foreign visitors, who have agreed that no such energetic co-operative body exists in their own lands. It is a tribute to the officers of the Section that it has grown year by year, and the average attendance at each monthly meeting is now about 50. Both American and English friendly visitors admit that even in their largest cities they have never reached such figures. Another Section is devoted to Aviculture, and though this Section has deteriorated through the war years, it will increase again as the enthusiasm of the members is still evident. A Section developed to discuss the "chameleon" budgerigar and again, though the early flush faded, in recent years there are signs of the recurrence of the enthusiasm seen in the years gone by. An Entomological Section functioned for some time, but at present is dormant, though it may become a living member again in the near future. Similarly a Section was started for Mammalogy, but this study proved too restricted and it failed, but a General Section was introduced to care for the wants of the members who studied mammals, reptiles and other forms. The war upset this Section, but it is hoped it will soon be revived and become as healthy a Section as the Ornithological or the Marine Zoological Sections. This last-named is certainly the best of its kind, with a membership of almost 50, and meets regularly each month, with an intermediate study meeting and also field days. It is an object lesson of the results of enthusiasm well carried out.

Surely these Sections give the answer to what is the Society doing? Because it is strange but true that some of the members even ask this question, though they actually receive a copy of the Proceedings, wherein all the above is accurately printed. But perhaps the spoken word will prove more acceptable than the printed paper. No other society in the world offers such advantages to the zoologist, whatever his or her (and there is a lot of the latter) interest may be, for such an insignificant subscription, whose actual value is returned in the form of admission tickets to the Zoo.

But on the scientific side the Society ranks among the best, and is the largest and most important body in Australia dealing entirely with zoological matters. Its publication, the Australian Zoologist, is authoritative, in as much as the scientific articles therein printed are prepared by some of the leading scientific workers. As regards Australian zoology, the articles therein have advanced this to a stage unsurpassed. Then the whole aim of this Society has been to popularize zoology accurately and in addition to the publication of
the *Australian Zoologist* a yearly *Proceedings* is issued, wherein lighter articles of popular interest have been printed. It must be remembered also that the members of this Society, especially those of the Ornithological Section, contribute many important articles to the *Emu*, the organ of the Royal Australasian Ornithologists' Union. These articles have also received high praise abroad, and some of the writers have received honours for them. It would be unwise to indicate particularly such workers, but it should be emphasized that these honours are open to every member. Hard work, keen study and accuracy are all that are necessary, for the field here is quite unringalled in any other part of the world, our animals in every class showing tremendous possibilities for research.

Still another phase of the Society's activities needs mention, and that is the publication of authoritative Handbooks, especially on apparently unremunerative but necessary subjects. The first subject selected was the Fishes of New South Wales, and this was received without great enthusiasm but with appreciation. A project on birds was initiated and somehow cold-shouldered, and the subject was published outside the Society with tremendous success to both the author and the publisher. The same thing happened to the furred animals, and these two are known throughout the world, without monetary benefit to the Society through the shortsightedness of someone. Then a new work on fishes was undertaken, as the first one, through effluxion of time, was sold out. The first volume was published and is also sold out, but the second volume has been delayed by the war years but is now in the printer's hands. Then a handbook on Australian insects was undertaken, and it has proved a great success: two editions sold out and a third is on the market now. It should be emphasized that all these were prepared as "labours of love", the hard work of the author being given entirely free for the love of the Society and the popularization of the subject.

Two other minor Handbooks have been issued, and being purely technical, provided no fanfares but struck a mighty blow, showing the advancement of Australian zoological study to a point ahead of the rest of the world in their own way. The Handbook of the Loricates is one, a purely technical work on a small group, but which in its completeness and originality advanced the study in other lands to a stage unthought of before its appearance. But the *pièce de résistance* is the Bibliography of Australian Entomology, a work unparalleled elsewhere in its detailed completeness and making a high standard for other countries to follow. It also unearthed a bibliographer who will be later ranked among the greatest of all time.

This is a short review of the Society's doings, and the future is very bright as the younger generation is showing interest in emulating its predecessors, and all that is necessary is the continued support of the members.

Now to the future. There seems no reason whatever to suppose that the present young generation will not carry on the good work with such excellent examples, and it may be added that the majority of the older workers are still with us to aid assist and encourage their successors.
OBITUARIES

DR. ALFRED JEFFERIS TURNER
(1861-1947)

On 20th December, 1947, Australia’s leading authority on the order Lepidoptera died at his home in Brisbane, Queensland, and the Royal Zoological Society of New South Wales and Australian science in general sustained a loss which will be difficult to replace, as he alone was contributing papers on the moths to scientific journals at the time of his death.

He had been an Associate member of the Society for many years and, at the annual meeting, 21st July, 1934, the title of “Fellow” was conferred upon him “in recognition of his distinguished services to Australian zoology in entomology”.

Dr. Turner was born in Canton, China, on 3rd October, 1861, of English parents, who were missionaries. He was educated in England from 1871 and graduated at the University of London M.B. 1884, M.D. 1886. He arrived in Australia in 1888 and settled in Brisbane in July, 1889. He became widely known as a children’s doctor in Queensland, and his distinguished medical career has been referred to by Dr. D. Gifford Croll, The Medical Journal of Australia, i, 35th year (16), April 17, 1948, pp. 517-519, portrait; and Dr. I. M. Mackerras, i.e., p. 519.

To those, however, whose chief interest lies in the study of natural history, his name will be famous for his many contributions to the systematic study of the Australian lepidoptera, particularly the moths. Though only one of his 116 published papers appears to have been printed in the Society’s publications, viz. “The Lepidoptera of Yeppoon”, Austr. Zool., iv (1), June 12, 1925, pp. 17-23, his output in other journals was very great. Though concerned chiefly with the taxonomic side of entomology, he nevertheless had a wide grasp of the philosophical aspect of that science, and the year of his death saw the publication of his paper “A Review of the Phylogeny and Classification of the Lepidoptera” in the Proceedings of the Linnean Society of New South Wales.

Dr. Turner’s amazing comprehension of his vast group, his erudition, his calmness and patience, and his ever readiness to assist those interested in the lepidoptera will long be remembered by all who knew him.

He travelled and collected extensively, not only in the State in which he had resided for so long, but in every other mainland State, as well as Tasmania and New Zealand.

His collection of Australian lepidoptera is now housed at the C.S.I.R., Canberra.

A.M.

DEATH OF A DISTINGUISHED NATURALIST

Advice has just been received of the death of Professor Emeritus Theodore D. A. Cockerell, at San Diego, California, U.S.A., at the age of 82. The late professor was a brother of Sir Sydney Cockerell, and occupied the Chair of Zoology at Colorado University for many years. He is survived by his widow. He studied under the famous anatomist Sir John Bland-Sutton.
Doctor Cockerell was a member of the International Committee on Zoological Nomenclature and published a large number of papers covering a wide field—intestines of rodents; snails from Peru; fish-scales from many countries; fossils from the Florissant shales; water-life in Lake Baku; Hymenoptera from Australia; and the origin of the Colorado Desert.

He visited Australia about eighteen years ago to study some of the archaic bees in collaboration with Tarlton Rayment, an old family friend. He compiled numerous keys for the bees of Australia, and these were published by the Zoological Society of N.S.W. The keys are incomplete, and it was Doctor Cockerell’s wish that Tarlton Rayment should complete them.

The professor came from a distinguished English family, and one brother, Sir Sydney, was Custodian of the Fitzmaurice Museum, Cambridge, until he retired. Douglas, another brother, famous for his bindings of ancient works, died two years ago.

Theodore had the friendship of many famous men: Alfred Russell Wallace; the novelist Thomas Hardy; Ruskin; Bright; and he was a traveller of wild parts: Turkestan, Siam, Central America, etc., but he will be remembered here for his contributions to our knowledge of Australian zoology.

—R.

"NATURE SPEAKS"

This popular Radio Session, which is broadcast on Saturday nights from Station 2GB, Sydney, at 7.45 E.S. time, recently celebrated its first birthday. A panel of experts, all of them members of the Royal Zoological Society, answers (and welcomes) listeners’ questions about any form of animal life, in fact “anything that walks, burrows, flies, crawls or swims”. The idea of this Nature Quiz is not to “stump” the experts so much as to elicit accurate and attractively presented information on all faunal matters, particularly with regard to the protection of our native animals, whose conservation is at all times favoured. Many hundreds of questions, very wide in scope, have already been dealt with. Under the genial direction of Mr. John Dease, and sponsored by Mr. E. J. Hallstrom, “Nature Speaks” assures listeners of an entertaining and instructive half-hour. Members of the panel are Messrs. H. Brown, J. R. Kinghorn, R. Patten, E. Troughton and G. P. Whitley; alternate members are Messrs. K. C. McKeown and F. A. McNeill.
Reports of Sections

AVICULTURAL SECTION

(No annual report from this Section had been received up to time of going to press.)

BUDGERIGAR SECTION

ANNUAL REPORT

The year ending 30th June, 1948, has again proved a successful one for this Section, indicating a growing enthusiasm and a lively interest in the budgerigar. The attendances at meetings during the year have been most encouraging; from July, 1947, to December, 1947, six meetings, attendance 71, an average of 12 per meeting; from January, 1948, to June, 1948, six meetings, attendance 144, an average of 24 per meeting.

New members totalled 11, as compared with nine last year, and it is pleasing to note the increase in the junior members.

The following is a list of lectures given during the year:
September 16, 1947—Mr. S. Maher: "French Moult in Budgerigars."
November 16, 1947—Mr. S. Maher: "Preparing Birds for Show."
January 20, 1948—Miss C. V. Levitt: "Habits of Sydney Spiders."
February 17, 1948—Mr. Roy Cooper: "Birds of the Barrier Reef" (colour slides).

The Section is indebted to all the above lecturers for having given their time and the benefit of their knowledge and labour to the Section, and the opportunity is again taken to thank them sincerely for the pleasure of these lectures and pictures.

Young Bird Table Shows. Two table shows were held during the year, both of which were won by Mr. J. L. Vance.

The twelfth annual lawn show of this Section was held at the residence of Mr. J. H. Fairfax on Saturday, 28th February, 1948, and attracted 208 entries shown by 23 exhibitors.

The trophies were ably presented by Mrs. Vincent Fairfax. The trophy winners were as follows:

"Elaine" Trophy, Best Bird in Show: Mr. H. Yardley.
Previous winners: 1947, Mr. Yardley; 1946, Mr. J. Swinfield.
Best Bird in Open Classes: Mr. H. Yardley.
"R. B. Browne Memorial Trophy", Best Young Bird in Show: Mr. H. Yardley.
Best Green: Mr. H. Yardley.
Best Blue: Mr. J. Price (Newcastle).
Best Violet or Grey: Mr. H. Yardley.
Best F.B.C. Grey-wing: Mr. J. H. Fairfax.
Best Yellow-wing: Mr. H. Yardley.
Best White-wing: Mr. H. Yardley.
Best Yellow: Mr. H. Yardley.
Best Lutino or Albino: Mr. H. Yardley.
Best 50% B.C. Grey-wing: Mr. G. E. Jones.
Best Cinnamon-wing: Mr. J. Andrew.
Best Opaline: Mr. H. Yardley.
Best A.O.V., Group 1: Mr. H. Yardley.
Best A.O.V., Group 2: Mr. A. Roberts (Victoria).
Best Pair, Any Colour: Mr. L. A. Dunne.
Young Birds

"Cage Birds", England, Bronze Medal for Best Young Bird in Show: Mr. H. Yardley.

2nd Champion Young Bird: Mr. H. Yardley.
3rd Champion Young Bird: Mr. T. Druery (Newcastle).

Best Blue or Green: Mr. T. Druery (Newcastle).
Best Grey or Violet: Mr. F. C. McMahon.
Best Grey-wing: Mr. T. Druery (Newcastle).
Best Clear-wing: Mr. H. Yardley.
Best Cinnamon-wing: Mr. L. Vance.
Best Yellow: Mr. H. Yardley.
Best Albino or Hutino: Mr. H. Yardley.
Best Opaline: Mr. A. Roberts (Victoria).
Juvenile (Best Bird): Miss G. Oberg.

The Section is again indebted to Mr. J. H. Fairfax for the loan of his home for the staging of this event in appropriate surroundings, and also to Mrs. Vincent Fairfax for the provision of afternoon tea for exhibitors and visitors, there being an attendance of over one hundred.

Our thanks are also due to Mr. E. J. Hallstrom for his generous donation, which undoubtedly assisted in making the show an outstanding success.

As the Section has no staging of its own, the members of Eastern Suburbs C. and C.B. Society generously offered the loan of their society's staging to enable the Section to carry on with the show.

We are also indebted to Messrs. Maher and Catt for giving up their time to judge exhibits, which it must be agreed was carried out in a most efficient manner.

Sterling work was carried out by the following Section members: erection of staging, Messrs. Vance, Wright, Dufty, McMahon and Hastings; collection of country exhibitors, Mr. Barnett; staging of birds, Messrs. Nicol, McMahon, Hastings, Hill and Allport; stewards, Messrs. Clewett and Dufty; assistance to secretary, Messrs. Hastings, Hill, Nicol and Allport; removal of staging, Mr. P. Watson, Eastern Suburbs C. and C.B. Society, Messrs. C. and B. Hill, Avicultural Association, Mr. F. Chessel, Canary and C.B. Society. To all the above gentlemen I convey my personal thanks and appreciation for their assistance.

In concluding the report, it is felt that successful as has been the past year, the ensuing year will see an even greater success in the Budgerigar Section.

JAMES L. BRIGHT, Hon. Secretary.

MARINE ZOOLOGICAL SECTION

ANNUAL REPORT

It is with pleasure that I record once again a very successful and interesting year for the Marine Zoological Section. Many new members have been welcomed, and enthusiasm has been at a high level throughout the year. Both the monthly general meetings and the special conchology study groups have been exceptionally well attended.

One of the most pleasing features of the year's activities has been the increase in the number of field excursions held and the increase in the number of members attending. A committee comprising Mrs. F. Kay, Mr. F. McCamley and our enthusiastic junior member Geoff. Davis, has now been formed to take care of this particular section, and many interesting outings are being planned for the ensuing twelve months.

Shell collecting has proved the most popular interest by far, many interesting specimens being exhibited by members not only from N.S.W., but from Queensland, the Great Barrier Reef and Torres Straits. However, your Executive would like to see some of the junior members particularly specializing in hitherto little explored fields and doing more individual research work.

Our thanks and appreciation are hereby tendered to the following lecturers, who contributed so much to the enjoyment of our monthly meetings:
June 2, 1947—Miss Elizabeth Pope: “Sea Animals that Bite and Sting.”
Aug. 4, 1947—Mr. H. Fletcher: “Reptiles of the Past”, Part I.
Sept. 1, 1947—Mr. Melbourne Ward: “A Trip Through Central Australia.”
Oct. 6, 1947—Mr. G. Whitley: “The Fishes of Western Australia.”
Nov. 3, 1947—Mr. A. S. Le Souef: “Some New Factors in Evolution.”
Mar. 1, 1948—Mr. T. Iredale: “Sea Shells.”
Apr. 5, 1948—Mr. H. Fletcher: “Reptiles of the Past”, Part 2.
May 3, 1948—Mr. Melbourne Ward: “A Naturalist in Torres Straits.”
June 7, 1948—Mrs. L. H. Woolacott: “Common Shells of N.S.W.”
(Miss) WINIFRED CROFTS, Hon. Secretary.

ORNITHOLOGICAL SECTION

ANNUAL REPORT

Every effort has been made during the year by officers and regular attenders of the Section to popularize the study and knowledge of birds and thereby maintain the standard of previous years. We believe that that endeavour has been successfully achieved, if not surpassed, by good attendances, interesting lectures, slides and films of a high standard, keen general discussions and some enjoyable organized outings. The thanks of the Section are hereby extended to those who materially helped towards a successful year.

Regular monthly meetings were held during the twelve months. The average attendance was 41, only slightly below that of last year, but as the lowest attendance for any one meeting was 32, monthly fluctuations of those present were not as noticeable as formerly.

Details of meetings, lectures and discussions are as follows:
July 18, 1947—Films, screened by the Vacuum Oil Co.
Sept. 19, 1947—General discussion on Honeyeaters.
Oct. 17, 1947—Film slides of Bird-life, by Roy P. Cooper.
Nov. 21, 1947—Films, from the Canadian National Film Board.
Feb. 20, 1948—General discussion on Rain-forest Birds.
May 21, 1948—General discussion on Winter Resident Birds.
June 18, 1948—Annual Meeting. Roy P. Cooper: “Central Australia.”

Six organized outings were held during the year. Attendances at some of these were below expectations, but the inclemency of the weather and some last-minute rearrangements probably contributed to the cause. Those who attended enjoyed themselves, notwithstanding very little outstanding ornithological observations. The one Saturday afternoon outing, to Cook’s River on 14th February, resulted in some excellent views of a lone Black-tailed Godwit (Limosa limosa) amongst large numbers of migrant waders of various species. Five full-day trips were made, respectively to Muogomarra sanctuary on 31st August, to Ouibray Bay on 28th September, to Lindfield Park on 25th October, to Narrabeen Lakes on 7th December, and from Waterfall to the old cabin site on 6th June.

Some excellent and successful holiday trips were made during the twelve months by various members. Six of those who regularly attend the monthly meetings were amongst the ten members from New South Wales who journeyed to Brisbane in October and attended the annual congress of the Royal Australasian Ornithologists’ Union and the “camp-out” at Binna Burra Lodge, in the Macpherson Ranges. All reported an enjoyable time and some good observations of bird-life. Some members attended the annual Gould
League camp on the far north coast of New South Wales in September. A party also travelled to Kulkyne in the mallee district of north-western Victoria in early October, and the list of birds compiled was most interesting. The Section honorary secretary spent three weeks amongst the various islands of the Furneaux Group, assisting in the "Mutton-bird" investigation by the C.S. and I.R. Mr. Chaffer journeyed to the Mt. Hagen district of New Guinea and secured some successful film records of native habits and bird-life. Some members visited country areas, such as Brewarrina, Forbes and Bundanoon, and reported interesting observations, whilst many reports on the birds nearer Sydney were given.

Amongst various visitors might be mentioned Dr. H. Deignan, of the American National Museum and ornithologist with the Mountford Arnheim Land Expedition; Mr. E. Thomas Gilliard, of the American Museum of Natural History, following a successful collecting trip to the Philippine Islands and New Guinea; Mr. H. Chawner, a member of the British Trust for Ornithology; and Mr. Lewin, from Malaya.

After a successful term of office as chairman for the past two years, Mr. Roy P. Cooper relinquished the position at the annual meeting of the Section, his place being filled by Mr. W. R. Moore, who had served as vice-chairman during that period. It is also noteworthy that Messrs. T. A. Everitt and R. P. Cooper, two members of long standing and both past secretaries of the Section, have now succeeded to the offices of hon. secretary and treasurer respectively of the Royal Zoological Society

ARNOLD R. McGILL, Hon. Secretary.

FIELD REPORT FOR THE YEAR 1947-48

By A. R. McGill, Hon. Secretary

The year 1947 was one of bountiful rains in the western parts of New South Wales, and the consequent good season was reflected in a liberal dispersion of birds and prolific spring breeding. D. Leithhead, who visited the Brewarrina district in August, found the Crimson Chat, Orange Chat, Emu, Galah and Budgerigar nesting freely and the Wedge-tailed Eagle, Silver Gull (on Lake Narran) and four species of Wood-swallow plentiful. Various species besides those named were noted breeding also in the lush countryside, and in his report he described the season as being the best one for six years. Likewise, J. Francis found nesting in full swing in the Forbes district in October. Crimson Chats were breeding in good numbers, and the Rufous Songlark, Brown Songlark, White-winged Triller, White-browed Wood-swallow, Masked Wood-swallow and Rainbow-bird were plentiful. Typical inland birds, such as the Crested Bellbird, Ground Cuckoo-shrike, Blue-bonnet and Cockatiel, were prominent in his report. On a further visit to the area in May the Pallid Cuckoo was common, despite its being absent during the October visit. Mr. G. Althofer (in lit.) reported Crimson Chats breeding freely in the Wellington district, as well as a second observation in each instance from that locality of two rare New South Wales species—the Black-capped Sittella and the Orange-bellied Parrot. K. A. Hindwood and T. A. Everitt visited the Kulkyne area in the mallee of north-western Victoria in October and, despite the brevity of the trip, also reported a good season with quite a number of species nesting.

As is usually the case when the season is good inland, there were few exceptional records of "stray visitors" amongst land or swamp birds in the Sydney district. Visiting waders were, however, an exception. The Black-tailed Godwit was observed on three occasions over a period of a few weeks (a pair and singly) by a number of observers; the Oriental Dotterel was noted on two occasions, two small groups of field workers having good views of what was probably the same bird. Both these records were made at the Cook's River estuary. Another small party of ornithologists recorded the Broad-billed Sandpiper at Boat Harbour, but on two subsequent visits the species could not be again located. These three species of migratory waders are very rare in the Sydney district. A Male Painted Snipe, shot on a swamp near Vineyard on 26th December, was received; this represented the first
record of the species near Sydney for several years. Observers reported the Lotus-bird as not yet having regained its numbers of a decade ago on the Hawkesbury swamps. Black Swans, however, continue to flourish there, and some White-headed Stilts were observed and believed to be breeding (N. Fearnley).

The Plumed Egret was again recorded on various occasions on the Botany waterworks, as well as a single bird on the Wilberforce swamps (K. Hindwood, 1st January). On that date also a White-backed Magpie was seen, and some nests of the introduced White-winged Whydah-bird found (K. Hindwood and E. Hoskin). Several Sydney records of the Chestnut-breasted Finch have been made during recent years, the latest being near Dee Why (K. Hindwood) and near Cattai (J. Francis). The Black-headed Mannikin (? introduced) was noted also at Dee Why (K. Hindwood). A Rufous Fantail was observed in a George Street bookshop, having strayed in during migration. The Drongo and Channel-billed Cuckoo (both rare visitors to Sydney) were reported within the county during the early 1948 months. The Striped Honeyeater was recorded at Menangle Park (E. Edwards, 13th August).

The season near Sydney was also a prolific breeding one judged by several lists received respectively from Burragorang Valley, Doonside, Grose River, National Park, Kellyville and the suburban area. E. Hoskin recorded 41 species breeding in early spring over a few weeks' duration. More nesting observations on the Eastern Bristle-bird were made at Mt. Kembla (N. Chaffer), and a probable breeding record of the Rainbow Lorikeet at Lindfield was interesting (E. Hoskin). Coucals bred in good numbers at Dee Why.

SYLLABUS OF SECTIONAL MEETINGS
1948-49

Note.—When the scheduled date for a meeting falls on a public holiday, the meeting is held on the next convenient date.

AVICULTURAL SECTION (Second Monday in the Month)

1948—
August 9.
September 13.
October 11.
November 8.
December 13.

1949—
January 10.
February 14.
March 14.
April 11.
May 9.
June 13—Annual Meeting.

BUDGERIGAR SECTION (Third Tuesday in the Month)

1948—
August 17.
September 21.
October 19.
November 16.
December 21.

1949—
January 18.
February 15.
March 15.
April 19.
May 17.
June 21—Annual Meeting.

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MARINE ZOOLOGICAL SECTION (First Monday in the Month)

1948—
August 2.
September 6.
October 4.
November 1.
December 6.

1949—
January 3.
February 7.
March 7.
April 4.
May 2.
June 6—Annual Meeting.

ORNITHOLOGICAL SECTION (Third Friday in the Month)
Meetings

1948—
July 16—A. R. McGill: "Bird Life of the Furneaux Islands."
August 20—General Discussion. Subject: "Migration Groups."
September 17—Films, by Norman Chaffer.
October 15—K. A. Hindwood: "Some Birds I Have Known."
November 19—Films, by the Department of Information.

1949—
January 21—E. J. L. Hallstrom: "Parrots in Captivity."
March 18—Films, by Norman Chaffer.
April 15—J. E. Roberts: "Literature and Birds."
June 17—Annual Meeting. Chairman’s Address.

Ornithological Outings

1948—
September 19—Vineyard. Leader: E. Hoskin.

1949—
WESTERN AUSTRALIAN MOLLUSCS

By Tom Iredale

Mr. G. P. Whitley, of the Australian Museum, Sydney, collected molluscs whenever opportunity offered while on duty with the C.S.I.R. in Western Australia. Hedley listed the Western Australian mollusca in 1921, and already it is certain that only a small portion of the existing fauna is shown in that list. A complication that will slow down the preparation of a better and more complete account is the exact recognition of Lamarckian and Menkean species described over a century ago from vague or uncertain localities. The present-day French conchologists are engaged in figuring and determining specimens in the Paris Museum apparently named by Lamarck, those named from Lamarck’s own collection now being in Geneva. As Lamarck was partially blind in his old age, when some of his work was done, there is ample room for error, especially as the collection made by Peron and Lesueur was in a state of confusion, the labels wrongly attached or missing. It will be the work of local conchologists to rehabilitate the species and the present note shows three examples. Preiss collected in south-western Australia and Menke described many new species without giving any figures. Some of these were simultaneously figured by British conchologists from Menkean specimens, but others have remained obscure. When all Mr. Whitley’s material is worked through, probably other problems will be solved, but the few here presented will show the way.

Saxostrea scyphophilla (Péron)

In the Low Isles Report (p. 400) discussing Queensland oysters, I allowed cornucopiformis Saville-Kent, commenting: “Saville-Kent referred it to the Sea Oyster, but the specimen here figured seems to be more like the Commercial Oyster.” Mr. G. Kesteven, of the C.S.I.R., investigating the oysters of Queensland, reported that this form was common at Mackay and that it appeared to be a distinct species, all stages from juvenile to adult being collected. Simultaneously, Mr. G. P. Whitley collected it at Shark’s Bay, Western Australia, and recognized it as the long lost Ostrea scyphophilla described by Péron (Voy. découv. Terres Austr., i, p. 110, 1807) as follows: “Its lower valve is a kind of elongated cone 16 to 19 cms. long (6-7 inches), more or less regular. Fixed on the rock by its point and by one of its sides, it is covered by the second valve, which closely resembles the same piece in our common oysters, and which forms an operculum for the kind of cornet which I have just described. The animal does not occupy the whole depth of this curious shell; it lives in the summit of the cone, all of whose lower portion is occupied by a large number of small transverse partitions like watch glasses, which reach to the extremity of the point by which the shell is attached. Their concave face is turned upwards, leaving between them free spaces, which are filled with an aeriform fluid, whose nature it would have been interesting to determine. However curious the oyster may be, its animal nevertheless was extremely delicate, and all opinions agreed in its favour.”

Fragum hamelini sp. nov.

A small cockle was found at Hamelin Pool, Shark’s Bay, and Mr. Whitley states it occupied miles of territory along the shoreline, apparently left there by recession, and has consolidated into a brick-like solidity so that it has been quarried for building purposes. Already it has received popular notice, but no record of scientific treatment has yet been met with. It is therefore now described as Fragum hamelini, after the French captain, not the pool. Briefly,
it is a miniature, smaller than whitleyi and regularly shaped as undo, but owing to the crushing through over-population, many aberrations may be found.

A normal shell measures 9×9×6 mm., rhomboid, plump, solid, the dorsal margin a little sloping, the posterior edge broad, straight cut, ventral margin neatly curved, and anterior also rounded curiously inturned apices, a well defined lunule being seen; the ligament external; sculpture of twenty ribs, the anterior six with spaced scallops, the median eight showing no scallops; the posterior area angled and carrying also six smooth ribs: all the ribs are fairly broad, rounded, with narrow deep intervals. Larger specimens show strongly marked growth stoppage staging and often irregular growth thereafter becoming proportionately more flattened and the ribs more spaced, the number remaining the same.

Notovola preissiana sp. nov.

Over one hundred years ago, Menke described under the name Pecten bifidus, a Western Australian scallop. The next year this was figured by Philipp (Abbild. Besch., i (Pecten, tab. ii, fig. 6), p. 202, Dec. 1844) from a specimen collected by Preiss, but unfortunately the specimen did not show clearly the characteristic radials, and hence was neglected, especially as he recorded that the specific name was invalid. The name was sunk in the synonymy of the unidentifiable medium of Lamarck, and has remained so ever since. Be it noted the Western Australian shell was apparently available to Lamarck, who ranked it as a variety of sicac as recorded by Deshayes (Hist. Anim. sans Vert. (Lamarck), 2nd ed., vii, p. 131, note 1836). The Western Australian shell is immediately recognizable by the bifid ribs of the convex valve, and as it is nameless, is named as above.

CETOTHAX gen. nov.

Genotype, Thracia alciopa Angas=Anatina imperfecta Lamarck.

Mr. Whitley collected at Shark’s Bay a shell which was immediately recognized as Thracia alciopa Angas (Proc. Zool. Soc. (Lond.), 1872, p. 611, pl. 42, fig. 6) described from that locality, and it was seen to be the representative of the eastern jacksonensis Sowerby, better known as brazieri Sow. However, recently Lamy (Journ. de Conch., lxxvii, p. 148, pl. i, fig. 10, 1934) has figured the type of Anatina imperfecta Lamarck (Hist. Anim. sans Vert., v, p. 464, July 1818) also named from the same locality. Little was known about the eastern species when I introduced Eximiothuracra with speciosa Angas as type, so that it was placed alongside in that genus. Since then many specimens have been found near Sydney and recently it was recognized in some dredgings made in Moreton Bay, Queensland, in 5-6 fathoms, sent by Mr. Riek.

In speciosa the shell is elongate, more than twice as long as high, valves meeting save at posterior end, which is gaping, posterior angle notable, area granulose, pallial sinus short and deep. On the other hand the shells of CETOTHAX are larger, the depth more than half the length, the right convex valve overlapping the flattened left, the posterior end scarcely open at all, the angle little marked and the area not granulose.

Ninella whitleyi sp. nov.

Mr. Whitley brought back from Geraldton, Western Australia, many specimens of the large Ninella listed under the eastern name of stramineus from which it differed clearly at sight. Quaintly enough, it had been described as new twice before, over a century ago. Broderip (Zool. Journ., v, p. 331, suppl., pl. 49, fig. 2, July 1832) named and figured it as Turbo stramineus var. lamellosus, and almost simultaneously Quoy and Gaimard (Zool. Voy. Australe, iii, p. 222, pl. 60, figs. 15, 18, 1834) described and figured it as new, with the name Turbo torquatus. Reeve disrated these, suggesting intergradation, and he has been followed without investigation as the western shell is abundantly distinct, the deep sutural trench being characteristic, and seen even in young shells. However, both the names on record, lamellosus and torquatus, prove invalid, so the species is named as above.
DYRASPI S gen. nov.

Genotype, *Conus pontificais* Lamarck = *Conus dorreensis* Péron.

Most visitors to Shark’s Bay have found this interesting cone, the first to record it being Péron, who collected it on the I. Dorre and hence called it *Conus dorreensis*. This name has been published in Péron’s book and has been overlooked, the later name of Lamarck based on the same specimens gaining currency. The references are:

*Conus dorreensis* Péron, Voy. découv. Terres Austr., i, p. 120, 1807;

Tomlin listed the Cones (*Proc. Malac. Soc. (Lond.)*, xxii, p. 242, 1937) but confused the Péronian name with an entirely different *doreyanus*, which does not even apply to a member of this group.

The shell of *Dyraspis dorreensis* is very different from any other Cone, being small and stout with the spire as long as the mouth and the sculpture very peculiar.

*Campanile symbolicum* Iredale

Thirty years ago I showed that *Campanile*, proposed for the huge Cerithioids recent and fossil, should be restricted to the living form as it was named with opercular characters. Recently, a writer on English Eocene *Campanile*, Wrigley (*Proc. Malac. Soc. (Lond.)*, xxiv, p. 97, Dec. 6, 1940) has suggested that the recent and fossil shells are congeneric, although the fossil has a biplicate columella and the recent a simple one. In every other respect the recent and fossil shells disagree. Since Quoy and Gaimard’s time, over a century ago, little has been seen of the recent species, which is unique, a few very dead and worn shells representing it in the Australian Museum. At the type-locality (King George’s Sound) Mr. Whitley collected a fine series in growth-stages, the smallest measuring 29 mm., showing seventeen whorls and two and a half apical ones. The largest one measures 155 mm., with about twenty whorls, the early ones missing, but which may have been twelve more judging from the series, in addition to the apical ones. Criticism suggests that it has nothing whatever to do with the British Eocene fossils, which are probably distantly related to the tropical form known as *Terebralia*.

*Campestanimorpha tabulata* (Menke)

The Menkean species, published 1843, was regarded, the year after its description, by Menke himself as probably only *spengleri* (*Zeit. Mal.*, 1844, p. 60) and apparently Hedley allowed this as he did not admit *tabulata*. Neither did he separate *waterhousei* from *spengleri*, but the latter does not occur in Western Australia. The conclusion thus arose that *waterhousei* should be dismissed in favour of *tabulata*, but Mr. Whitley’s specimens show that *tabulata* is the species known as *exaratum*, the description agreeing while the name indicates the most characteristic feature, the tabulation of the whorls. As *exaratum* was not described until a year later from Port Essington, the claim of *tabulata* cannot be denied.
EXPERIMENTS UPON CERTAIN SNAILS INHABITING SYDNEY GARDENS

By C. F. McLauchlan

The snails used for the following experiments were the native carnivorous snail, *Strangesta capillacea*, the common garden snail, *Helix aspersa*, and the introduced English snail, *Helicella cellaria*.

(1) *Strangesta capillacea* (Perussac, 1822). A carnivorous native snail which under certain conditions feeds voraciously on the common garden snail, *Helix aspersa*. Containers used for the following observations were 2 lb. honey jars with perforated lids and large seed boxes with gauze wire as covers. Both containers were half filled with soil and decayed vegetation and kept damp, the bottles indoors and the boxes outside. If *Strangesta* snails eat too many *Helix aspersa* without varying their diet with decayed vegetation and minute native snails, they die. This also happens under natural conditions and was observed on vacant land and in gardens. A number of empty shells of *Helix aspersa* were seen under large rocks, timber and rubbish, generally 6 to 12 shells, and there are always one or two empty shells of *Strangesta*.

Either *Helix* has a slight poison or *Strangesta* gorges itself to death. *Strangesta* must have a slight odour for, if a specimen of *H. aspersa* is dropped into the container, it instantly moves off in an erratic way. The former, on finding the slime trail of *aspersa*, will follow it like a bloodhound. *Strangesta* attacks the *Helix* at the junction of the muscle and the foot. The latter exudes a quantity of froth which sometimes forces *Strangesta* to abandon the attack temporarily. In the case of half-grown *aspersa* whose shells are not heavily built, *capillacea* will enter the mouth of the shell and, expanding itself like a balloon, cause the shell of *aspersa* to burst. Adult *capillacea* lay their eggs in August. In captivity they lay 30 to 50 eggs in a batch, and in one or two batches, buried to a depth of one inch. Adults will eat their own eggs, even when there are decayed vegetation and specimens of *aspersa* present. Tiny insects in the soil also destroy the eggs. *S. capillacea* eats small *aspersa* in two sucks, taking about four minutes to accomplish this. One hour later it will eat another of the same size. Adults will eat *aspersa* as large as themselves in three days of continuous eating. One adult ate seven specimens of *aspersa* in 30 days and died! Eight adults devoured 98 *aspersa* in eight weeks, and all died. Newly hatched specimens of *Strangesta* eat each other, and adults will eat quarter-grown offspring. Adults do not appear to eat each other, even if no other food is available; they prefer to suck at the soil or lie dormant. A young *S. capillacea* will eat *aspersa* in company with an adult, by poking its head into an *aspersa* shell between the adult and the inner part of the shell. Small specimens of *capillacea* will eat the eggs of adults of the same species. *S. capillacea* will not eat *aspersa* if natural foods are available, as they are available in most Sydney gardens and soils. Natural foods are the native snails, Opeas *tuckeri* (10 mm. long), *Paralaoma* (3 mm.) and *Egilomen* (3 mm.) and damp or wet decayed vegetation. Juveniles and very small *capillacea* will not eat baby *aspersa*. Adults of *capillacea* prefer juveniles and small *aspersa*. Numbers of *capillacea* will live within a foot of each other under cover of banana leaves or a creeping plant, *Commelina cyanaea*. *Helix aspersa* will not remain within six feet of *capillacea* snails under natural conditions. Juvenile *capillacea* and juvenile *aspersa* are hatched about the same time, but *aspersa* grows much faster and they then do not destroy each other. The *capillacea* as juveniles destroy one another, do not eat *aspersa*; by the time they are ready to attack *aspersa*, the latter is many times larger.
Field Tests.—*Strangesta capillacea* will not remain in well-kept garden beds even if *Helix aspersa* is present in the crevices of the rock work. It is necessary to leave some cover, such as creeping plant, or a pile of loose leaves, such as *Canna*, in the corners of each bed. During very wet weather in May, *capillacea* will roam freely, destroying numbers of *aspersa*, but will return to some low damp hollow as rain ends. They do not appear to roam at other times of the year.

All the following experiments were carried out in Mosman, N.S.W.

1. Adult *capillacea* were placed in a long flower bed inhabited by *aspersa*, cover being left in the form of the creeping plant *Commelina cyanea*. The garden was watered by hose. Within a week the *capillacea* had left the bed, after eating one or two *aspersa*, and worked their way down the full length of the block below and finished up in a wet spot under *canna* in that block. These *cannas* had not been disturbed for years, and there the *capillacea* remained for months, sucking at the wet soil.

2. Twelve *capillacea* were placed in the top bed of a three-tier rockery of *Hydrangea* inhabited by *aspersa*. About a yard from the bottom bed was a very small creek with fallen banana leaves. Rain fell regularly during the first week and *capillacea* remained in the beds, destroying a number of *aspersa*, but as the weather cleared the *capillacea* worked their way down to the creek, where they remained for three months without attempting to re-enter the beds, although large numbers of *aspersa* remained. Some *aspersa* were at the bottom of the rockery within six feet of *capillacea*, yet no attempt was made by *capillacea* to take *aspersa* : they preferred to suck at the wet mud, where eggs were laid later.

3. Six *capillacea* were placed in two rockery beds each 4 ft. by 15 ft. and overgrown by pigface and mint, on the 20th May, 1947. The beds were very wet, and remained so until November, 1947. The *capillacea* had eaten 120 specimens of *aspersa* when the beds were examined in August, 1947. No *capillacea* remained, dead or alive. Eggs of *aspersa*, buried in the bed, hatched, and the beds became overrun again, but the *capillacea* had not reappeared up to the end of the heavy rains at the beginning of June, 1948.

4. Observing *capillacea* under natural conditions, a number lived under wet jew plant which was 20 yds. square. Bordering this was a vegetable garden surrounded by a one-foot stone wall. Surrounding this is an overgrown path, with hundreds of *aspersa* present. The jew plant patch reaches up to the overgrown path. Not once in eight years did I ever see one eaten-out
shell of *aspersa* in this garden or on the overgrown path. Neither did I see a *capillacea* on the path; they preferred to stay under the jew plant and live on natural foods, catching only straying *aspersa*.

5. In another garden a dozen *capillacea* of various sizes lived in a very damp patch of jew plant, below a terrace of beds twelve feet high. During three weeks' wet weather in May, 1947, some left the patch and climbed up the beds to the top terrace; there they destroyed a large number of *aspersa*. As the rain ceased they went down to the patch again and remained there until the rains in June, 1948, when they again reappeared in the top terrace and other parts of the garden, destroying numbers of *aspersa*.

It would be interesting to experiment with *capillacea* in a district which has a fairly wet summer and winter. Also to experiment with *Strangesta gawleri*, the South Australian snail which is similar to *Strangesta capillacea*.

These experiments are not conclusive, as they apply only to the climatic conditions of Mosman, N.S.W., and quite different results may be obtained in other localities.

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**Some snails referred to in this article. Nos. 1-3, carnivorous introduced English snail, *Helicella (Onychius) cellaria*; 4, the native snail, *Opeas tuckeri*; 5-6, carnivorous native snail, *Strangesta capillacea*. No. 4 is enlarged; 1-3 and 5-6 natural size.**

—Joyce Allan, del.

**Conclusions.**—I should think it would take one carnivorous snail to each square yard of vegetable garden. The property owner and all neighbours would have to be educated to the care of these snails. The land could not be ploughed for at least two weeks after harvest; rubbish should not be burned, and all small depressions and creek sides should be left natural.

Overgrown beds should be left at close distances, especially on high ground.

Even then it would be hard to preserve the eggs, and many snails would be destroyed.

**HELICELLA CELLARIA**

Results of experiments with the English carnivorous snail *Helicella cellaria*,

Called *sydneyensis* by early collectors, this species has a habit of living in cellars, hence its specific name. Results of experiments with this snail have been much more satisfactory than with *Strangesta capillacea*. They are found in larger numbers, breed well, and live in small beds without much cover. They are very fierce and fast-moving, and are found under stones, bark and
rubbish, living within a few inches of each other, and can get into small crevices where other small snails live. They eat slaters and garden snails and will live in brick or cement work.

The action of this snail was first observed when each night slaters were observed moving about on a cement path below a crack in a brick wall, but each morning empty shells of slaters were found on the path, and then one night a snail rolled out—it was Helicella cellaria.

Tests from then on proved that this snail would eat slaters provided it inhabited a spot which was surrounded by cement paths, brick walls and only a small portion of lawn and a small bed. But if given Helix aspersa to eat, it will not go back to Slater-eating for some time. In another test with this snail and full-grown aspersa, an aspersa was dropped into the test box and cellaria at once became active. It picked up the slime track of aspersa and followed that snail quickly. Catching aspersa, it attacked the main muscle, but the latter ejected a quantity of froth and cellaria became stuck, thereby permitting the aspersa to escape. Ten minutes later cellaria was following aspersa again, and this time it attached itself to the back of the shell, and while aspersa kept moving cellaria kept tearing pieces out of the edge of the tail. As each piece was bitten off aspersa drew in its tail, and cellaria held its head in the air and ate the pieces in a most satisfied manner. The aspersa snail was at least six times larger than cellaria.

Helicella cellaria dies from over-eating Helix aspersa, and it also died during the summer in large numbers. It destroys the local native snail, Strangestia capillacea, in its young state, however, which is rather unfortunate.

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A NEW SHARK FROM PAPUA

By G. P. Whitley

Off Tufi Harbour, north-eastern division of Papua, a Whaler Shark was hooked on 1st October, 1948, which appears to belong to a new species which may be named Galeolamna tufensis. A detailed description and figure are being prepared for an official report later; meanwhile this preliminary diagnosis will validate the name. The type is a female, 4 ft. 10 in. long and weighing 40 lb. 4 oz. In most respects it agrees with other species of Galeolamna (or "Carcharhinus" and "Eulamia" of authors), but is distinguished by the following combination of characters. Teeth of upper jaw deflected and notched, strongly serrated on shoulders and cusps; teeth of lower jaw erect, entire, rather peg-shaped; a small symphysial tooth in each jaw. Not more than 27 teeth across jaws. No interdorsal ridge. Second dorsal fin smaller than anal, their origins opposite. Colour plain grey above, white below.

Three males and two females examined at Tufi and Port Moresby, Papua. The species grows to at least nine feet in length and is viviparous.

G. tufensis is blunt-spouted, as in marianensis Engelhardt, 1912, but has no pointed angle to the ventrals or black blotch on the dorsal as in that Guam species. It seems allied to munsing Bleeker, 1852, and nesiotes Snyder, 1904, but differs from the former in having first dorsal nearer pectorals than ventrals and from the latter in having a smaller second dorsal fin.
THE FRONT-FANGED VENOMOUS SNAKES OF
THE SYDNEY METROPOLITAN AREA

By A. I. Ormsby

The object of this article is briefly to list the Elapine snakes, that is the front-fanged venomous snakes of the Sydney metropolitan area, together with a few notes on the localities in which they are found and other points of interest concerning them. As these species are all fully described in Mr. J. R. Kinghorn's comprehensive book "Snakes of Australia", it is simply intended that these notes should be supplemental to that work. The notes are based on my own experience in the field, and in addition I have had in captivity for varying periods ten of the twelve species listed. For the purpose of this article we may take the Sydney metropolitan area as being bounded by the eastern coastline extending north as far as Hornsby and south to Cronulla, Parramatta being the western boundary. The twelve species dealt with in this article all belong to family Elapidae1 and are the only members of that family recorded from Sydney. Other snakes found in the area are briefly referred to in the general notes following the list of Elapine snakes.

To my mind one of the most interesting aspects of the list that follows is the particular localities in which the various species are found. No snake is ever found in an area unsuited to its existence unless it has been accidentally transported or released from captivity, and so the experienced snake collector should be able to say after a glance at his surroundings just what species (if any) he may expect to find (if he is lucky).

Another matter of interest is the effect of closer settlement on the reptile world. Some snakes have become extinct in certain localities, others manage to survive in spite of human opposition.

(1) **Red-Bellied Snake, *Pseudelaps squamulosus***

This species is very localized in the Sydney area, being found on the northern side in the vicinity of Mosman. Specimens have been taken from Taronga Park. It is nocturnal and the only two specimens I have handled were taken under large rocks firmly embedded on the side of a hill near Bradley's Head. In captivity I have found this species fond of burrowing in loose soil. When handled it simulates aggression, but the only specimen I have kept never attempted to bite.

(2) **Red-Naped Snake, *Pseudelaps diadema***

I have never encountered this species in the Sydney area. The three specimens I had came from Singleton, N.S.W., where they were taken from debris in hollow logs. Museum records acknowledge receipt of specimens from such places as Hurstville, Turrramurra and Hornsby. Probably this species is a lot commoner than generally supposed, but owing to its small size is seldom noticed. It is nocturnal. I have kept a specimen for nearly three years in captivity, but owing to its secretive habits was unable to make proper observations. I have seen it devouring small lizards. It is worthy of note that I have seen this species fairly active when the temperature was less than 60°F. This is a most inoffensive species as well as the smallest of all the snakes described in this article. I think this species prefers dry localities but becomes quite active after rainfall.

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1 In using the family name Elapidae, I have followed Ditmars and Pope rather than some of the earlier writers who place these snakes in the family Colubridae subfamily Elapinae.
(3) The Common Brown Snake, Demansia textilis

This species is so well known that notes are hardly required. I have taken this snake in the sandy country of La Perouse and Kurnell. This is the largest of the Sydney venomous snakes and I have found it more aggressive than any other Australian species. Mr. George Cann, of La Perouse, agrees with me that it is absolutely impossible to tame this snake. It is oviparous and the newly hatched young are sometimes beautifully striped, but even from the egg the snake has an aggressive disposition. It is a diurnal snake.

(4) The Whip Snake, Demansia psammophis

This species is very similar in appearance and closely related to the preceding one, but a 3 ft. specimen is a fairly large snake, at any rate for the Sydney area. It inhabits the same type of open sandy country, and like the Brown Snake is an egg laying species, which is the exception rather than the rule with Australian members of family Elapide. Unlike the Brown Snake, this species is not in the least aggressive and in fact can usually be handled quite freely. A bite produces a burning sensation not unlike the sting of a bee, with swelling lasting for about a day, but no further ill-effects. It is very fond of basking in the sun and when warmed up in that way is possibly our liveliest snake. It feeds mainly on orange-tailed skinks and can best be caught on dull days under flat sandstone rocks. Owing to its small size it survives where the Brown Snake has been killed off, and is one of our commonest snakes. I have taken this species at La Perouse, Kurnell and Manly.

(5) The Tiger Snake, Notechis scutatus

Quantitative analysis shows that this species produces a more deadly venom than that of any other known snake. This snake is still fairly common in the La Perouse area and on The Lakes golf links. It is an aggressive snake, but not so much so as the Brown Snake. This species is also so common that its habits require little description. It produces its young alive. Both diurnal and nocturnal, it is found in different types of country. Its diet range is extensive. This snake does well in captivity, as instanced by Mr. George Cann’s enclosure at La Perouse. A noteworthy fact is that this snake is capable of climbing trees efficiently.

(6) The Death Adder, Acanthophis antarcticus

This snake was formerly common throughout Sydney, and there is no doubt it is Australia’s most dangerous snake, as the venom fangs are larger and the venom nearly as potent as that of the preceding species. Being sluggish, it is easily killed, and probably has been exterminated except in outlying parts of Sydney. It still survives, but it is probably restricted to French’s Forest and bushland parts of the Hornsby area. I have never collected this species anywhere in the field.

(7) The Red-Headed Black Snake, Pseudechis porphyriacus

Another very common species which is mainly found in the vicinity of water throughout New South Wales. Its main diet is frogs. I have frequently collected this species at La Perouse. It is rather surprising that this showy species, which is diurnal and very fond of basking in the sun, should have survived so well. Although the species sometimes attains six feet, local specimens seldom exceed three to four feet, which is probably the minimum length for sexual maturity.

(8) White-Lipped Snake, Denisonia coronoides

Excepting the Death Adder and this species, I have at some time or other captured or kept all the other snakes listed in these notes. Actually the inclusion of this species in the list is based on three museum records, viz. North Sydney, 1804; Moore Park, 1930; and Brighton Beach, Kogarah, 1934. In the south this is one of our commonest snakes. I am inclined to the view that this snake is now extinct in the Sydney area, where the odd specimen might once have been encountered along the northerly limits of its coastal range. Mr. George Cann assures me that this species was once fairly common locally but states that he has not seen one for years.

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(9) The Black-Bellied or Marsh Snake, *Denisonia signata*

This species shares with the Whip Snake the distinction of being our commonest local snake. I can usually undertake to collect at least one or two specimens any day during the warmer months. I have had specimens recently from Kurnell, La Perouse, Botany, Coogee, Kensington, Harbord and Narrabeen. It is restricted to marshy areas and the fringes of lagoons. It is an excellent liver in captivity and at least six females have produced living young for me. For these reasons I have singled out the species for special study and experimental work and hope to complete a paper on their habits in the field and vivarium in the near future.

![The Marsh Snake](image)

The Marsh Snake (*Denisonia signata*), a common Sydney snake and a good liver in the vivarium.

—Photo by E. Worrell.

(10) The White-Bellied Snake, *Denisonia nigrescens*

This species is not particularly common around Sydney. I have collected two specimens at Kurnell and one outsize specimen at Bulli, but have never otherwise encountered it. The two at Kurnell were taken at the base of a small hill. This species has tiny eyes and is entirely nocturnal. It appears less affected by cold weather than most other species in the vivarium.

(11) The Broad-Headed Snake, *Hoplocephalus bungaroides*

Old museum records of the collection of this snake around Sydney are fairly frequent, particularly from La Perouse and Long Bay. Mr. George Cann, who collects frequently in that area, states that he has not seen the species for fifteen years. The latest museum record is "Randwick, 1934". It was no doubt taken on the Rifle Range, where several other species are still found. I am quite satisfied that this species is definitely extinct in Sydney, which is surprising, as it is nocturnal, and I have found it very hardy in captivity.

(12) The Bandy Bandy, *Furina annulata*

This species seems difficult to find in the field and I have never kept it longer than a year in captivity. Although an attractive species, it seems difficult to persuade it to feed in the vivarium. It is largely nocturnal. Museum records show Cheltenham, 1935 and 1938; Killara, 1936; and Pennant Hills, 1942.

General Notes

This article would hardly be complete without brief reference to other species found in the Sydney area. Australia has representatives of all the main families, the only notable exceptions being the Vipers. Representatives of all these Australian families are found in Sydney, viz.

(1) Family Typhlopidae—the blind snakes. Several species of the genus *Typhlops*. 

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(2) Family Boidae—only Python spilotes (Carpet or Diamond Snake). Now extinct except possibly in remote parts of French's Forest.

(3) Family Colubridae—two species only:
   (a) The Green Tree Snake (Dendrophis punctulatus), non-venomous.
   (b) The Brown Tree Snake (Boiga fusca), back fanged, slightly venomous.

(4) Family Hydrophiidae—Sea Snakes (venomous). Several species have been taken as far south as Sydney.

From the above it is quite obvious that snakes of the family Elapidae are those most commonly found in the Sydney area. Only two species, however, the Marsh Snake and the Whip Snake, can be regarded as really common in the area. These two species have survived in numbers largely on account of their smaller size than other species which were once common in the area. The bite of these two species is hardly more effective than the sting of a bee. Only three species are dangerous to human life, the Tiger Snake, the Death Adder and the Brown Snake. Two species are capable of producing a nasty and painful bite, the Black Snake and the Broad-headed Snake. The latter species with the White-lipped Snake, are now extinct within this area. All the other species are completely harmless to man, chiefly on account of their small size.

In handling Sydney venomous snakes particular care must be taken with the Death Adder, owing to its ability to strike suddenly and efficiently. It cannot be picked up by the tail as can the others except at great personal risk. The Brown Snake is speediest and most aggressive and therefore should be watched carefully. The Tiger Snake, although always ready to strike, surprisingly enough is most inefficient in that respect, and I have so frequently seen this species strike short of the mark and then glide away that I have come to the conclusion that it is intentional rather than accidental. But beware of the Tiger Snake you are holding in your hands.

Of the larger venomous snakes the Black Snake and the Copperhead (Denisonia superba—not found in Sydney), often become quite tame, and in any case are usually far less ready to strike than the other large venomous snakes.

So far as is known of Australian Elapine snakes, only the members of genus Demansia are oviparous. In this respect the viviparous Australian Elapidae differ considerably from members of this family in other parts of the world, which are mainly oviparous.

All twelve species listed are comparatively similar in structural appearance and habits in that Australian members of this family are ground dwellers and have not branched out into specialized aquatic, climbing or burrowing forms. The Death Adder is an exception and simulates the Vipers in shape and even to the extent of fang development. Proportionately to its size it has the largest fangs of any Australian Elapine snake. The Black Snake is fondest of water and is the best swimmer of the snakes listed. I once caught a Black Snake in the water by the tail, when it promptly bit me, proving that it can turn back in the familiar element more quickly than the hand can be removed. On the other hand I have picked up many Black Snakes, Tiger Snakes and Brown Snakes on land with little or no risk.

Typical Localities in which Various Species have been Taken
(2) Pseudelaps diadema. In hollow rotting logs, dry country.
(3) Demansia textilis. Open country, preferring dry localities.
(4) Demansia psammophis. Similar country, frequently found under flat sandstone rocks.
(5) Notechis scutatus. Varied localities, as indicated by its wide food range. Found in dry areas not far away from swamps or water.
(6) *Acanthophis antarcticus*. Probably a very wide range, but as it is so easy to kill not frequently found in the vicinity of populated areas. Prefers dry country. Difficult to find owing to its nocturnal and sluggish habits.

(7) *Pseudechis porphyriacus*. Although naturally not so common around Sydney now, it is very common throughout Australia. I would look for this species along river banks in the early morning sun.

(8) *Denisonia coronoides*. As this is one of three Tasmanian species, I should say its range would be wide. Common in cooler parts of Australia.

(9) *Denisonia signata*. Under débris around the edges of swamps.

(10) *Denisonia nigrescens*. Under stones at bases of hills.

(11) *Hoplocephalus bungaroides*. In rocky country.

(12) *Furina annulata*. Frequently found in abandoned ants’ nests.

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**A NEW PAPUAN TREVALY**

By G. P. Whitley

A new fish of the family Carangidae and genus *Carangoides* Bleeker, 1851, was recently collected in Milne Bay, Papua, after which it may be named *Carangoides milhensis*, sp. nov.

**Di, vii/i, 25; Ai/i, 21; P.2, 20; C.16. L. lat. about 46 scales and 53 scutes. Gill-rakers about 12/23.**

- Head (90 mm.) 4.4, depth (110) 3.3 in length to caudal fork (400).
- Eye, 20 mm.; interorbital, 31; postorbital, 46; preorbital, 5; snout, 20; maxillary, 28; predorsal length, 130; length of straight portion of l. lat., 210; of curved portion, 94; depth of scutes, 14; origin of first dorsal to that of ventral, 105; base of second dorsal, 163; length of pectoral, 132; height of soft dorsal lobe, 44; of anal lobe, 41; upper caudal lobe, 124; lower caudal lobe, 100; length to middle of caudal peduncle, 353; depth of caudal peduncle, 16; and interaxillary width, 44.

- Head broad above, tapering anteriorly and ventrally. Eyes large, with broad adipose lids. Maxillary reaching below front of eye. Lower jaw the longer. Teeth pluriserrate, villiform on jaws, vomer, palatines and tongue. No enlarged teeth. Cleft of mouth level with lower part of eye. Gill-rakers not extending into mouth. Preorbital very shallow. Nostrils close together. Lower profile more convex than upper. Body compressed, broadest at middle of pectorals, covered with small cycloid scales. Anteriorly, a small, lanceolate, median area of breast naked; area between pectorals, ventrals and gill-opening mostly with moderate-sized scales. A few scales trespass on the lower parts of the pectoral rays and the soft dorsal and anal lobes, apart from the usual basal sheaths. Scutes extend all along straight portion of l. lat. which is more than twice as long as curved part, the latter bears about 46 scales, the former about 53 scutes. Junction of curved and straight parts between 2nd soft dorsal ray and the free anal spines. Vent far forward, between adipressed ventrals. Fins as usual in Carangidae, without finlets or produced rays and with the dorsal and anal lobes low. Procumbent dorsal spine present. Caudal lobes acutely forked and pointed, longer than head.

- Life-colours: Butter yellow with blue and green reflections above, white on sides and below. Fins all dark grey except ventrals and margin of anal which are white. Pectoral axil dusky. A slight blue humeral blotch.

Described from the holotype, a specimen 40 cm. in length to caudal fork or 194 inches overall and weighing 1 lb. 13½ oz. Field No. C.32. A female paratype was 39½ cm. long and weighed 1 lb. 12 oz. Total length 20 inches. It had A. ii/i, 22.

**Loc.—Milne Bay, Eastern Division of Papua; caught in seine net in shallow water near south-western corner of the bay during the Fisheries Survey by M.V. Fairwind, 23rd September, 1948.**

The new species may be recognised by its compressed, lenticular shape; shallow preorbital; villiform teeth; very small naked area on breast; long, armed straight portion of l. lat.; and fin- and scale-counts.
NOTES ON THE LITTLE LIED CORMORANT

By J. A. Keast
Australian Museum, Sydney
and A. F. D'Ombraun
West Maitland

Although the Little Pied Cormorant (Microcarbo melanoleucus) has a wide range in Australia and is one of the most common birds of our estuaries, swamps and rivers, only a few sketchy accounts of its breeding activities exist. It is the object of the present field paper to assemble such data and discuss several intriguing aspects of the life history of the species.

The Little Pied Cormorant is the most common, and now the only black and white shag, occurring around Sydney. A reduction in the harbour population occurs in the late spring when the birds retire to nest, but just where the majority of the Sydney birds nest is as yet unknown.

An Introduction to a Nesting Colony

On 5th December, 1943, we visited a nesting colony of the Little Pied Cormorant on the Paterson River, New South Wales, near Woodville, and some nine miles north of West Maitland. Mr. J. Wolstenholme, of West Maitland, who had located the colony a fortnight earlier, conducted us to the site.

Twenty minutes’ delightful river journey preceded our arrival at the colony—a large sloping oak (Casuarina cunninghamii), its outer limbs laden with bulky nests and smart black and white cormorants. Confusion reigned as we drew near, the adults rose into the air with discordant cries and whistling wings, and many young jumped from the nests and "plonked" into the river. The extraordinary scene presented by the latter immediately detracted attention from the adults. Momentarily, small black heads appeared on the surface, then disappeared, leaving only an odd bubble to mark an underwater journey towards the bank. We expected to see some float to the surface, stunned by the fall, they having jumped from a height of 30-40 feet above the river, but the adventurous nestlings were not again seen. Rustling sounds from the dense rushes at the water’s edge, however, testified that they had reached the bank. Several adults returned to the nests as we tied the launch near by, but the majority, some sixty odd, took up a position in two tall casuarinas on the opposite bank.

The nesting tree sloped at an angle of 45° to the water and the birds’ occupation had considerably reduced its foliage. The nests, about forty in number, were clumsily built structures of sticks and casuarina and willow (Salix babylonica) fronds. Several appeared to be in most precarious positions, and were one or two feet apart in the outer branches but less compact in the centre and lower limbs of the tree. Gawky young cormorants craned their necks from the nests and upper limbs. The adults stared at us with mixed expressions suggestive of annoyance and alarm, ready to take flight at any untoward move. The trunk and branches of the tree were stained white with excreta and from time to time the liquid excrements of the young showered into the water below. We were careful not to take the boat beneath the tree.

Examination showed that the nests on the outer limbs contained eggs or young, or had contained young, and those in the interior of the tree were under construction. The latter were composed of still-green willow fronds. The technique employed by the birds when building was apparently to wedge
1. Adults in tree adjacent to the colony. 2. Adult, showing sub-crest. 3. Adult on nest; sub-crest is raised. 4. Portion of colony showing density of nests. 5. Birds soaring over the colony.

—Photos, by A. F. D'Ombraint.
as much material as possible into a vertical or horizontal fork until a structure with diameter of twelve to eighteen inches and depth of about six inches resulted. The nests were shallow but very secure in foundation.

The breeding season appeared to be a protracted one. The state of nests were as follows: nests with five eggs, two; four eggs, three; three eggs, three; two eggs, three; one egg, five; nests with five young, four; four young, two; three young, four; two young, three. Several of the egg clutches were nest-stained. Apparently a few of the smaller clutches were abandoned, as the nests contained a quantity of excrement, as did a few of the empty nests. In addition to those young in the nests over a dozen were perched on the outer limbs of the tree. About twenty had jumped into the water on our arrival. There were five nests freshly built and ten in various stages of construction. The young varied considerably in size, the smaller were black repulsive little creatures with loud chirping-wheezing voices, the larger were down-covered and partly feathered. All chipped incessantly.

Two or three adults, whose nests contained small young, were loth to leave the rookery and one allowed the photographer to climb within eight feet of her nest before leaving. Then she (?) flapped on to a branchlet a few feet above the nest. When a descent was made to a lower limb the bird flipped awkwardly back on to the nest. In a mass of excreta beneath this nest was a small Estuarine Perch (Percalates colonorum) about two inches in length. Several times the adults rose in a body from their perching tree on the opposite bank, flapped up the river, and then with an unusual soaring flight swept low over the colony. Their shadows caused great excitement amongst the nestlings.

Our return to the boat allowed several adults to land in the rookery and feeding scenes were witnessed, the young inserting their heads into the gape of the parent for regurgitated food. This operation was carried out with much clamouring from the inmates of near by nests. One larger, down-covered young bird which had spent most of the afternoon perched on a most insecure outer limb, became so excited at the sight that it lost balance, toppled out of the tree, and splashed into the river.

We were informed that this colony continued in operation until late February, 1914, nests still being built at the end of January.

Nuptial Plumage

The adult cormorants at the colony had small crests on the forehead, giving them a quizzical expression. These sub-crests stood erect when we were amongst the nests, when a bird alighted in the colony, and when feeding was taking place. At other times they were not visible or were partially raised.

G. M. Mathews and T. Iredale[1] wrote of this genus: "There appears to be no crest in the breeding season, at least in the Australian species." Examination of museum skins discloses that the species has stiff feather sheaths, both black and white, and up to ½ inch or ¾ inch in length, commencing at the top of the bill and petering out on the forehead. This feather structure is present in both male and female birds, but is less pronounced in the immatures. When adults were not breeding we have on occasions, when the birds were preening themselves or perched side-on to a breeze, observed this sub-crest partially raised.

The "Jumping to the Water" Habit of the Young

A. J. North[2] quotes an account by Dr. W. MacGillivray of a visit to a nesting colony of this species at Hamilton, western Victoria, on 4th November, 1906. The tree was on the edge of a dam and held two hundred nests. MacGillivray stated: "Most of the fully, and many of the partially, feathered young, on our approach clambered out of their nests and dappled into the water below, and curiously enough, although they were dropping all around us, we did not see a single one come to the surface, and they certainly were not drowned, they disappeared at once, and were not seen again during the two hours or more that we spent there."

W. H. D. le Souef,[3] from notes made in the Riverina, New South Wales, wrote: "When disturbed, they generally climb out of their nests on to the
higher branches and, to help themselves up, frequently insert their head or neck into a fork above them, but occasionally the fork is narrow and the bird, being unable to extricate itself, gets hanged. Many of them tumble over the edge of the nest onto the ground below, the concussion frequently killing them; but if they fall into the water, they at once dive, and keeping their bodies well under, put their heads through some vegetation, or alongside some fallen brushwood or timber and try to escape notice by remaining still.”

C. E. Bryant, writing of the nesting colonies near Moree, New South Wales, recorded the larger young of the Little Black Cormorant (Phalacrocorax ater) jumping to the water when disturbed, and we are informed that this practice was indulged in with equal frequency by the young of the Little Pied Cormorant.

The observation of MacGillivray that the young were not seen again after striking the water does not hold good for the Paterson River birds, for some, but not all, appeared on the surface for an instant before undertaking the underwater journey to the bank. Regarding the fate of these young we were rather curious. However, Mr. Wolstenholme stated that when he visited the colony a fortnight earlier a number of young had taken to the water, but when he commenced to fish near by and the colony quietened down, some young had been seen clambering up the trunk of the nesting tree. This tree was sloping and very rough-barked and should not have proved beyond the powers of the larger nestlings, who had exhibited great dexterity in negotiating the swaying branchlets at the top of the tree during our visit. We are informed that the Moree cormorants nested in spreading, smooth-barked trees, but the swamp contained many floating logs and broken branches on to which the young could have emerged. The colony was again visited by Mr. Wolstenholme on 8th January, 1944, who stated: “The birds are still there and seem to be even more numerous. They still fall into the water but a lot of young birds appear to be swimming about under the tree, apparently yet unable to fly.”

We were unable to catch any of the young which jumped from the nesting tree to determine their exact state of development. Though their wings were far from being completely formed, it took them only a few seconds to reach the bank. It is interesting to note that they so early in life acquire the art which is their means of livelihood.

**The Immature Bird**

The nestling-in-down is sooty black with the facial parts of bare flesh. The head of such a bird is figured in the *Proceedings of the Royal Society of Victoria*, 1938, page 409. More recently, K. L. S. Harley has described nestlings from a colony in the Brisbane Botanic Gardens.

Le Sonef says: “After losing their down, the young of the Little Black and White (Cormorant) have only a comparatively small patch of white on the breast.” Mathews describes the skin of a nestling “with tail and wing feathers partially developed” as: “... dense black with white feathers interspersed over the entire abdomen, more thickly on the thighs and vent, the head is quite naked as far as the ear-coverts, which have white tufts. Bill black, basal portion and a patch near the tip of the lower mandible yellowish-white; forehead and crown of head dirty white; throat purplish flesh-colour; interramal space pale greenish-white; iris, outer ring dirty white, inner one brown; feet black.” Harley’s field description of fledglings “that could dive and swim exceedingly well but could barely fly” agrees with that of Mathews. However, Harley states that “the general colour of the mandibles was white except for the tip, which was black.” And further: “The throat had a bare orange patch of skin on both sides of it.” Such differences presumably arise over the one being a skin description and the other made in the field.

Immature *M. melanoleucus* began to appear on the estuary of the Hunter River from the middle of February, 1944. By the end of March half of the varying population (averaging 12) of one waterway were immature birds. These could be readily distinguished by their brown-black plumage; the sooty-black colouring of the head was more extensive than in adults, it
extending to below eye level as compared with the narrow black cap and upper neck of the adults; and darker upper mandible.

Typical of the immature birds in April was one seen on 16th of that month: Back of head, side of head to below eye level, back, wings, upper tail, dusky brown; abdomen, breast, throat and lower face, dull white, the white feathering sweeping on to the side of the head behind the eye; fleshy portion between eye and bill, dark brown. In the bill the upper mandible was dark on the upper side, dull yellow at the base; lower mandible, and fleshy portion beneath, dull yellow. The fine fringe of white feathers across the top of the bill, visible in adults, was absent. The forehead feathers appeared short. The upper plumage lacked the blue-black sheen of the adults. This bird is similar to the immature male sketched in the *Proceedings of the Royal Society of Victoria* referred to elsewhere.15

On 30th April, 1944, one immature bird was seen with a bright yellow bill, the rest of the plumage being similar to the afore-described. By the middle of May most immature birds still had the dark feathering extending from the crown to below eye level, but the dark feathers on the side of the head had been replaced by the white feathers of the adult. The fleshy parts before the eye were faintly tinged with yellow in some birds and the upper mandible was more yellow than previously. The upper parts had blackened but were still dull when. On 15th May, 1944, an older bird was noted in which the white feathering over the eye to the bill but it did not extend around the top of the bill; the dark feathering came lower on the sides of the head than in the adults; the fleshy parts before the eye were dark yellow and the bill was dull yellow.

It was not possible to continue observations on these birds after the end of May. Full adult plumage is apparently not attained, however, for at least a further six months for, in the Sydney area, it has been noted that up to 30 per cent of a December population may lack the white line above the bill and have the brownish upper plumage of immature birds.

*“Red-Breasted” Cormorants*

From time to time individuals of this species are noted in the field with the whole or part of the white underparts covered with a rufous wash of varying intensity. The phenomenon has recently been commented upon by Angus Robinson, who describes such a bird in a small party of the species at Safety Bay, Western Australia.61 He considered it to be a variant of the species. Subsequently, K. L. S. Harley62 noted a bird in a nesting colony in the Brisbane Botanic Gardens. The authors have, on several occasions, seen such birds in eastern New South Wales.

Skin No. O.37551 (from Goulburn, New South Wales) in the Australian Museum is such a bird, those parts which are normally white are an even rufous-chestnut in colour, which on examination is found to be restricted to the tips of the feathers. It was accordingly decided to test feathers from this bird with the object of discovering whether the coloration was physiological or due to external staining. That the bird was a "variant" was eliminated when Dr. A. Bolliger, of the Medical School, and Mr. A. L. Ritchie, of the Chemistry Department, Sydney University, who kindly undertook the tests, found that strong hydrochloric acid quickly removed the colouring matter; cold 5 N acid completely cleaned the feathers and the solution became a rich yellow in a few seconds. The solution gave pronounced positive reactions for iron to the ammonium thiocyanate and potassium ferrocyanide tests; ethyl acetate removed the red coloration to the acetate layer in the case of the former test. Further, it was found possible to precipitate red ferric hydroxide by neutralizing the solution with equivalent strength sodium hydroxide. The chloroform test for organic ferric compounds was negative. The black back feathers (which do not readily show staining) likewise gave a pronounced positive reaction for iron.

Subsequently, Dr. Bolliger tested feathers from two other Museum skins, Nos. O.23958 and O.16592. No. O.23958, an adult from Rose Bay, New South Wales, is less coloured than O.37551 and pronounced staining is restricted to the breast and sides of face; O.16592, from Manilla, New South Wales, has a clean, white breast. O.23958 gave a positive test for both strongly and poorly stained feathers; O.16592 feathers did not give a reaction for iron.
It is noteworthy of note firstly that in all the cases where staining was present amongst the Museum birds the coloration was restricted to the distal quarter of the feathers; secondly, that a minority of the birds had "lily-white" breasts, the majority showing a faint degree of staining. Until a certain concentration is reached, the coloration does not show in the field. In the Cattai Creek area, Hawkesbury River, where such birds are not infrequently seen, the legs of white horses which wade in the swamps frequently become stained reddish.

Under comparatively still water conditions soluble ferrous humates and similar compounds, leached from the soil and rocks, are oxidized to the insoluble ferric oxide. The latter occurs as an "oily" scum on the top of ponds and slow-moving streams which is seen to break up when the surface is disturbed. Staining increases with evaporation and or reduction in speed of flow. Probably deposition on birds occurs when the outer parts of the feathers become wet following prolonged periods in the water. That some of the stain is only lightly held, even after drying, was shown when O.37551 was received at the Museum in February, 1942, and attempts made to clean it. A considerable quantity of iron was removed by water, alcohol, and petrol; sufficient stain could not be removed, however, to alter the chestnut coloration.

It is worthy of comment that Dr. J. A. Leach, in his "An Australian Bird Book," (Edition 1941), p. 76, said of P. melanoleucus: "Its throat and upper chest are yellow." In the recent Eighth Edition (1930), page 130, which was edited and brought up to date by Charles Barrett the sentence has been altered to read: "The Little Pied Cormorant is also black and white, chest being chestnut." Both authors apparently erred in examining stained skins.

Ferric staining on waterfowl is recognized in Europe and America; rarely, however, does it show in such a striking manner as can occur in this species.

Miscellaneous Notes

The Little Pied Cormorant is the most common cormorant along the rivers, estuaries and bays of eastern New South Wales, in many districts outnumbering the other species by two to one. It is also plentiful on inland lakes and streams.

Several birds attempted to nest on an island in Centennial Park, Sydney, in January, 1934, and again in February, 1947; this time about eight nests were built and the birds apparently had more success (K. A. Hindwood MSS.). D. L. Serventy has informed us that the species attempted to nest in a mangrove-fringed inlet of Botany Bay about 1930, but left after interference by fishermen. These are the only nesting records from the Sydney area.

The nesting season in southern Australia appears to be from September to February, but varies in different localities. A survey of the egg clutch given by the authorities quoted in the references indicates that it is normally from three to five, but that as many as seven eggs have been found in the one nest. The maximum clutch noted by us was five; probably the clutches below three were incomplete. The species usually nests in trees, but has been recorded nesting on rocky islets in the Sir Joseph Banks Group, also islands to the south of Fremantle and other places.

References

THE AUSTRALIAN CORAL SNAKE

By R. Mackay
Cadet Preparator, Australian Museum, Sydney

The following notes on the Australian Coral Snake (*Rhynchoelaps australis*) were compiled from observations made on a captive specimen which came from the far North Coast of New South Wales.

Although many specimens exist in museums, this snake is considered rather rare, probably because of its nocturnal and burrowing habits.

The Coral Snake is one of our smaller species, growing to about fifteen inches in length. The head is almost triangular in shape viewed dorsally, and is slightly distinct from the neck. The girth is almost constant from the head to the base of the tail, which is short and ends bluntly in an upturned subcaudal scale. The snout is produced to a point with which it forces its way through the ground. The eyes are very small and the pupil is round.

![Australian Coral Snake (*Rhynchoelaps australis*)](image)

*Scalation.*—Rostral very prominent, obtusely pointed with sharp horizontal edge. Eye a little shorter than its distance from the mouth. Rostral as deep as broad, its upper portion forming an acute angle behind, and longer than its distance from the frontal. Frontal a little longer than broad, twice as broad as the supraocular, as long as its distance from the end of the snout, as long as the parietals. Nasal in contact with preocular. Two postoculæ, temporals 1 × 1, six upper labials. Scales in 17 rows; ventrals 149-163, anal divided, subcaudals 16-20 divided.
The Coral Snake is one of the most brightly coloured of all the Australian species. The ground colour is bright red. A black band passes right across the head, a second, broader band crosses the neck just behind the head, whilst a third, rather thin one crosses behind the latter, the two hindmost ones being edged with white. Along the sides are patches of white, the scales in each patch being edged with black; similar markings form bands across the tail. The underside is ivory white.

If placed on soft earth, it will quickly burrow out of sight. It seems to prefer damp soil to dry because its main food lives in the damp soils, and this consists of the larvae of small beetles, worms and, from my observations, slugs.

It is a venomous species, but due to its small size it could do no harm. No attempt is made to bite when handled, not even when first captured or if forced to bite. Most people when they hear of the Coral Snake immediately think of it as deadly, but this is not so—it is the American and Oriental Coral Snakes that are deadly.

_Distribution._—North-east New South Wales, south and south-west Queensland.

A NEW NAME FOR AN AUSTRALIAN CERAMBYCID

By Keith C. McKeown, F.R.Z.S.

Mr. L. J. Dumbleton, of the Department of Scientific and Industrial Research Plant Research Bureau, Entomology Division, Nelson, New Zealand, has kindly drawn my attention to the fact that the name _Didymocantha picta_ McKeown described in the _Records of the Australian Museum_ xxii, 1. June, 30 1948, p. 53, fig. 4, is preoccupied by _Didymocantha picta_ Bates, a New Zealand species, and therefore cannot stand.

It is now proposed to name my species from Ejudina, Western Australia, _Didymocantha flavopicta_, n. nov.

Mr. Dumbleton's kindness in drawing my attention to the oversight is much appreciated.

WARrrTTIME ADVENTURES OF A SCIENCE PAPER

By Lynette Young

Two years before the war, under a grant from the C.S.I.R., Mr. Tarlton Rayment wrote _A Critical Revision of the Zonata Cluster in the Genus Anthophora_. This paper contained a revision of all the known species in the Australian and Oriental regions, and Parts I, II and III, together with 1,200 diagrams illustrating the anatomy of the bees, were despatches to the Natural History Museum, Buitenzorg, Java. A week after their arrival at the Museum, the Japanese invaded and occupied the Netherlands Indies. It was later reported by Indonesian scouts that the Japanese had destroyed all scientific papers and that Drs. Van der Vecht and Lieftinck, well known scientists, had died. It was not until a year after the cessation of hostilities that Tarlton Rayment learned that both Lieftinck and Van der Vecht had survived.

Dr. Lieftinck wrote from Beatrixlaag Internment Camp that the Japanese had seized and published Part I of the paper. This had been done by a Japanese scientist, Professor Naki of Tokyo University, and full credit was given to Rayment for his fine work.¹ Two copies of this Japanese publication came to Melbourne, and one was presented to the C.S.I.R.

In September 1947, Part II came to hand, published by the Dutch authorities in Java.² Part III was returned to the author for revision in

² _Treubia_ (Dutch edition), xix, 1, June, 1947, pp. 46-73, text-figs. 1-17.
July 1947, and posted back to Buitenzorg the same month. Owing to outbreaks of hostilities between the Dutch and Indonesians, the manuscript was lost. However, later that year Dr. Diakonoff sent news that it had been found and was in the hands of the printers. Let us hope that the hazards of war will not interfere with the production of Part IV of this adventure some revision upon which Mr. Rayment is at present engaged!

ISLAND SCENES FROM WESTERN AUSTRALIA

By G. P. Whitley

The following few pages of photographs show scenes, birds and fishes from the Houtman’s Abrolhos and Lacepede Islands, Western Australia.

The first plate shows (1) the small settlement on Pelsart Island, in the Abrolhos, with (2) roseate terns, (3) noddies resting on the ground, (4) a noddy on its egg, (5) a nesting colony of shags, and (6) an adult shag (Phalacrocorax varius niloidus) with a catfish it had eaten.

The second plate represents birds on the Lacepede Islands, north-western Australia. Above, young boobies (Sula leucogaster) are resting on Middle Island, 18th October, 1945. The lower photo is of a young Frigate Bird beside its nest on West Island, 17th October, 1945.

Frigate Birds were mostly restricted to the south-west end of West Island, where over 100 were flying. There were about 200 nests on the ground, with about 15 young birds on some of them. These young could fly for some yards. The one shown here had the eyes brown, eyelids powder-blue; bill bluish-white; inside of mouth powder-blue; head and neck chestnut; rest of bird dark brown with white mottingle here and there, especially on the shoulders and sides; hinder part of breast white; and feet light grey. Its only defence was to snap its bill and peck and unfold its wings. When very disturbed it squawked "Awaah". The nest was a foot or so high, a cylinder of grey sticks capped by guano. Other young birds showed colour variation. Some had white heads, or chestnut heads with white necks; one small bird had nearly all the breast white. One nestling vomited several parcels of small flying fish, Parexocoetus brachypterus.

The third plate shows three kinds of parrot fish from the Abrolhos, viz. (1) Scarus fasciatus ♂, (2) Chorodon cyanodus ♂, and (3) Thalassoma lunare ♀. Figure (4) illustrates typical shoreline on Wallabi Island, whilst (5) and (6) show the lugger Isobel, then under charter to C.S.I.R., returning to Geraldton. Her late skipper, Eric Akerstrom, is at the tiller in (6), with Dr. D. L. Serventy on the left. All these Abrolhos photographs were taken by Mr. Leo Vecchia of Geraldton in December, 1945.

REVIEWS

McKEOWN’S “ AUSTRALIAN INSECTS ”


“Australian Insects” presents a graphic account of our insect life. Although popularly written, scientific accuracy has not been sacrificed, and it will prove equally valuable to students and teachers, farmers, naturalists and all who take a general interest in the living creatures of bush and garden. Special attention has been paid throughout to the strange life-histories and habits of our insects— an aspect seldom found in such books. Where such information is lacking, the fact is clearly indicated so that observers will have an opportunity to fill the gaps in our knowledge.
Bird Life of the Abrolhos, W.A.
—Photos. Leo Vecchia.
Boobies and young Frigate Bird, Lacepede Islands, W.A.
Fishes and scenes of the Abrolhos, W.A.
—Photos. Leo Vecchia.
Classification of the insect forms discussed is clearly set out and a unique illustrated key to the various Orders provides the beginner with a simple means of grouping his insect captures; the text supplies information for their respective identification. The book is lavishly illustrated with some 400 photographs and drawings of typical insect forms, together with their immature stages. Of its type, this is the most complete and up-to-date account of our Australian insects that has yet appeared. It should find a place in the library of every lover of nature.

This, the second printing of the Second (Revised) Edition of "Australian Insects", has been called for by an insistent public demand. The earlier printings were eagerly and appreciatively received by workers and nature lovers both in Australia and overseas as filling an important place in Australian entomological literature. So great was the demand, indeed, that the first edition is now a rarity esteemed by book collectors and lovers of Australiana as well as entomologists, and the first printing of the second edition soon sold out. Orders are now being received for the new, revised printing, and should be sent without delay, accompanied by remittance of the price plus postage (see above), to the Hon. Secretary, Royal Zoological Society of New South Wales, Box 2399, G.P.O., Sydney.


The engaging name "Fairy Wrens", invented by Tom Iredale in the Australian Zoologist in 1924, serves both as title and indication of contents of this delightful little book whose forty pages relate a conversational account of the origin, development and domestic life of Australia's prettiest family of birds. A coloured plate by Cayley shows the wrens in all their splendour, and there are numerous photographs of these "charming wee birds with the stickyup tails".

LIST OF MEMBERS

The Council of the Society has decided not to issue the usual annual list this year. Members will oblige by notifying the Honorary Secretary of any changes of address in the list published in the Proceedings for 1946-47.

Due to circumstances beyond the Society's control, publication of these Proceedings has been delayed into the new year.
MEMBERSHIP
(The Society’s year commences on 1st July)
Fees commencing 1st July, 1949, as follows:

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