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PROCEEDINGS
OF THE
**Royal Zoological
Society**
OF
New South Wales

for the year 1946-47.



Price, 1/-.
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(Free to all Members and Associates.)

September, 1947.

Sydney:

Published by the Society, 28 Martin Place.

Royal Zoological Society of New South Wales

Established 1879.

REGISTERED UNDER THE COMPANIES ACT, 1899 (1917).

Patrons.

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Sir Philip Woolcott Game, G.B.E., K.C.B., D.S.O.

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Royal Zoological Society of New South Wales

The Sixty-seventh Annual Meeting was held at Taronga Zoological Park, Mosman, on Saturday, 26th July, 1947, at 3 p.m. One hundred and seventy members were present. The Honorary Secretary read the

SIXTY-SEVENTH ANNUAL REPORT

Membership.—On the 30th June, 1947, the total membership of the Society numbered 672, consisting of 1 Endowment member, 4 Associate Benefactors, 8 Honorary members, 37 Life members, 470 Ordinary members, 19 Life Associates, 3 Honorary Associates and 130 Associate members.

Part of the increase in the ordinary membership is the result of a new agreement made with the Taronga Park Trust during 1946, whereby the Society controls the issue of all season tickets for admittance to the Zoological Park. Removals from the Register of Members during the year totalled 54; resignations 18, deaths 4, and 32 in terms of Article 9.

Council.—Eleven meetings of Council were held during the year, with an average attendance of 13. During the year Mr. Tom Iredale, who so ably took over the Hon. Secretaryship following the death of Mr. Basset Hull, resigned from Council and the Secretaryship, and Mr. T. A. Everitt was appointed to fill the vacancy.

Sections.—Interest has been maintained throughout the year by those members who take an active part in the scientific aspect of the Society. Each section has held its regular monthly meetings and all report satisfactory progress. The Annual Reports and Syllabus for 1947-48 indicate that the present happy state of affairs should continue in the future.

Fellows.—Mr. Edward J. L. Hallstrom was elected a Fellow of the Society in appreciation of his unremitting efforts on behalf of Australian Zoology and the Society.

Honorary Member.—In recognition of his untiring efforts in furthering the interests of the Society, Mr. Tom Iredale has been elected an Honorary Member.

Hon. Editor.—Mr. G. P. Whitley has taken up the appointment of Honorary Editor and will be happy to receive contributions for either the "Australian Zoologist" or the "Proceedings".

Publications.—The "Proceedings" for 1945-46 was issued on the 30th October, 1946, and since that date a further part of the "Australian Zoologist" has been received from the printers.

At present the Hon. Editor is collecting material for Part 3, the printing of which is listed for early 1948.

The second (revised) edition of Mr. K. McKeown's "Australian Insects" is in the bookbinders' hands.

Unfortunately, Part I of "Fishes of Australia", by G. P. Whitley, is now out of print and the question of a new edition has not yet been

considered. Mr. Whitley is preparing Part 2 of this work and it is hoped to place the order for printing early in the new year.

Library.—A complete set of new bookcases was installed during the year and it is the Council's intention to proceed with the binding of a great number of the publications received on an exchange basis from overseas.

Members may be interested to know that the Society conducts exchanges with 139 kindred organizations, the majority of which are domiciled outside Australia.

During the year a most valuable contribution to the library was received from Mr. C. F. Laseron—a complete set of the Reports of the British, Australian and New Zealand Antarctic Expedition.

Mr. Lockie, the Hon. Librarian, has been busily engaged in cataloguing the books on hand, and it is hoped that shortly the library facilities will be available to all members.

Finance.—The finances of the Society continue in a healthy state, as will be seen from the balance-sheet presented by the Hon. Treasurer.

The Hon. Treasurer presented the balance-sheet for the year 1947-48. (See page 4).

Mr. F. G. Purcell, a Taronga Park Trustee and Chairman of the Sydney County Council, moved the adoption of the Annual Report and Balance Sheet. The speaker stated that it was most gratifying to see the increase in membership and the healthy state of the Society's finances. It was pointed out that the Society and the Taronga Park Trust had a big job ahead in the preservation of our fauna and the education of the people to a true appreciation of the animal and bird life of the world, and the Commonwealth in particular.

A resume of the work of the Commonwealth Conference of Zoos was given and the important work being done by Zoological Parks was stressed, particularly in regard to the preservation of the rarer species. It was considered that the establishment of sanctuaries, both private and State, would assist greatly.

Finally, Mr. Purcell urged that all members interest themselves in the education of children in natural history and kindred subjects. He was sure that by improving the curriculum of the schools, a love of our native fauna could be fostered, and with this end in view gave warning of a motion to be brought forward during general business.

Mr. E. H. Zeck seconded the motion, which was carried by acclamation.

A ballot for the election of six members to Council resulted in Messrs. T. A. Everitt, A. Halloran, E. J. L. Hallstrom, J. R. Kinghorn, C. F. Laseron and P. Shipway being returned.

The President then declared the meeting open for general business, and the following motion by Mr Purcell was placed before the members:—

"(1) That this Annual Meeting of the Royal Zoological Society of New South Wales, in the interests of the preservation of our native fauna, affirm in principle the desirability of inculcating in the minds of children at an early age a greater knowledge and love of our native animals and birds and those of other countries.

"(2) It is further resolved that with a view to the implementation of the above, the Council of the Society is asked to arrange for a deputation to wait upon the Minister for Education, the Hon. R. J. Heffron, M.L.A., with a request that a greater measure

of instruction be given to children in primary public schools relating to the fauna of Australia and other countries.

"(3) The Council is also requested to invite other interested bodies with kindred ideas, such as the Taronga Park Trust, Parents & Citizens' Associations and the Bird Lovers' League to join the deputation".

The mover stressed the need of improved and increased facilities for nature study in schools, and in this was supported by Mr. Hallstrom, who seconded the motion.

It was stated that the destruction of our native fauna was constant and appalling, but he believed that such was done through ignorance, which, with the proper educative methods, could be eliminated.

This motion was carried on the voices and will now be referred to Council for the necessary action.

The President, Dr. Frank Marshall, C.M.G., D.D.S., then delivered the Presidential Address. (See pages 6-10).

Mr. A. Halloran, in moving a vote of thanks to the President, spoke of Dr. Marshall's untiring efforts on behalf of the Society during the past two years. He also emphasised the need of greater protective measures throughout the Commonwealth to overcome the slaughter of our native fauna. Tribute was paid to His Excellency the Governor-General, Mr. W. J. McKell, for his assistance and interest while Premier of New South Wales.

OFFICERS FOR THE YEAR 1947-48.

President: Dr. Frank Marshall, C.M.G., D.D.S.

Vice-Presidents: Dr. Garnet Halloran, Messrs. E. J. L. Hallstrom, A. S. Le Souef, and E. H. Zeck.

Honorary Secretary: Mr. T. A. Everitt.

Honorary Treasurer: Mr. Phillip Shipway.

Honorary Editor: Mr. G. P. Whitley.

Honorary Librarian: Mr. P. E. Lockie.

Honorary Assistant Secretary: Mrs. B. Irving.

Honorary Auditor: Mr. R. J. Stiffe, F.C.A. (Aust.).

ROYAL ZOOLOGICAL SOCIETY OF NEW SOUTH WALES.

BALANCE SHEET AS AT 30/6/47 (SUBJECT TO AUDIT).

ACCUMULATED FUNDS.						ASSETS.					
			£	s.	d.				£	s.	d.
General A/c.:						General A/c.:					
Balance at 30/6/46	1276	16	4			Furniture & Equipment at Cost	1437	5	1		
Net Income for Year	4	19	1			Cash in Bank, less Outstanding Cheques	36	8	7		
Furniture & Equipment purchased during year at cost	192	1	0			Cash on Hand	2	9			
				1473	16	5			1473	16	5
Publication A/c.:						Publication A/c.:					
Balance at 30/6/46	2491	14	5			Cwealth & Met. Water Sewerage & Drainage Bd. Bonds Stock and Debentures at Cost	2060	0	0		
Net Loss for year	114	14	1			Cash in Bank, less Outstanding Cheques	207	7	2		
				2277	0	4					
Building A/c.:						Building A/c.:					
Balance at 30/6/46	717	16	1			Cwealth Bonds at Cost	700	0	0		
Net Income for Year	31	1	8			Cash in Bank	48	17	9		
				748	17	9			748	17	9
				<u>£4499</u>	<u>14</u>	<u>6</u>			<u>£4499</u>	<u>14</u>	<u>6</u>

26th July, 1947.

PHILLIP SHIPWAY,
Hon. Treasurer.

REVIEWS.

THE LIGHTEST FISH.

"A Study of a Collection of the Fish *Schindleria* from South Pacific Waters",
by Anton Fr. Bruun: Dana-Report No. 21, 1940, just received in
Australia.

Anglers frequently vie with one another to catch the heaviest fish, but in this scientific monograph Dr. A. F. Bruun goes to the more modest extreme to treat of *Schindleria*, the lightest fish in the world. Originally, fishes referred to this genus were thought to be "larval" garfishes which were sexually adult when less than one inch long, an extraordinary contradiction in terms. Although rather like a young garfish in general shape, *Schindleria* belongs to a family all its own with no known near relatives.

Dr. Bruun visited Sydney aboard the "Dana" with Professor Johannes Schmidt nearly twenty years ago and then netted a large number of Pacific *Schindleria*. Two examples of *S. praematurus* were caught off the New South Wales coastline and thus constitute a remarkable addition to the Australian fauna. Dr. Bruun considers there is a possibility that these curious tiny pelagic fishes may be viviparous.

Certain Gobies from Luzon, in the Philippines, are the smallest living vertebrate animals, *Pandaka*, at its longest, being only 11 mm., but *Schindleria* is by far the lightest, having a maximum weight of 8 mg.—G.P.W.

"Gliders of the Gum Trees. The Most Beautiful and Enchanting Australian Marsupials", by David Fleay. Melbourne (Bread and Cheese Club), 1947. Price 10/6.

One of the most delightful little books ever published that should appeal to everyone interested in the Australian Fauna. The author is already well known for his life studies of animals in the field and in the Badger Creek Sanctuary, of which he is the Director. The present little book deals with only a small restricted class and gives an excellent account of their life-histories; illustrations taken by the author provide an easy guide to the creatures he is writing about. The text is authoritative as well as delightfully written so that, while anyone can read it with pleasure and profit, it becomes also a help to the most scientific worker. As a production it deserves nothing but praise and, to use the best known cliché of the reviewers, it should be in the hands of everyone interested in the slightest degree in our Fauna. Everyone reading it will learn something. The Bread and Cheese Club must also be complimented for the set-up and publication of this intriguing little volume.—T.I.

Presidential Address

THE TEETH OF ANIMALS.

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

Permit me to address a few words to you upon what appears to me some of the objects of our Society, and methods of carrying them into effect. I see many members here present who, from their more extended knowledge of every branch of the Zoology from which we take our name, are much more competent than myself to perform this task to your satisfaction and upon some one of them I could wish it had devolved; but as your kindness placed me in the Chair, I will endeavour to fulfil this part of my official duty to the best of my abilities. I must, therefore, solicit your indulgence for any imperfections of style or matter that may strike you in this address.

Zoology may be regarded as including several provinces, in every one of which our knowledge is at present far from perfect, and therefore, contributions upon every subject which they include, as your taste and turn of mind may lead you, provided there is no waste of time and talent on what is trivial and uninteresting, or has been thoroughly investigated, will be acceptable and valuable.

There is one of these provinces that I think ought to stand high in the esteem of every Zoologist—I mean the study of the fauna of his own country. A knowledge of our indigenous fauna is the first desideratum in our science.

An important object of our Society with regard to indigenous Zoology is this—that insulated observations made by individuals upon the habits and economy of animals may not be lost. Few persons have an opportunity of tracing the whole proceedings and life of any species of animal; but at most everyone has it in his power to relate some interesting trait or record, some illustrative anecdote of the beings that he beholds moving around him in every direction. None of these fragments should be lost, since each may lead to important conclusions, and the whole, concentrated, may often form a tolerable comment and throw great light on some perplexing theme of nature. Under their head I may observe that peculiar care and caution are requisite in noting the habitats and food of animals since great mistakes have arisen and have been propagated by high authority from observations being too hasty in forming their opinions on this subject.

What further observations I have to submit for your consideration will relate to Zoology in general and involve teeth in particular.

There is probably no geographical region in the world that so justly commands the attention of the naturalist as Australia. In nearly every department of Zoology it yields forms and features represented, if at all, elsewhere in the surface of the globe, only by long extinct fossil types.

The fauna of Australia is of peculiar interest, viewed altogether apart from those phenomena which appear to justify our regarding that territory as the isolated residuum of an interrupted Continent. As an indirect but collateral outcome of that interpretation, it is found that Australia can lay claim to the possession within its boundaries of a fauna that yields the palm to no other one of the earth's surface.

It would be unwise to attempt to deliver to this representative gathering of people interested in the love of animal life and desirous of knowledge

on every phase of it a learned account of Comparative Dental Anatomy. But I am sure you will all listen to the general items relative to Teeth of Animals.

Probably the extinction of many groups of animals has been due to teeth trouble through over specialisation. Thus, according to evolution, there has been a gradual ascent from the lowest invertebrate forms to the highest mammals. There are no teeth, as we understand them, in the Invertebrate Animals, though many structures are popularly known as teeth, sometimes on account of their shape, and others on account of their use. Even as we to-day grant teeth to inanimate objects such as combs, rakes, etc.

Thus teeth are commonly used in shells, sometimes for the appearance of the edges of the shells as in the case of Saws, but also for the peculiar adaptation for rasping the animals have developed. But these have nothing to do with Vertebrate Teeth, which are in the jaws and composed of dental tissues, and used for seizing, holding and crushing their food, animal or vegetable. The kinds of teeth for the different purposes are now specialised, but their origin can be traced to simple teeth and their construction also well understood.

As none of the invertebrates possesses teeth, the study will begin with the lowest forms of vertebrates. Therefore, beginning with fishes, we may glance at the teeth formation and usage in the larger groups, and note how the shape and structure are bound up with the life of the animal. We will see similar structure in some of the groups and note how convergence has acted, yet find essential distinctive characteristics in each class. Thus every specialist can at once determine if a solitary tooth belongs to his group, a very important matter in the science of Palaeontology or Fossil remains, when sometimes the tooth is the only survival of the extinct animal.

There is also another point to be remembered in regard to the consideration of the comparative anatomy of the teeth, in the fact that such a study enlarges a man's scientific train of thought, and by bringing before him facts and fancies connected with the development and growth and uses of the dental apparatus of fishes, reptiles and mammals, leads him to the earnest contemplation of the romances and histories of the fauna of the world as seen either from an ecological or artificial standpoint.

The attentive consideration of the lives and doings of animals is surely a most alluring occupation. The functions and uses of the teeth are very varied and very manifold.

Various attempts have been made to classify those organized bodies endowed with life and voluntary movements which are known as animals; from the time of Aristotle (B.C. 350) to the present day. It is thus evident that several classifications exist. None is strictly accurate: all are open to objection.

It is remarkable, but nevertheless true, that in spite of much anatomical and physiological knowledge of the teeth, it is impossible to give an accurate definition of them.

Teeth are important and interesting structures on account of their usefulness in the prehension and mastication of food, the great variation they exhibit in the different group of vertebrate (backboned) animals and the wonderful examples they afford for the study of adaptation. As they are the hardest of the animal tissues, teeth are frequently preserved in the fossil state when the rest of the skeleton has crumbled into dust, and on this account the study of teeth is of great importance to the palaeontologist, whose task it is to describe and reconstruct for us animals of the past.

In Man, who is omnivorous, living on both a vegetable and a meat diet, the incisors are adapted for cutting, the canines for tearing and the back teeth for crushing, grinding and macerating, so that the loss of any one of them destroys to some extent their organization, and upsets occlusion

and at times digestion. In Man, teeth also aid in speech and are of aesthetic value.

In Mammals, there are many varieties of teeth adapted to the different forms of food upon which the creatures exist.

In Herbivorous animals, the cheek teeth are broad-topped, roughened and adapted for preparing their rough fibrous diet.

In Carnivora, the cheek teeth are sectorial or blade-like, and adapted for cutting up the diet into portions, which are swallowed whole.

In Insectivora, the cheek teeth have a number of small sharp-pointed cusps and are thus adapted for crushing the chitinous covering of the insects.

Uses of Teeth.

Teeth vary in form according to their usage. Referring to ourselves, we note that we possess biting teeth and masticating teeth, neither of them very efficacious. But in nature every animal must depend on itself and its teeth are excellently adapted to their function. This is supported by their internal organs again suited to their work, so that while a dog has sharp teeth and gulps the torn meat, it also crushes the bones and its stomach does the rest. A cow crops grass and chews it slowly and even repeatedly and then its internal organs continue with the work. Consequently we cannot alter the diet of a dog or cow so that the former could live on grass and the latter on meat and bones, or the animals would die.

Teeth of Fishes.

Fishes are regarded as the lowest form of Vertebrata, not including Teleostei as such. They are cold-blooded vertebrates, living in water and thus breathing by means of gills, not lungs. (In the Lungfishes, which have been regarded as related more to the next group, lung-like organs are present, but they never become complete lungs). The skeleton in the Sharks and Rays, which are classed as Fish-like animals, is cartilaginous, never ossifying, but in the true Fishes is bony, and the bones are of peculiar structure, resembling dentine rather than bone. The majority of fishes possess scales on their bodies and these scales vary in structure, but placoid scales consist of both enamel and dentine. The skull structure differs greatly throughout the class and necessarily so also do the teeth. Thus sometimes the upper jaw is prolonged, at others the lower, sometimes both into a long slender beak. The teeth take on adaptational function, mostly being used merely for seizing and holding their prey, which is swallowed whole; but crushing teeth are also found. The teeth are usually attached by anchyloses, not fitted into the jawbones. Succession is usually continuous, the teeth erupting at the sides, vertically, or from behind. The form and number of teeth are variable, as the teeth may be rod-shaped, conical, triangular, or wedge-shaped. In some creatures the teeth are luminous, but the purpose of this is as yet unknown. In the teeth, all the dental tissues may be present, cementum is generally absent, and enamel reduced to a mere varnish.

Teeth of Amphibia.

Amphibians are also cold-blooded vertebrates, devoid of scales, and as the name indicates, capable of life in and out of water. They come between Fishes and Reptiles, and are now merely a small degenerate class. Generally they have numerous teeth, but there is no rule as some Toads are edentulous, as of course the Tadpole, the juvenile stage of the Frog, is. But the latter shows horny plates covering the jaws with horny spines on the tips. These horny plates are shed before the teeth of the mature animal erupt in the upper jaw, the lower jaw being edentulous. These teeth consist of hard dentine with a varnish of enamel.

Teeth of Reptilia.

At one time in the age of the earth Reptiles ruled, and having few enemies, grew to excessive size, so that climatic change and more progressive smaller forms caused their extinction. They came up out of the water and became land-living, breathing air by means of lungs, though most retained an affection for water. The few that remain show this same liking. The existing forms show variety as Turtles and Tortoises, Crocodiles, etc., Lizards and Snakes.

Turtles and Tortoises are edentulous, but according to Rose, have an early tooth band, but have developed beaks with hard thorny casings to take the place of teeth.

On the other hand, Crocodiles have an endless succession of teeth, variable in size, usually sharp and conical. The teeth are still attached by ankylosis, erupting into the same places as their predecessors. In some forms the teeth interlock when the mouth is closed, specialised teeth in the lower jaws biting into deep notches on the side of the muzzle. The teeth are usually composed of hard orthodontine, with a thin coat or tip of enamel.

In the Lizards there is a single row of teeth, round or pointed cones, in each jaw.

Everybody knows, and most fear, Snakes, on account of their legless sliding habits and poisonous nature. Some few present may disagree and claim they like Snakes, but these are in the great minority, the general dislike having descended from Adam on account of Eve's betrayal by the Serpent. It is also well known that it is through the teeth that the fatal poison is injected into the victim.

However, many Snakes do not use this method of killing, but depend on their strength, crushing their victims to death. Consequently, teeth vary in form, those of the latter lacking the specialised grooving or canalisation of the poison-carrying forms. Pythons, for instance, have one row of teeth in the lower jaw and two rows in the upper, all recurved for simple prehension as snakes do not masticate their food. It may be noted that the lower jaw is very elastic at the symphysis so that the victim can be held and swallowed whole. In the poisonous Snakes certain teeth are specialised by means of a groove, along which the poison flows from a duct above.

Teeth of Birds.

Like the famous Chapter on Snakes in Ireland, there are none. A rudimentary tooth band has been recorded in a recent bird, but extinct bird-like creatures show teeth in the jaws. It is commonly stated that birds agree so closely in all essential features with Reptiles that they may be said to be merely extremely modified aberrant reptilians. Amongst the Reptiles we have noted that Turtles, Crocodiles, Lizards and Snakes are included, and it is ridiculous to compare any feathered creature with these unlovely (with apologies) creatures.

It is now being more or less agreed that they are not closely related and that the early comparisons were made through ignorance rather than knowledge.

Anyhow, the toothless bird is very unlike the tooth-bearing Reptiles, and in this feature no comparison can be made. Moreover, these are the first of the vertebrates that have developed warm blood and generally taken to a land and air living habitat.

Teeth of Mammals.

We have now reached the limit of development on earth in the warm-blooded vertebrates with which Man himself is associated. But, excluding Man, there is still a variety of Mammals from the Ornithorhynchus upward.

All show teeth, though some apparently edentulous forms occur, and it may be noted that in the classification of these forms the variation in teeth form has been greatly utilised, though it is scarcely as variable as in some of the lower classes, having reached a more stable stage. There is no time even to glance at the variety, but a few notes may be given. Thus in the Ornithorhynchus there are no teeth, merely horny plates which perform the same function, but in the baby signs of teeth may be seen which do not eventuate. Then in the Marsupials, Australia's fossil relics, the teeth show as much variety as in the more specialised Mammalia proper, while possessing some peculiarities of their own. Thus one of them, Marsupial Ant-eater, shows the greatest number of true teeth in any Mammal, namely, fifty-two of complicated structure. (In the porpoises there are sometimes more than this number, but they are all of simple form). Others show grass-eating teeth, that is, front cutting teeth with back grinding teeth; some have carnivorous style, that is, front teeth for seizing and tearing, back teeth for crushing and so on.

It is this specialisation in teeth form that has led to the evolution and disappearance of animals throughout the ages. An animal has evolved a set of teeth to agree with its environment and has lived long and happily without interference, so that its whole economy was encircled by its environment and climate. Through unexpected causes, the climate and environment are changed and the animal is unable to alter its teeth and their usage and has consequently to die out. In most cases the animal has been so little disturbed in its career that it has grown large and unwieldy and lost its mobility. The smaller mobile animals move and survive the change, but they in their turn share the same fate and so the world has developed.

Man, to-day, is the dominant type of animal life due to the development of his mental capacity, not to his physical strength, and that mentality has allowed him supreme mobility so that he can change his environment and climate and still survive.

Aboriginal Man.

The aboriginal population of Australia, such of it as did survive, is of itself a standing monument to the high antiquity of that country's fauna—as is conceded by the common consent of experts in ethnology.

I may just draw attention to the fact that the Aborigines had mostly well developed teeth. Through their choice, or lack of choice, they ate food which did not cause dental caries and this never seemed to create fat either, as, generally speaking, the nomads are thin. In recent years they have been controlled and better fed with our civilised foods and their teeth have suffered as their more civilised brothers' have. Dental caries of civilised teeth is attracting great attention in the Dental World and maybe a preventive will be found. Once the source of dental caries is known—it may be that there are many sources—a remedy will be discovered, and already there is hope.

No one would advocate that we should to-day abandon our European diet, and to-morrow adopt a diet of the primitive aborigines. Nevertheless, I feel that in Australia we still have an opportunity of obtaining a great deal of scientific information from the dietetic angle by more extended investigation into the aboriginal diet.

THE LATE G. H. LONGLEY.

An Appreciation by Ella McFadyen.

The Royal Zoological Society of New South Wales, and in a less personal degree Australian naturalists in general, suffered a severe loss when George H. Longley, for many years identified with the Marine and General Section of the Society, passed away suddenly at his Waverley home on July 22nd, 1947.

To the casual acquaintance he appeared simply as a man with a hobby, which he pursued with an absorption bordering on devotion. Those privileged to know him and work with him, recognised in him the true spirit of research. An amateur herpetologist, without any of the rewards, stimulants or aids attending on an official status in science, he amassed by patient and precise research a great deal of essential information respecting Australian lizards. When a full survey of this subject is at last prepared, his notes will have contributed largely to the general body of exact information.

A colleague has borne witness to his capacity for detail. The present writer had ample evidence of his unflinching patience. Equipped with these two virtues and a scientific training, he was highly successful in his vivarium experiments with the acclimatisation and breeding of our lizards. He was the first ever to exhibit the young of the *Hemisphaeriodon*, and had success in producing interesting hybrid forms of the *Tiliqua*.

He was an inspiration and guide to young nature students, generously sharing his information with others, and many of our naturalists will look back in future years to the help they received from one to whom the work was everything, the reward (save in the esteem of friends) nothing.

Mr. Longley was born at Bradford, Yorkshire, and became a student of Macclesfield and later at Ilkley Grammar School. Biology always held a strong attraction for him and he attended lectures at Leeds University, and spent twelve months at the Marine Biological Station, Plymouth.

From earliest boyhood he was an earnest observer and collector of animal life, and acquired skill as a taxidermist, carefully mounting the casualties from his vivarium. His attention was early turned to Australia by his desire to possess an Australian carpet snake, catalogued at five pounds. However, the most self-denying economy known to schoolboy finance, coupled with a sanguine estimate of possible birthday tips, could not envisage such great expenditure, and in the end he compromised with an Indian python at three pounds. But the discipline of self-denial, in connection with his work, remained characteristic of the man throughout his life.

Had a position enlisted him in some scientific institution, there is no doubt that science would have gained a recruit tireless in his capacity for research. As it was, family circumstances steered the young man into a commercial groove and business and pleasure took separate paths.

Early in 1911, and soon after he had married, Mr. Longley left England, where business prospects were declining, and, after a brief stay in New Zealand, settled in Sydney. With a heavy heart he had had to disperse his collection of snakes and lizards and to part with "Satan", his treasured alligator. Characteristically, he began in Sydney to build up a vivarium again, devoting his week-ends and every moment of what would have been leisure, to construction and enlargement, upkeep and tending of his "lizard farm". He was unable to resume his former enthusiastic study of snakes—a matter of regret to him.

Circumstances did not favour his taking up field work—the joy of the

native-born naturalist. He obtained his specimens by purchase, or later on by exchange, his success in breeding keeping up a good supply of young stock. He could not bring himself to sell his creatures, though he enriched several zoological collections, and many private friends, with his gifts. He not only studied his creatures; he loved them. A death in the vivarium was a personal grief, while the happy birth of a batch of lusty youngsters would send him hotfoot in search of some sympathetic friend with whom to share the tidings.

Readers of "Proceedings" will remember his frequent contributions on our lizard fauna, and the detail and accuracy of his notes, which in every case avoided the least shadow of conjecture or over-statement. He had proposed a handbook of vivarium-keeping and was a nominee for election to the Council of our Society.

Mr. Longley is survived by his wife, son and two young grandsons, to whom is tendered the sympathy of a wide circle of appreciative colleagues and fellow naturalists—a far wider circle, possibly, than our late friend, with his inherent modesty, ever supposed himself to possess.



The late G. H. Longley with the Gould's Monitor of which he wrote for these "Proceedings".

—Photo: E. Worrell.

Reports of Sections

AVICULTURAL SECTION.

ANNUAL REPORT.

In presenting the Annual Report for the year ending 30th June, 1947, I have the honour to report that during the year only six monthly meetings were held, the other six having lapsed for the want of a quorum. The attendance at each meeting held was twelve, including visitors. Members were entertained by four lectures, namely:

Mr. L. C. Webber: "Ten Years with the *Cayleya picta*",

Mr. E. F. A. Worrell: "Through Northern Australia",

Mr. R. W. Stewart: "How to Construct and Operate a Bird Hospital", and

Mr. E. Hargraves: "My Travels Through South Africa" (in two parts).

Apart from the last two months, attendances at the lectures were most disappointing, and not at all encouraging to those who come along to entertain the members. Monthly notices of the meetings have been sent to members during the past two months with good results, and I shall continue to send monthly notices with the hope that they may have the desired results. Members might give more attention to their reports of aviary doings from month to month. The publicity side of the activities of the Section might get a brush up this year, and so publicize the work of this Section in the "Bird World", a widely read paper now. I would remind members that the matter of amending the "Cruelty to Animals Act" is again receiving attention; this time the push is coming from the R.S.P.C.A. and members might busy themselves in getting in touch with their local Member of Parliament and persons connected with the Department dealing with same, with a view to protecting fanciers' interests generally, and the avicultural world in particular. Let's all just try a wee bit harder to build up our Section so that interest will grow and the attendances at the monthly meetings will become more stable and reassuring. In conclusion, I feel I must mention this fact, how seldom we see any of the Officers of our parent body during the year.—RICHARD W. STEWART, Hon. Secretary.

BUDGERIGAR SECTION.

ANNUAL REPORT.

During the year ending June, 1947, the Section has continued its efforts to popularise the Budgerigar, and the increase in exhibits at the Elaine Show, and the shows held by kindred societies to date, has given ample proof that the Budgerigar is gradually coming into its own again.

The attendance at the 12 meetings held totalled 198, giving an average of a little over 16 each meeting. This is much better than last year, when the average was 12.

The year brought in several new members, to add to the very substantial number of people who are already devoted to the Budgerigar cult.

The following are particulars of lectures holding during the year:—
 Mr. R. Cooper: Slides depicting bird life, nesting habits, etc.
 Mr. S. Maher: Lecture on the Budgerigar.
 Mr. C. G. Gostelow: Exhibition of paintings of Australian Eagles and Wrens.
 Mr. Camp: Talk on trip to New Guinea in search of Birds of Paradise.
 Mr. E. J. Hallstrom: Lecture on black Cockatoos and Macaws.
 Mr. C. G. Gostelow: Pictures of Barrier Reef and Yarrangobilly Caves District.
 Mr. R. Cooper: Slides on Bird life on the Barrier Reef.
 Mr. N. Chaffer: Coloured films of Bird Life on Barrier Reef and also National Park.

The Section is indebted to these gentlemen 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, at one of which the best bird was exhibited by Mr. J. Swinfield, and at the other by Mr. J. Vance.

Eleventh Annual Lawn Show: This was held at the residence of Mr. and Mrs. J. Hubert Fairfax, in Double Bay, on Saturday, 22nd February. The Show attracted a record number of entries, 233, from a record number of exhibitors, 24. Practically all classes of birds were freely shown, and it was noticed that Greywings were more numerous than usual.

The total expenditure in cash prizes and trophies was £41/19/1, which compares very favourably with the large Societies.

The most important trophy, from the point of view of exhibitors, i.e., the Elaine Trophy, was won by Mr. H. Yardley, who, with Mr. Swinfield (last year's winner), now has a "leg in" for the permanent possession of this desired trophy. The best bird in the open classes was also exhibited by Mr. Yardley.

The award for best young bird went to Mr. Swinfield, with Mr. Yardley as the runner-up; and the President's Trophy was won by Mr. G. Barnett.

The Show, from the financial view, was very successful, there being a substantial credit towards next year's event.

Once again the Section is indebted to Mr. and Mrs. Fairfax for the loan of their home for the staging of this event in appropriate surroundings and also for the provision of afternoon tea for exhibitors and visitors.

Our thanks are also due to Mr. E. J. Hallstrom for his very substantial donation which, it is felt, assisted materially in making the show an outstanding success.

The Section is also indebted to the Ornithological Society for generously allowing the Section the use of staging; had this not been available, some difficulty would have been experienced in staging the Show.

We are also indebted to Messrs. Maher, Catt, and Marshall for giving up their time to the judging of the birds which, it must be agreed, was carried out in a very able manner.

It is felt that the Show arrangements could be improved by the appointment of a Show Committee well in advance of the Show date, and also by the provision of transport from Central Station for birds received from outside the metropolitan area. These matters are receiving the attention of the Section.

In concluding the report, it is felt that, successful as has been the past year, the next year will see an even greater success in the Budgie world.—
 E. H. HERNFIELD, Hon. Secretary.

MARINE ZOOLOGICAL SECTION.

ANNUAL REPORT.

The Marine Section, with which is incorporated the Snake and Lizard Section, has had a very happy and successful year, resulting in increased membership and a growing enthusiasm in both groups. The latter section particularly has been responsible for a great variety of exhibits of remarkable and "lively" interest.

Many lectures, some illustrated with colourful lantern slides, and covering a wide variety of subjects of great educational and entertainment value, have been delivered, and I would like to record our sincere thanks and appreciation to those lecturers who contributed so much to the year's success, and at the same time to extend a hearty welcome to all new members.

The outstanding function of the year was an excursion to Shark Island, arranged during December as a Christmas celebration for members and their families. This was not only an undoubted social success, but the marine collecting proved of great interest as the locality is rarely visited by the average collector owing to the lack of regular transport.

The Conchology Group has been marked by very constant attendance and keen interest on the part of the shell enthusiasts, who are now engaged in a systematic study of the various shell families. These meetings are increasing in popularity, not only providing an excellent opportunity for exchange and discussion, but proving of invaluable help in the classification of doubtful specimens.

The stocking of our cabinet has not progressed as rapidly as we could wish, but it is hoped that the next twelve months will see an almost complete collection, which will undoubtedly be of great assistance to members for reference purposes.

The following is a list of the lectures given throughout the year:—

- July 1, 1946—"Some Interesting Facts About Spiders"—Miss V. C. Levitt.
- Aug. 5, 1946—"A Trip to the Barrier Reef"—Miss G. Thornley.
- Sept. 2, 1946—"Some Aspects of Marine Fouling"—Mr. N. D. Fry.
- Oct. 8, 1946—"Shell Collecting at Huskisson, N.S.W."—Mr. C. F. Laseron.
- Nov. 4, 1946—"Fisheries Research in Western Australia"—Mr. G. Whitley.
- Dec. 2, 1946—"Marine Collecting Along the N.S.W. Coast"—Miss Elizabeth Pope.
- Feb. 3, 1947—"Sea Birds and Coral Isles"—Mr. T. Iredale.
- Mar. 3, 1947—"The Distribution of Shells"—Mrs. L. Woolcott.
- Apr. 8, 1947—"The Language of Animals"—Miss Ella McFadyen.
- May 5, 1947—"Shells of Australia"—Miss Joyce Allan.
- June 2, 1947—"Sea Animals That Bite and Sting"—Miss Elizabeth Pope.

(Miss) WINIFRED CROFTS, Hon. Secretary, Marine Section.

ORNITHOLOGICAL SECTION.

ANNUAL REPORT.

Viewed from many standpoints, the year's activities of the Section have been most successful and encouraging, interest being maintained constantly throughout the term. A number of educational lectures were delivered and films of a high calibre were screened. Regular monthly meetings were held throughout the twelve months. The average attendance was 42; this being once again a substantial increase over that of the previous year. At the March meeting, 92 were in attendance. This probably constitutes a record for a regular meeting of the Section, and taxed seating capacity to the utmost. Mr. Chaffer's colour films of bird activities increase both in quality and popularity.

The following is a summary of the meetings:—

1946.

- July 19—"Flora and Fauna of the Barrington Tops", by A. Musgrave.
Aug. 16—"Bird Scenes That Have Vanished", by P. A. Gilbert.
Sept. 20—"Some Birds of the Sydney District", by K. A. Hindwood.
Oct. 18—Bird Films, screened by The Rural Bank Public Relations Dept.
Nov. 15—"Antarctic Birds", by C. F. Laseron.
Dec. 20—"Some Birds of the Pacific Islands", by A. S. LeSouef.

1947.

- Jan. 17—"Birds of Lord Howe Island", by Tom Iredale.
Feb. 21—"Experiences Amongst Birds of the Middle East", by J. Waterhouse.
Mar. 21—Bird Films in Colour, screened by Norman Chaffer.
Apr. 18—"New Britain and Its Bird Life", by J. Allen Keast.
May 16—"Some Unsolved Problems", by Major H. Burgh.
June 20—Annual Meeting: "The Barrier Reef", by Roy P. Cooper.

The thanks of the Section are hereby tendered to the lecturers, and those screening the films.

Four organised outings were held during the year, each being rather well attended. On September 8, a trip to Marley, per launch from Cronulla to Bundeena, thence across the heathlands of The National Park, was enjoyed, despite the fact that few species were found nesting. The Nepean River district, near Penrith, was visited on November 10. This was the best attended of the four outings, and an interesting "list" of species was compiled. Amongst those found nesting, the White-backed Swallow (*Cheramoeca leucosterna*) was somewhat of a surprise. The outing to Lion Island on February 2 was again well attended, but somewhat marred by rain. However, the discovery of a small breeding colony of the Sooty Shearwater (*Puffinus griseus*) was quite unexpected. A well-known hiking track from Heathcote to Waterfall was followed on the April 13 excursion. Birds were somewhat scarce, but some interesting records were made, and an enjoyable day was spent.

During the year, approaches were made to the Council of the Society towards the formation of a "Flora and Fauna Federal Advisory Council". There is little need to stress the need for such a body, and it is hoped that overtures will be submitted to the Federal Government. Mr. J. Palmer compiled a tentative plan of operations with a good deal of thought and

care. Because of some shooting in a declared sanctuary, protests were made to the Police Department, with the result that sanctuary notices were erected in the vicinity of Homebush Bay.

The Section regretted the death of Mr. Sid W. Jackson during the year. Although taking little interest in ornithological affairs recently, he contributed much to our present day knowledge of birdlife in earlier years.

A former Chairman and Secretary of the Section, Mr. M. S. R. Sharland, was sent congratulatory messages recently upon his appointment as "Superintendent of Scenic Reserves in Tasmania".

In December, our Chairman organised a trip to The Barrier Reef, which was enjoyed by some of our members. Amongst interesting bird observations was the finding of a small breeding colony of Lesser Crested Terns (*Sterna bengalensis*) on Masthead Island.

All officers of the Section were re-elected at the annual meeting. Those holding the various offices for 1947-1948 are as follows:—

Chairman: Roy P. Cooper.

Vice-Chairman: W. R. Moore.

Secretary: A. R. McGill.

Assistant Secretary: J. A. Keast.

Committee: Messrs. N. Chaffer, G. R. Gannon and J. Waterhouse.

ARNOLD R. MCGILL, Hon. Secretary.

SYLLABUS OF SECTIONAL MEETINGS, 1947-48.

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).

1947—

August 11—Mr. Steve Dummett: "Interesting Birds I Have Kept".

September 8—Mr. L. C. Webber: "Seed Eaters of India".

October 13—Mr. Roy Cooper: "Field Work".

November 10—Mr. P. C. Johnson: "Colour Film of the Zoological Gardens".

December 8—Mr. Wal. Turner: "Travelling the World Catching Birds".

1948—

January 12—Members' Night.

February 9—Mr. J. R. Kinghorn: Subject to be selected.

March 8—Mr. Norman Chaffer: Colour Film.

April 12—Mr. Tom Iredale: Subject to be selected.

May 10—Mr. L. C. Webber: "Genetics".

June 14—Annual General Meeting.

BUDGERIGAR SECTION (Third Tuesday in the Month).

1947—

August 19.

September 16.

October 21.

November 18.

December 16.

1948—

January 20.

February 17.

March 16.

April 20.

May 18.

June 15—Annual Meeting.

MARINE ZOOLOGICAL SECTION (First Monday in the Month).

1947—

August 4.

September 1.

Oct. 7 (Tues.).

November 3.

December 1.

When the first Monday is a declared public holiday, the meeting is held on the Tuesday following. The subject for each monthly general meeting will be advertised in the "Lectures" column of "The Sydney Morning Herald" on the preceding Saturday.

1948—

January 5.

February 2.

March 1.

April 5.

May 3.

June 7—Annual Meeting.

The Conchology Group meets on the **second** Monday of each month.

ORNITHOLOGICAL SECTION (Third Friday in the Month).

1947—

Aug. 15—"Indian Interlude", by D. Leithhead.

Sept. 19—Discussion Night. Subject: "Honeyeaters".

Oct. 17—"Questions I Have Been Asked", by J. R. Kinghorn.

Nov. 21—Selected Films, from the Canadian National Film Board.

Dec. 19—Discussion Night. Subject: "Waders".

1948—

Jan. 16—"In Search of Birds", by K. A. Hindwood.

Feb. 20—Discussion Night. Subject: "Typical Rain-forest Birds".

Mar. 19—Films in Colour, screened by Norman Chaffer.

Apr. 16—Selected Address, by Tom Iredale.

May 21—Discussion Night. Subject: "Resident Winter Birds of Sydney".

June 18—Annual Meeting. Chairman's Address, by Roy P. Cooper.

Ornithological Outings:

1947—

Aug. 31—Berowra. Leader, A. Acworth.

Sept. 28—Cronulla. Leader, J. A. Keast.

Oct. 26—Leumeah. Leaders, Messrs. Hoskins and Boughtwood.

Dec. 7—Narrabeen Lakes and Deep Creek. Leader, H. Burgh.

Feb. 14—Cook's River Estuary and Waterworks. Leader, A. R. McGill.

June 6—Waterfall—The Cabin. Leader, G. Gadsden.

NOTES ON THE BROAD-HEADED SNAKE.

(*Hoplocephalus bungaroides*).

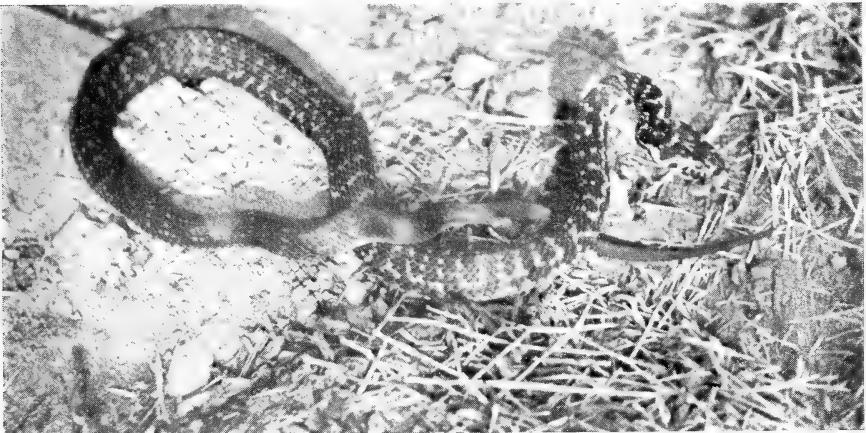
By A. I. Ormsby.

I was successful in collecting a specimen of this rare snake at Lawson, Blue Mountains, on 7th December, 1946. It was under a large stone on one of the lookouts facing north-east. Approximately 2 feet in length, it sought to glide away unobtrusively on my lifting the stone, but the next few days, in captivity, showed just how savage this snake can be. I have known no Australian species more consistently aggressive. This is the case particularly at night as it is a nocturnal snake.

This species has a fairly wide diet range, eating small lizards of various types. It is less attracted to small skinks than to geckoes, but shows a decided preference for warm-blooded creatures and I have fed it very largely on small white mice. Unlike so many other snakes, it is an excellent feeder in captivity and at the time of writing this article it has shed its skin twice, in the second week in January and in the last week of April.

The snake is fully described on page 193 of Mr. J. R. Kinghorn's excellent work, "The Snakes of Australia". Specimens are recorded up to five feet in length. I would say this species is easily distinguished from any other by the characteristic broad head and the distinctive colouring of the upper portion of the body, which is black interspersed with a yellow pattern not unlike our diamond snake.

I am satisfied the snake is extremely rare and its range is now confined to a small area on the Blue Mountains, as I have searched for it often and seen only a single specimen alive. Waite, in writing of this snake in 1898, says, "At one time common around Sydney and not known beyond New South Wales, this snake is becoming very scarce". He continues, quoting Krefft, an earlier authority, "If a person be bitten by one of them, the simple act of sucking the wound is sufficient to avert any unpleasant consequences, but should nothing be done, a violent headache, a certain stiffness in the spine and some local swelling is generally the consequence".



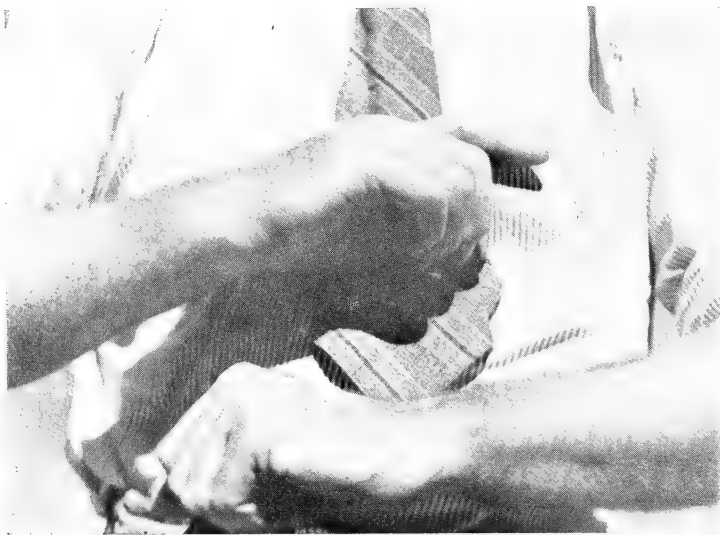
The Broad-headed Snake, *Hoplocephalus bungaroides*.

—Photo: E. Worrell.

It must be remembered that in his time no accurate means existed of recording the comparative effect of any given snake bite. Actually a number of factors, such as size, condition and age of snake, the efficiency and duration of any single bite, the size and health of the victim, as well as the site of bite, must all be taken into consideration.

For what it is worth, my own experience of what I would describe as an efficient bite from this species is now recorded from notes made at the time. Bear in mind that my snake had fed about a week previously on a baby Blue Tongue Lizard.

On Sunday, the 9th March, 1947, at about 8 a.m., I received a bite from my 2 ft. specimen whilst examining it. The bite was on the joint of the right index finger. The snake bit me once, then secured a second hold in the same place and hung on for some seconds so that I had to shake it off my finger. I gave one of the punctures a slight prick with a razor blade, but then decided to let the venom run its course, and beyond slight suction applied no treatment. About 20 minutes later I was assailed by a violent headache which was at first spasmodic. The site of the bite then showed discolouration as from bruising and there was some swelling. I had had no food at the time of the bite. I proceeded to prepare to go out, and shaved. At about 9 a.m., whilst cleaning my teeth, I started a slight haemorrhage, which persisted for some hours. From slight abrasions where I had shaved there was also copious bleeding. I proceeded out in the car about this time. Owing to engine trouble with the car, I stopped at a friend's place about a quarter to 11. I then felt a bit shaky and had a violent headache, and my hand was very swollen. Coffee at 11 a.m. caused vomiting, about a quarter to 12. This took place again when water was drunk about 12 noon. The local pain was not then severe, but a lump and soreness appeared later at the gland under the armpit. From 12 noon to 3 p.m. I felt very sick indeed and was forced to lie down, the headache being continuous. Temperature taken during that period was normal. Breathing was also normal. At about 4 p.m. I took an A.P.C. powder which banished the headache. The general symptoms then had disappeared and I was



The author's right hand on 10th March, 1947, the day following bite.

—Photo: E. Worrell.

able to eat a meal at 7 p.m. without ill-effects. The hand and forearm were very swollen, making sleep that night very uncomfortable.

The following day, the 10th March, I proceeded to work in the usual manner, feeling as well as could be expected, apart from the local symptoms which persisted. The whole arm and hand were still swollen considerably and were painful to touch. Swelling was at its worst on this day.

On Tuesday, the 11th of March, the swelling had subsided very slightly and the lump under the arm was less painful. The swelling and pain abated a little each day this week, improvement being gradual. By Friday the hand was normal, but the forearm was swollen. The gland under the arm had ceased to cause pain, but the forearm was painful to touch. I could only straighten the arm for the first time on Friday, and even then with difficulty.

I got the use of the car on Thursday night, but driving was most uncomfortable. On Friday I pointed out bruise-like marks on the elbow and a yellowy colour around the biceps to Mr. Kinghorn at the Australian Museum.

On Saturday, the 15th of March, the arm was nearly normal, but the forearm was still very tender, particularly around the elbow. The hand itself was quite efficient and the actual bite healed.

On Monday, the 17th, beyond very slight tenderness at elbow joint and some slight discolouration at that point, the arm was normal. The site of the bite, which hitherto had been hardly noticeable, was itchy. Discolouration around the biceps was barely perceptible.

There were no further ill-effects.



A LANDING ON PEDRA BRANCA.

By S. Fowler.

During the course of aerial and boat surveys of pelagic or surface-swimming fish over many years it has been my privilege to see most of the islands or rocks of Australia. They are as variable as the sea itself. Here a wave and wind-swept rock with a few sleepy seals nestling close together for warmth; here a great granite dome defying man to land on its steep and slippery sides, and here a turtle-fringed tropical isle with the seabirds sticking resolutely to their nests despite the sudden clatter of the low-flying plane and the panic in their breasts. Stolid isles, sombre and forbidding isles, mysterious isles, gay enticing isles. And among the most characterful of them all is Pedra Branca!

Tasman named it so on 29th November, 1642, after the Pedra Branca or White Rock, a landmark off the coast of China, which he thought it resembled. Its height has been variously recorded from 132 to 150 feet but, checked against our tested altimeter recently, we found the southern and highest peak to be about 180 feet.

It is the southernmost island in Australia (Lat. $43^{\circ} 51' 30''$ S; Long. $146^{\circ} 59'$ E) and is 16 statute miles from the nearest point of the mainland of Tasmania. There are generally about one thousand fur seals on it, but its main interest lies in its colony of Australian Gannets (*Sula serrator*).

My first visit to Pedra Branca was on 3rd March, 1938, during a fishery survey in the chartered 45 ft. auxiliary ketch "Peter R." (Skipper J. Burgess). Until that visit it was believed in official circles that there was only one gannetry in Tasmania, i.e., on Cat Island, in eastern Bass Strait (Lat. $39^{\circ} 57' 30''$ S; Long. $148^{\circ} 21' 30''$ E), and in this belief a special guard had been maintained on it for some time to protect the birds from molestation. After hearing about the gannets on Pedra Branca this guard was discontinued.

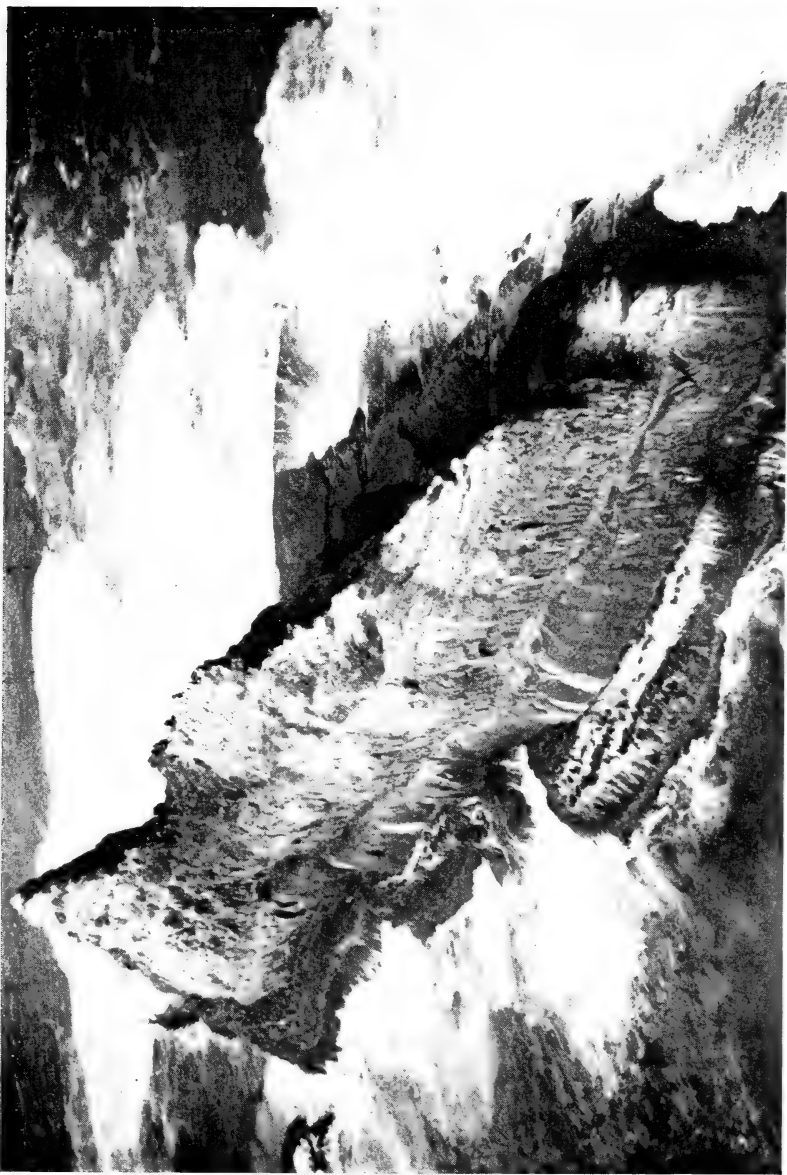
We now know (my first visit to it was on 21st February, 1939, when I obtained aerial photographs of it and the nesting gannets) that there is another gannetry in Tasmania at Black Pyramid Rock in far western Bass Strait (Lat. $40^{\circ} 28' 20''$ S; Long. $144^{\circ} 21'$ E). Another nesting place of this kind of diving birds is on Lawrence Rock (Lat. $38^{\circ} 25'$ S; Long. $141^{\circ} 40' 30''$ E) about six miles south-east of Portland, Victoria. On 17th April, 1947, I observed about 20 gannets (all apparently adults) and about 30 white-breasted cormorants on the tower-like Eddystone Rock (Lat. $43^{\circ} 51'$ S; Long. $147^{\circ} 02'$ E) about two miles eastward of Pedra Branca, but at this stage it is impossible to say if it is used for breeding purposes, although it will be singular if it is not.

It is known that gannets nest on Cat Island and on Black Pyramid and Lawrence Rocks, but there has been some doubt as to whether the birds actually breed on Pedra Branca. Aerial photographs and observations on 16th February, 1939, did not disclose the presence of the dark speckled young birds which might have been expected to be present at that time; nor did the adult birds appear to be nesting. It would appear that the total number of birds (all with apparently full white plumage) on the island when these photographs were taken (very few had flown away) was from 800 to 1,000. On the other gannetries, nesting takes place for the most part on more or less flat earth surfaces and the nest mounds, with or without the birds, are conspicuous at all times.

PEDRA BRANCA . . .

Photographed by S. Fowler, Fisheries Division, C.S. & I.R.

It is more commonly known as Pedra Blanca, its name being so spelt on some charts, but the original, more grammatical spelling is adopted here.



Aerial photograph, looking southward, of Pedra Branca on 16th February, 1939. Sea conditions were moderate. The landing on 5th April, 1947, was made where seals are plainly visible in the foreground. The ascent was by the east side of the island to the north end of the white gannetry thence along the west and partly obscured side to the north portion of the middle peak. Portion of the seal colony on the southern end is obscured.

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None of these mounds is visible in the aerial photographs of Pedra Branca, but while flying a few feet above its razor ridge on 17th April last I noticed one empty mound nest which was similar in size and colour to that of a gannet. That is the only nest of any sort I have seen on Pedra Branca and though there might be more, I am certain they are not numerous. There were from 200 to 300 gannets on the island at the time.

However, all doubts as to whether or not gannets breed on Pedra Branca have recently been resolved and this colourful island can be definitely accepted as a gannetry, although its order of importance in this respect is not yet known.

As the accompanying aerial photographs will show, Pedra Branca is not to be trifled with. Even with a moderate sea, the surge about it, especially on the western side, is terrifying; but during rough weather a landing from a boat would daunt the bravest heart.

So far as I am aware, man had never landed on it until recently, when Mr. Audie E. Palfreyman, a prominent merchant of Hobart, Tasmania, and a young companion, Mac Forster, climbed to the top of the middle peak on 5th April, 1947.

I heard about the feat indirectly from Mr. Howard T. Dalton, of Hobart, who knew of my interest in the island, and I was able to interview Mr. Palfreyman on 13th May. He was very modest about the achievement to which, I think, no public reference had then been made. He gave me a full account of the circumstances under which he made the landing and of his observations while on the island. Steps have already been taken to ensure that this interesting document will be recorded.

Briefly, the story is that Mr. Palfreyman, who is the owner and skipper of the 60 ft. auxiliary ketch, "Matthew Flinders", has, to use his own words, "always been interested in trying to get ashore on some remote sanctuary or island just to see the birds in their natural state". It was his first and only visit to Pedra Branca and he did not set out with the intention of landing on it. The conditions, however, were very tranquil following a succession of fine days—a rare happening in that area. There was, however, quite a "lift" around the island, although the sea was very smooth. Further evidence as to the unusually tranquil conditions at the time is provided by Mr. Martin, commercial fisherman, of Recherche, who observed that there was no surf at the Actaeon Islands on the day in question—"a very rare occurrence".

The landing was made about 11.30 a.m. from a 9 ft. dinghy with the aid of another member of the crew, F. Mitchell, who remained in the dinghy to take off the landing party after their stay on the island for about 1½ hours.

Of the landing itself Mr. Palfreyman said: "We landed on the north-east corner. It was not particularly difficult, because there was quite a bit of kelp to use as a hand-hold, and ledges as footholds. As we were approaching the landing point we were confronted with many seals, which advanced to the water's edge and dived into the water about us as we were landing. In fact, one or two of them bumped the boat. They did not attack me, although it appeared as if they were coming out to meet us with that intention. . . . We landed where the seals are on the northern end of the island and then climbed up . . . to where there is some white showing in your aerial photo and then up on the bottom of the ridge on the western side and then up to the middle peak showing in your photo. This was the end of the climb".

No birds other than gannets were seen by the landing party, and of these six were speckled young ones. (I have seen, and aerial photos show, a few albatrosses on the island). A photographic record of the young and



Aerial photograph, looking southward, of Pedra Branca on 23rd April, 1945, during a south-west gale. Under such conditions a landing would surely be impossible. The number of seals was noticeably less on this occasion and apparently many had temporarily vacated the island for more tranquil conditions elsewhere. Flying conditions were rough, especially in the vicinity of the island. —Aerial photograph by S. Fowler, Fisheries Division, C.S. & I.R.

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adult gannets was made with an 8 mm. cine-camera. The number of young gannets compared with the number of adult ones was very small. From their vantage point the landing party could see many gannets in the higher southern portion of the island and on the remainder of the gannetry, but it was not possible for them to determine how many (if any) young ones were there. No eggs were seen. Mr. Palfreyman was within 10 ft. of the adult birds in his vicinity, but they were not disturbed by his presence.

No vegetation was noticed on the island, but on the western side on the ascent to the peak at least 25 lizards, each about 9 inches long, were seen. Of these, Mr. Palfreyman observed, "They . . . appeared generally similar to our land-based lizards. If anything, they seemed to be a little fatter or thicker in the body compared with lizards on the mainland of Tasmania". No specimens of any kind were taken away.

Very few cubs were noticed among the seals, of which (he could not see the relatively large colony on the southern end) Mr. Palfreyman estimates there were about 400 to 500. Further evidence of the unusual tranquillity of the sea is provided by his finding seals on the ledge on the western side. Even under moderate conditions, this ledge is wave-swept and I have not seen seals there before. A glance at the accompanying photos will show how difficult it would be for seals to maintain their footing on the western side under normal conditions. While on the island he noticed portion of a "mackerel" (he had in mind the Scad or "Horse Mackerel", *Trachurus novaezelandiae*) and of a barracouta (*Thyrsites atun*), but he thinks these were related to the seal colony and not to the birds.

Such, briefly, is the story of a memorable and commendable landing carried out courageously and without fuss or publicity. Mr. Palfreyman and his companions are to be congratulated on their effort. Their appetite is whetted and after seeing my aerial photographs of the shy albatrosses nesting on Albatross Island in western Bass Strait, Mr. Palfreyman declared his intention of visiting it on some future occasion. A landing on this island should present no real difficulty under moderate conditions, but the climb to the albatrosses (there are three nesting areas) should provide plenty of thrills.

I should like to think, however, that if a suitable opportunity presents itself earlier in the nesting season, Mr. Palfreyman and his companions will again find an opportunity to climb the snow-white ridge of Pedra Branca and to look down upon the surging seas, the seals and the birds—on everything "as it was in the beginning".



GOULD'S MONITOR (*Varanus gouldii*) IN THE VIVARIUM.

By G. Longley.

Mr. E. Worrell forwarded me a specimen about 24 inches in length from Katherine, in the Northern Territory, and on October 6th, 1944, I received it from Mr. Purcell, who brought it into town for me.

The specimen proved to be a beautifully patterned female and Mr. Purcell had placed a fowl's egg in the box with it by way of refreshment en route. He seemed surprised that the egg had not even been cracked upon arrival, but I explained to him that it was impossible for so small a monitor to break a fowl's egg, and also that it would not be likely to try to do so in the confined space of the box. He, however, insisted upon my taking the egg, which I did, and it was greatly relished by this one, and



Female

Gould's Monitor

—Photo: E. Worrell.

other lizards the following day, after I had beaten it up with some milk. This monitor fed well, and became very docile, but unfortunately I tried the experiment of leaving her to hibernate at the approach of winter, and on June 13th, 1945, I found her dead in the sleeping compartment, and as she appeared to have been dead for some time, I buried her in the garden.

I asked Mr. Worrell if he could obtain me another, during the latter period of 1944, and a young male, about 22 inches in length, arrived on January 9th, 1945, from the same locality. This specimen, along with some other smaller monitors, had rather a rough passage, and was nearly a month in transit, having been despatched on December 12th, 1944. However, he quickly recovered and commenced to feed on raw meat, mice, and cut-up young rats.

As the female had died during June, 1945, Mr. Worrell very kindly forwarded me a third specimen, a female, about 3ft. in length. She arrived in excellent condition, and was big and powerful, and rather inclined to be aggressive, as the following day she rushed at me with her jaws wide open; but I countered her attack with the palm of my left hand, while I got hold of her round the shoulders with my right. After which, except for an occasional hiss, she became quite docile towards me. She, in

company with the male, spent the remainder of the summer, along with Water Dragons, Blue Tongued Lizards, Cunningham Skinks, etc., in an outdoor vivarium, but with the approach of cold weather the two monitors were placed in a heated vivarium for the winter months. They were fed regularly on raw meat, mice and occasionally a little raw egg mixed with cooked meat. It does not seem wise to keep smaller monitors in the same vivarium with *V. gouldii*, as two small monitors, one of which was a *V. punctatus*, were badly bitten by *V. gouldii* and ultimately died.

That this species is sometimes aggressive, the following observation will demonstrate:—

As December 8th, 1946, was a hot day, I decided to return the Gould's Monitors to the large outdoor vivarium. After doing this, I was sitting reading on my verandah when I heard a commotion in the tank, and saw the female *V. gouldii* holding a female Blue Tongued Lizard (*Tiliqua scincoides*) by the left forelimb, which she was biting savagely. I induced the monitor to release her hold, and returned her to the small winter vivarium. I then examined the Blue Tongue, and found that her left forelimb was badly lacerated by the monitor's teeth, and that the limb appeared to be useless. I bathed the skink's forelimb in fairly warm listerine solution, and returned her to the sleeping box of the large vivarium. I repeated the treatment at bi-weekly intervals for some weeks, and at the end of the summer she had fully recovered the use of her limb. I wanted to save this Blue Tongue Lizard, as she is one which I bred more than twelve years ago.

The two monitors are well and healthy, and it is interesting to watch them feed as lumps of food are seized and gulped down in much the same manner as that employed by a fowl. Another peculiar trait is their habit of raising themselves upon their hind limbs, with the forelimbs pendant along their flanks.

NOTES ON THE HATCHING OF THE EGGS OF THE
WATER DRAGON.
(*Physignathus lesueurii*)

By G. Longley

Six reptile eggs given to me by Mr. A. E. L. Trebilco on February 7th, 1947, had been uncovered by a plough at Berry, N.S.W. Mr. Trebilco thought that possibly they might be the eggs of some species of *Varanus*, but after I had examined them I fancied that they were the eggs of *Amphibolurus barbatus* (Bearded Dragon). However, we both were wrong, as was proved when the eggs hatched some weeks later.

I placed the eggs (in the original soil in which they had been found) in a vivarium, of which one half of the top was glass-covered, and the other half wood. Over the soil in which the eggs were resting some dead and also green leaves of the Coral Tree (*Erithrina indica*) were placed, which were occasionally moistened. The vivarium rested upon the ground under a privet hedge with an eastern aspect, the idea being that the eggs would receive the warmth of the early morning sun, whilst they were shielded from the fierce heat of the western sun by the privet hedge and the fence. During the very hot days a piece of galvanized iron, raised about three inches above the glass, protected them from too great heat and during the night the iron was lowered over the vivarium in order to retain as much radiated heat as possible.

I inspected the eggs at intervals without disturbing them, and on the morning of March 14th, 1947, five young water dragons were hatched, each measuring about five inches, of which the tail measured $3\frac{1}{2}$ inches.

On March 15th, 1947, I placed the unhatched egg, which was much shrivelled, in a glass jar containing a little water. On March 29th, 1947, I dissected the egg, which had absorbed a quantity of moisture. After removing the outer parchment-like envelope with a scalpel, I found within it **another envelope** of like texture, but tougher and thicker. Getting to work on this second covering with scalpel and forceps, I was able to remove a young water dragon, dead, but perfectly formed, with some of the yolk attached by the umbilical cord. This young one I placed in spirits along with the two envelopes of the egg.

The five young water dragons were placed in an indoor vivarium, which also contained a dish of water, and leaves under which they could hide; and to the time of writing (June 2nd, 1947) are alive and well, but at present growth seems to be rather slow. I have fed them upon very small worms, isopods, small caterpillars, earwigs, etc., also a few cake crumbs.

BREEDING CUNNINGHAM'S SKINK (*Egernia cunninghamii*) IN THE VIVARIUM.

By G. Longley.

During August, 1934, I purchased from Mr. W. Turner a specimen of Cunningham's Skink, which, however, did not live very long, and no record was kept.

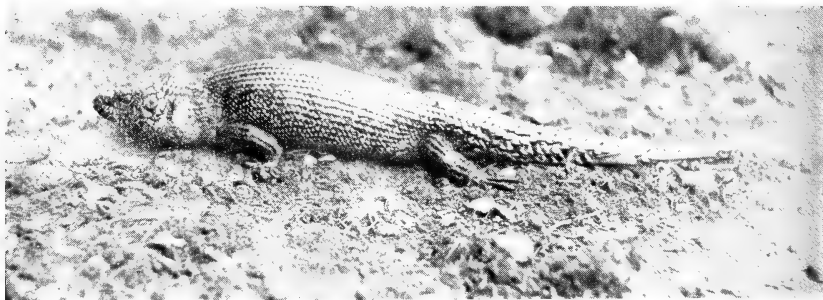
September 1st, 1937: Of a pair purchased from Mr. W. Turner on this date, the female died on 3rd February, 1938. However, the male is still alive, and on January 16th, 1941, I purchased a female from Mr. Turner. This pair has lived quite well together in a moderate-sized vivarium, in which I keep Blue Tongued Lizards, Water Dragons, etc.

February 11th, 1947: On this date I collected from the above parents a young Cunningham's Skink, which measured $4\frac{3}{4}$ inches. I searched everywhere for other young ones without success, and concluded that, if there were any, they must have escaped or been eaten by the Water Dragons. Both Mr. G. Cann and Mr. E. Worrell tell me that three is the usual number in a brood.

The young one, after being placed in a small separate vivarium, is feeding well upon chopped raw meat, isopods, small snails finely chopped, banana, etc.

A newly-caught Cunningham's Skink is often inclined to bite, and usually retains its hold most tenaciously. I have generally overcome this difficulty by lowering my hand, which the skink is clinging to, into the sleeping compartment of the vivarium, when the skink immediately released its hold, and disappeared amongst the hay and debris of the sleeping box. But on January 3rd, 1947, whilst in Mr. Ormsby's office, I had an interesting, if somewhat painful, experience. Mr. Ormsby was handing me a Cunningham's Skink, which he had caught the day before, when it slipped from his grasp to the floor. I got my right hand to it, but did not secure a proper hold, so placed my left hand over its head as there was not much space to work. The Skink promptly seized the inside of my left hand near the thumb and hung on. All I could do with my right hand failed to dislodge him. I tried resting my left hand on the floor, but he refused to let go. Also placing my left hand, with Skink attached, in the bag from which he had been taken, had no effect; so finally, as my left hand was beginning to feel rather tender, I appealed to Mr. E. Worrell, who was an interested and amused spectator, to gently lever the Skink's jaws apart; which he did with the aid of a pencil. The wound bled slightly, but of course was of no consequence.

This Skink is a particularly handsome specimen, being of terra cotta colour with narrow transverse dorsal bars, and the usual flecking of cream spots. I have handled him several times since and he has never attempted to bite.



Cunningham's Skink, *Egernia cunninghamii*.
—Photo: E. Worrell.

EMOTION IN REPTILES.

By Eric Worrell.

When Charles Darwin wrote the "Expression of Emotion in Man and Animals", he touched but briefly on emotions expressed by reptiles; this was undoubtedly due to his confining of observations chiefly to the physiognomical, or facial, aspect in relation to other physical reactions.

Hormones absorbed from the endocrine glands influence to a great extent our external anatomical reactions to specific occurrences, but while our responses register on our faces with the contractions of various facial muscles, reptiles indicate their emotions by stance or gesture.

AGITATION:—When we speak of agitation, we take into consideration fear, hate, rage and aggressiveness. With reptiles these emotions can be considered more or less allied—at least as far as external manifestations are concerned—as aggressiveness usually evolves from fear.

The primary inclination of a reptile towards a human being is to avoid. This is accomplished either by a hasty retreat or by an attempt to remain overlooked. As the human approaches closer the reptile may crouch or press against the nearest object, and in the absence of anything substantial, it may flatten to the earth. The initial object with these contortions is obviously to distort the natural contours of the reptile and complicate distinction from its surroundings.

If the potential aggressor approaches closer and it is not convenient or possible to retreat, other signs become apparent. When the reptile assumes that it has been seen, fear becomes evident. The tongue is protruded spasmodically and air expelled in hissing. A lizard will swell



Antagonism expressed by Central Australian Curl Snake, *Denisonia suta*. Note distended body and alert stance.

the body, raise itself upon its four limbs and perhaps open the mouth. A snake will simply distend the body and assume a loose striking stance. Although the reptile itself is greatly terrified at this stage, its stance no doubt is instinctively intended to terrify its possible molestor by its increased size and unusual appearance, in the same manner as Darwin describes the raising of mammals' fur and birds' feathers.

When handled, some geckoes express fear by emitting squeaking barks. This is also apparent at times with Burton's legless lizard (*Lialis burtonii*), only the cry is drawn out to a greater extent. Freshly captured reptiles often express fear by disgorging the previous meal or by sudden excretion. During the early summer months male monitors, when handled, protrude the hemipenes either intermittently or simultaneously, while female monitors may partly protrude the vaginal membranes. Snakes may emit a musty odour believed to exist for the attractions of the sexes, and crocodiles protrude the tips of the musk glands on the chin. Several species of long-necked tortoises (*Chelodina*) exhude an extremely offensive fear odour when handled.

AGGRESSIVENESS, as previously stated, is largely induced by fear and evolves from nothing more than the primal instinct of self-preservation. As a snake is antagonised it assumes a more deliberate stance in preparation for the delivery of a bite, then the head is thrown forward, followed by the entire body. The mouth is agape, tongue withdrawn and air forcibly expelled simultaneously. Lizards may jump forward, but rarely bite unless actually handled.

Dragons (*Agamidae*) and geckoes are capable of varying the intensity of their colouring with moods, but do not twitch the tip of the tail when agitated as do other groups of Australian lizards and snakes, but often lash the whole tail.

EQUANIMITY: This is usually expressed by slow movements while the skin is loose and neck relaxed. The swift striking motions of feeding reptiles can be readily recognised compared with enraged or frightened strikes. Feeding is only accompanied by hissing, distended body or flattened nuchal regions when an enemy is close at hand.

Curiosity is commonly displayed by reptiles craning the neck, sometimes waving the head slowly, or slightly trembling the tongue. The purpose of a snake's tongue has not yet been satisfactorily explained, but it appears to assist the olfactory senses in some manner.

During the mating season male reptiles usually display themselves to the females by swelling the body or distending the throat. The dragons accompany these exhibitions by going through their various colour phases.



Equanimity expressed by the relaxed bodies of these Skinks,
Tiliqua nigrolutea and *T. scincoides*.

—Photos. by the Author.

A NEW SANCTUARY.

By Eric Worrell.

During February, 1947, Mataranka Station, Northern Territory, an area of 832 square miles, was gazetted as a sanctuary for flora and fauna. This important move towards the conservation of our wild life is due to the foresight of Herbert Victor Smith, proprietor of Mataranka Tourist Resort.

I met Vic Smith several years ago when he was new to the Northern Territory and the Tourist Resort was little more than a contemplated undertaking. He discussed his ideas with me, and when I suggested that he declare the place a sanctuary, he decided to do so without hesitation. During 1946, when, accompanied by Roland E. Robinson, I set out to tour the Northern Territory to study reptile life, in conjunction with aboriginal culture, Vic Smith offered the entire facilities of the homestead for the furtherance of our work, and even detailed blacks employed at the station to assist us.

Mataranka provides a valuable new centre for wild life conservation, as it takes in the Waterhouse and part of the Roper Rivers. The billabongs and creeks support unlimited bird life, including the rarer parakeets and northern finches, and also numerous wading birds and wallabies.

A unique feature of the sanctuary which makes it a pioneer of its kind, is that reptiles are also protected. Lizard life is molested only by blacks who require them for food, and Johnston's crocodile, the harmless fresh water species, is strictly protected. Johnston's crocodiles nest every August on the banks of the Waterhouse River, not five hundred yards from the homestead building.

I am afraid that I originally viewed the potential influx of tourists into the Northern Territory as a new menace to our Wild Life, but having personally contacted the majority of tourists during seasons 1946-1947, I

Continued at foot of page 36.



Saw-tooth Tortoise (*Emydura latisternum*) captured in the Waterhouse River, Mataranka.

—Photo: E. Worrell.

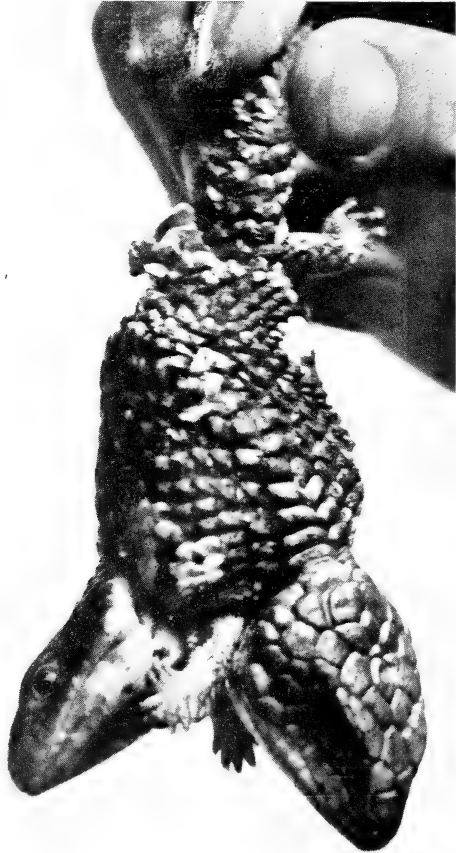
A TWO-HEADED BOB-TAILED LIZARD.

By L. Glauert.

Lizards with two tails are an everyday occurrence, but one with two heads is not met with so frequently. Some time ago Mr. P. Kennedy, of Perth, found an imperfect twin of the Stump-tailed or Shingle-back Lizard (*Trachysaurus rugosus*) at Elgin, a few miles from Bunbury in south Western Australia.

The monster, which has a length of $5\frac{1}{2}$ inches, possesses two heads, three fore-limbs, one of which consists of two in a common skin, and four hind-limbs. The bodies are joined at the neck and are so completely fused posteriorly that there is but a single vent and tail. The reptile was alive when first shown to me, but died in a day or two, after which it was presented to the Museum.

The accompanying photograph was taken by the Staff Photographer of the "Daily News", Perth.



*Two-Headed
Bobtail
Lizard*

Photo by courtesy of
"Daily News", Perth.

THE SCIENTIFIC NAME OF THE DINGO.

By Tom Iredale.

Dingoes were apparently first noted in 1623 by Carstenz and later by Dampier but merely reported as dogs associating with the natives. Then Cook wrote, "Tame Animals they have none but Dogs, and of these we saw but one, and therefore must be scarce, probably they eat them faster than they breed them: we should not have seen this one had he not made us frequent Visits while we lay in Endeavour River." The first printed use of the word Dingo appears to be by Tench (1789) who merely stated, "The only domestic animal they have is the dog, which in their language is called Dingo, and a good deal resembles the fox dog of England." Then in Phillip's Voyage to Botany Bay, 1789, is figured the Dog of New South Wales from a female sent by Phillip to Mr. Nepean. On this figure and description Kerr based his name *Canis antarcticus*, a name which has been overlooked for the now familiar *Canis dingo*. A little later than Phillip, the animal was again figured in White's Voyage to New South Wales where the name Dingo appears. From this place must the name be commonly accepted as Tench's little work is very scarce and the word was not defined in any way. Scientifically this name has been used in many works, the Dingo being referred to as *Canis dingo*; for many years the authority was given as Blumenbach, the date allotted being 1780. This was obviously impossible so an alteration was made to 1790 but this was just as incorrect. In the Check-list of Australian Mammals issued in 1934 by Iredale and Troughton, the earliest reference to *Canis dingo* was found to be that of Meyer, published in 1793.

Dr. Frank Marshall recently secured a beautiful copy of Kerr's Animal Kingdom and he immediately noticed a good illustration of the Dog of New South Wales reproduced from Phillip and the name used was *Canis antarcticus*. The date of Kerr's work is 1792 and therefore the name was earlier than the one commonly used. He pointed this out to me and asked me to investigate.

The work by Kerr is little known. Robert Kerr (1755-1813) began a translation of Gmelin's *Systema Naturae* with additions. The work was to be issued in eight half volumes, making the complete work of four volumes. However, only the first half volume covering the Mammals was completed and part of the second half volume dealing with Birds up to page 644, when the work suddenly stopped. A copy being available at the British Museum, workers made use of it and it was found that in this place some Australian marsupials were first scientifically named; Oldfield Thomas brought these names forward nearly seventy years ago and they have been used ever since. Apparently at that time Thomas was only concerned with marsupials and the name of the Dingo escaped notice up to the present time.

The only conclusion is that the Dingo must henceforth be known scientifically as *Canis antarcticus*. The synonymy will then read:

CANIS ANTARTICUS Kerr, 1792.

THE DINGO.

- 1792 *Canis antarcticus* Kerr, *Anim. Kingdom*, vol. i, p. 136 and pl. opp. Feb. Based on Dog of New South Wales, Gov. Phillip's Voy., p. 274, pl. xlv.
- 1793 *Canis dingo* Meyer, *Zool. Entdeck.*, p. 33. Based on Dingo or Dog of New South Wales, White, p. 280; Dog of New South Wales, Phillip, p. 274. Port Jackson.
- 1820 *Canis familiaris australasiae* Desmarest, *Tabl. Encyclo. Meth. Mamm.*, p. 191. Port Jackson, N.S.W. (Peron & LeSueur).
- 1826 *Canis australiae* Gray, *Narr. Surv. Coasts Austr.* (King) ii, p. 412. "1827"—April 18, 1826. New name for *australasiae* only.

- 1831 *Canis familiaris novaehollandiae* Voigt, Das Thierreich (Cuvier), vol. i, p. 154 (after Easter). New Holland Dingo.
- 1915 *Canis dingoides* Matschie, Sitz. ges. Nat. Freunde, Berlin, p. 107. p. 107.
- 1915 *Canis macdonnellensis* Matschie, Sitz. ges. Nat. Freunde, Berlin,

McKEOWN'S "AUSTRALIAN INSECTS".

"**Australian Insects**". By Keith McKeown, F.R.Z.S. Second (Revised) Edition, 1945. Reprinted 1947. Royal Zoological Society, Sydney. Price 12/6; postage: Australia, 5½d.; British Possessions, 7½d.; Foreign, 11½d.

"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.

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.

A NEW SANCTUARY.

Continued from page 33.

am convinced that they appreciate the value of conserving Wild Life, and in fact set out on their tours with the express hope of seeing as much of Nature as possible. It is not the tours arranged by big companies that endanger the Wild Life, but the so-called "sportsmen" who tour the country in their own private vehicles.

I think I can safely speak for all members of the Royal Zoological Society when I say "Congratulations, Mr. Smith! We wish you luck in your undertakings".

REVIEW.

"Lyrebirds Calling From Australia". By R. T. Littlejohns. Second edition, 1947, pp. 1-40, illustr. Price, 2/6 (postage 3d.). Our copy from Messrs. Robertson & Mullens, Melbourne.

The wintry months are the months of song and display for Lyrebirds and the best time is during June and July. With this in mind we can judge that now is the fitting time for a Lyrebird book to appear, and here it is—the second edition of Ray Littlejohns' "Lyrebirds Calling From Australia", handy in size with well informed, well written prose and really exquisite illustrations. Both prose and illustrations are the work of an expert and an enthusiast, and the result of his labours is a book that almost compels a visit to the nearest Lyrebird sanctuary.

Amongst the 24 illustrations, all of great beauty and clarity, we find pictures with titles such as "The Tail is spread and the silvery plumes fall as a fairy curtain", and in truth the illustrations themselves are in tune with the romantic beauty of the captions.

Some of the pictures taken in gloomy gullies and in winter fogs are done with the aid of flashlights in daylight.

In Lyrebird lore, Mr. Littlejohns is fully informed; in this book he traces its history from cradle to grave, or rather from "Egg to Fox" or to whatever eventual fate awaits it, for in its protection straying dogs must be controlled and the fox eliminated, while inconsiderate humans must be taught restraint of curiosity, for this bird, friendly at all seasons, resents fiercely interference with nest, eggs, and its one chick.

Here in "Lyrebirds Calling" we have splendid value for the modest sum of a half-crown, beauty, interest and information blended to a result almost perfection.—C.H.P.

A STRANGE TORTOISE.

Mr. Worrell informs us that the Tortoise identified in last year's "Proceedings" as *Emydura krefftii* by Mr. Kinghorn was confused with another specimen donated at the same time. To date the Tortoise concerned is still unidentified.—(Ed.).



LIST OF MEMBERS OF ROYAL ZOOLOGICAL SOCIETY
OF NEW SOUTH WALES

as at
5th AUGUST, 1947.

Note.—Unless otherwise specified, members are residents of the State of New South Wales.

Members will oblige by notifying the Honorary Secretary of any change of address.

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Weingott, Leo, 10 Lamont Street, Crows Nest.

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 Murray, C. Stuart, Box 2427, G.P.O., Sydney.
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