

The
AUSTRALIAN
MUSEUM
MAGAZINE

EDITED BY C. ANDERSON, M.A., D.Sc.



Bicentenary of the Birth of Captain James Cook
C. Anderson, M.A., D.Sc.

Jenny Hanivers - - - - - *G. P. Whitley*

New Guinea—Land of the Devil Devil *E. A. Briggs, M.Sc.*

The Mountain Minnow - - - *Frank Walford*

Textile Work on Pentecost Island- *Eleanor S. Williams*

Days on the Daintree - - - *Chas. Barrett, C.M.Z.S.*

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THE AUSTRALIAN MUSEUM

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THE AUSTRALIAN MUSEUM MAGAZINE

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Crocodile and Lizard carved in wood symbolizing tribal totems (New Guinea : Land of the Devil Devil).
[Photo.—E. A. Briggs.]



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VOL. III., No. 8.

OCTOBER-DECEMBER, 1928.

A Link With the Leverian Museum.

DRAWINGS: Collection of 132 original water-colour drawings by Miss Stone, illustrating the principal objects of curiosity in Sir Ashton Lever's Museum, consisting of Natural History Subjects, and the Arms, Ornaments and Dresses of the inhabitants of New Zealand and other Countries discovered by Captain Cook, with 132 leaves containing the drawings (and 24 blank leaves at end), folio, crimson straight grained morocco extra, g.e., £35. (c. 1790).

These drawings are of the greatest importance, as they illustrate heads and feet of birds, curious old bags, and other dress ornaments, native arms, implements, horns, etc., and furnish a permanent record of many of the vastly interesting and varied objects which were collected by that odd Manchester character Sir Ashton Lever, great-uncle to the novelist, and which formed part of his queer but valuable museum. After many vicissitudes the collection was dispersed in 1806, the sale taking sixty five days, and the catalogue which was compiled by Edward Donovan, consisting of 7,879 lots. (*From a recent catalogue issued by Sotheran.*)

To the generosity of Mr. George Robertson, of Angus and Robertson, Limited, the Australian Museum is under an obligation for the donation of the above collection of drawings.

These drawings are of great interest to us, and a few words about the quaint personality responsible for the gathering of the objects, some of which form the subject of these sketches, and his famous museum may not come amiss. Sir Ashton Lever lived during the years 1729-1788. From his infancy he showed a passion for out-door life, horsemanship, and archery, and was, moreover, an avid collector. His first fancy was aviculture, and his aviary at Altrincham, near Manchester, was generally conceded to be the finest in the British Isles.

Somewhere about the year 1760 he purchased several hogsheads of foreign shells at Dunkirk. These, apparently, formed the nucleus of his museum, which by 1774 had

become so large, and his worldly wealth so shrunken, that he removed the collection to London in the anticipation of deriving some income from it. Here he opened it for public inspection, under the name of the Holophusikon, the price of admission being 5s. 3d. per person. A few years later it was disposed of by lottery, the winner being James Parkinson who continued to exhibit it for several years. It was subsequently dispersed by auction. Donovan, the compiler of the sale catalogue, is a writer well known to zoologists, and amongst other works wrote *An epitome of the natural history of the Insects of New Holland, New Zealand* . . . published in 1805. Further details and an illustration of the Leverian Museum will be found in Mr. T. Iredale's article "Museums of the Past."*

*The Australian Museum Magazine, ii, 3, 1924, p. 89.

Top.—Illustrations selected from the collection of water-colour drawings by Miss Stone presented to the Australian Museum by Mr. George Robertson. Comparison may be made with the objects below selected from our collection of relics of Captain James Cook, R.N., the bicentenary of whose birth we are about to celebrate. Below.—Objects collected by Captain James Cook, R.N., F.R.S. Starting from the left these are

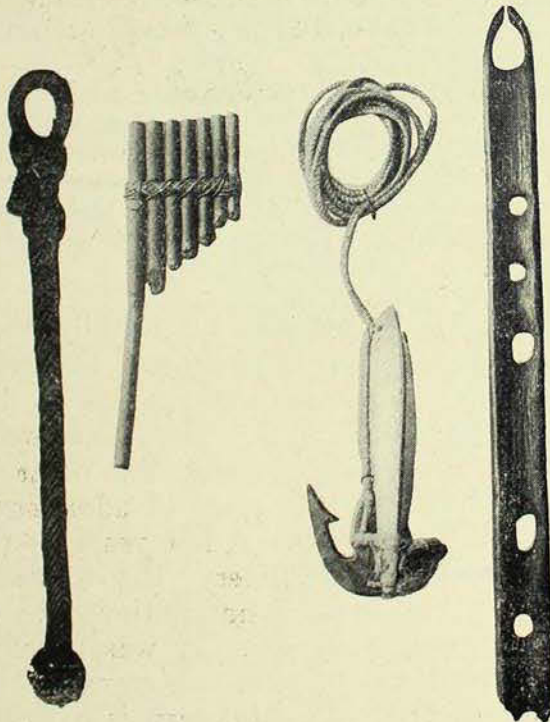
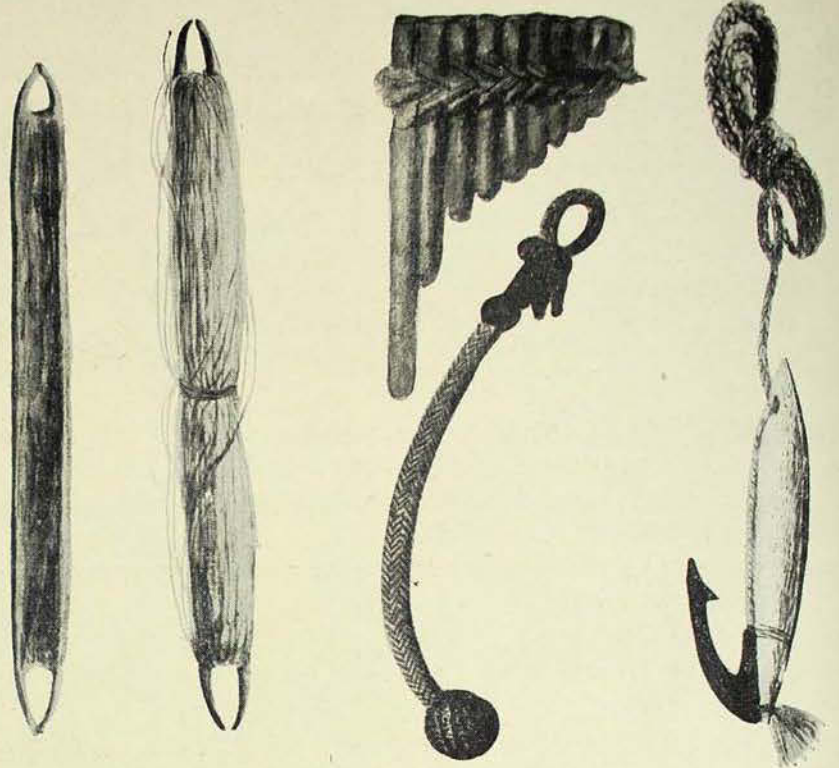
A plaited spear gasket or throwing cord. The right forefinger of the thrower is inserted in the loop and a turn of the knotted extremity is taken round the spear. It enables the spearman to throw with greater force and accuracy and produces a rotary motion. Balade, north-east New Caledonia.

The second object is a set of pandean pipes from the New Hebrides, composed of varying lengths of small bamboo bound along the centre with split rattan.

The fish hook was collected by the great circumnavigator at Tahiti. Its shank is of bone backed by mother-o'-pearl, and the hook is made from tortoise-shell, bent on itself and barbed.

The last object is a meshing needle used in the manufacture of nets. Probably this came from the Society Islands.

[Photo—G. C. Clutton.]



Charlotte Barrett, in the *Diary and Letters of Madame d'Arblay* (1778-1840), gives a graphic description of Sir Ashton Lever in the following passage.

Tuesday, Dec. 31, 1782. I went this morning with my dear father to Sir John Ashton Lever's, where we could not but be entertained. Sir Ashton came and talked to us a good while. He may be an admirable naturalist, but I think if in this you leave the *ist* out, you will not much wrong him. He looks full sixty years old, yet he had

dressed not only two young men, but himself, in a green jacket, a round hat, with green feathers, a bundle of arrows under one arm, and a bow in the other, and thus accoutred as a forester he pranced about; the while the younger fools, who were in the same garb, kept running to and fro in the garden, carefully contriving to shoot at some mark, just as any of the company appeared at any of the windows. After such a specimen of his actions you will excuse me if I give you none of his conversation.

The drawings are evidently colour sketches only, for they lack the finish of a completed drawing so beautifully exemplified in Miss Stone's picture of the Rock Manakin in Shaw's *Museum Leverianum*, the only plate contributed by her to this publication. Amongst the drawings those of Pacific handiwork are of great interest to us. Comparison with our collection of material collected by Captain James Cook, the circumnavigator, reveals a number of pieces identical with these pictures of Lever's treasures. Illustrations of such specimens, together with reproductions of the drawings, are given herewith, and speak for themselves. Arms and implements from Persia, India, Nubia, North America, besides heads and feet of birds, and horns, make up this valuable collection of drawings, and illustrate the thoroughness and keenness with which Lever amassed his wonderful collection.—W.A.R.

Bicentenary of the Birth of Captain James Cook.

BY C. ANDERSON, M.A., D.Sc.

JAMES COOK, the greatest navigator that our country or any other has produced, was born on 27th October, 1728, at Marton-in-Cleveland, Yorkshire. His father was a farm labourer, but soon after James was born he became a working bailiff on a farm at Ayton. Young Cook worked on the farm and was for a short time stable-boy at Ayton Hall, and when seventeen he became apprenticed to a grocer. At the age of nineteen, however, he went to sea, and for nine years he served in various vessels trading in the North Sea. When the Seven Years' War broke out he joined the navy, and, being a first-class seaman, with a good education, and a considerable knowledge of navigation, he soon made his mark, particularly as a surveyor. His good work in charting the St. Lawrence led to his being selected to survey the coast of Newfoundland and the neighbouring islands, and charts of this region made by Cook are said to be still unsurpassed.

In 1767 Cook was chosen to command the *Endeavour*, on a voyage to Tahiti to observe the transit of Venus. On this memorable voyage Cook was accompanied by Joseph Banks, Daniel Solander, and



Captain James Cook, R.N., F.R.S. Born, October 27th, 1728, killed, February 14th, 1779. Medallion in old Wedgwood ware.

[Photo.—G. C. Clutton.]

Charles Green, the astronomer. After the transit of Venus had been successfully observed, the *Endeavour* circumnavigated New Zealand and then proceeded westwards until the coast of Australia was sighted on 20th April 1770. On Sunday 29th April, the *Endeavour* anchored in a bay, called by Cook Botany Bay, and at 3 p.m. Cook landed. On 7th May the *Endeavour* sailed northwards, passed but did not enter Port Jackson, so named by Cook, and proceeded up the east coast of Australia, along the Great Barrier Reef, where disaster more than once threatened the little vessel, and, on 22nd August, Cook landed for the last time on Australian soil and took possession of the country in the name of the



Captain Cook's Birthplace.

King. Cook reached Batavia on 11th October, and England on 13th July, 1771.

During the First Voyage Cook proved that New Holland (as Australia was then called) and New Guinea are separated by sea, and, from observations made, compiled a chart



The stern plate of H.M.S. "Resolution." This is the earliest memento of Captain Cook received by the Australian Museum, and was a presentation from the Portsea Athenaeum and Literary Mechanics' Institute.

[Photo.—G. C. Clutton.]

of the east coast of Australia. The accuracy of the positions laid down on this chart is very remarkable, particularly in view of the fact that there was no chronometer aboard the ship.

From the Australian point of view Cook's Second and Third Voyages to the South Seas are of less interest, though important discoveries and observations were made. The second Voyage had for its main object the search for a supposed Southern Pacific Continent, and Cook had under his Command two sloops, the *Resolution* and the *Adventure*, the latter being in charge of Tobias Furneaux. On this voyage, which lasted from 13th July, 1772, till 14th July, 1774, Cook discovered New Caledonia and Norfolk Island, penetrated far into the Antarctic regions, and traversed the southern Pacific from side to side, returning to England by way of Cape Horn, having circumnavigated the globe in fairly high southern latitudes.

For some time Cook was employed in the preparation of his journals for publication, but on July 12, 1776, he left England on his

Third and last Voyage to the South Seas, his object this time being the search for a passage from the Pacific to the Atlantic round America eastward or round Asia westwards. He was given two vessels, the *Resolution*, under his own command, and the *Discovery*, under Charles Clerke. He sailed round the Cape of Good Hope to New Zealand, touching at the Marion and Crozet Groups, and at Adventure Bay, Tasmania. On 12th February he was in Queen Charlotte Sound, New Zealand, whence he sailed to the Cook and Friendly Islands, and on January 18, 1778, he sighted the island of Oahu, Hawaiian Group, which Cook called the Sandwich Islands. Proceeding northwards along the west coast of America as far as Behring Strait, he searched vainly for a passage to the Atlantic, and in September he turned south to winter in the Hawaiian Group, where, on 14th February, 1779, he was killed by the natives.

As a circumnavigator Cook is without a rival. The amount of work accomplished by him in the time and with the means at his disposal, and the accuracy of his observations, have excited the admiration of all



Autographed account of a ship's days work, probably that of H.M.S. "Eagle," sixty guns.

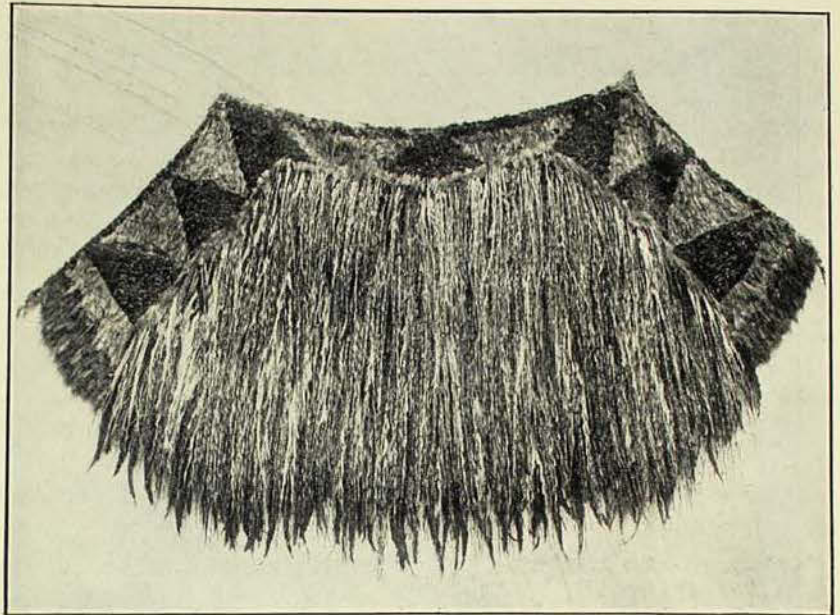
[Photo.—G. C. Clutton.]

who are competent to judge. Not the least of his achievements was the highly successful manner in which he conserved the health of his men. Previous to Cook's voyages, scurvy was the most dreaded enemy of the sailor, and serious loss of life through this scourge was a common occurrence even on short voyages. In 1758, out of a complement of four hundred, the *Pembroke* lost twenty-nine by scurvy in crossing the Atlantic. Cook in two voyages did not lose one man from this malady.

In character Cook, though a strict disciplinarian, was kind and just both to his own men and to the natives with whom he

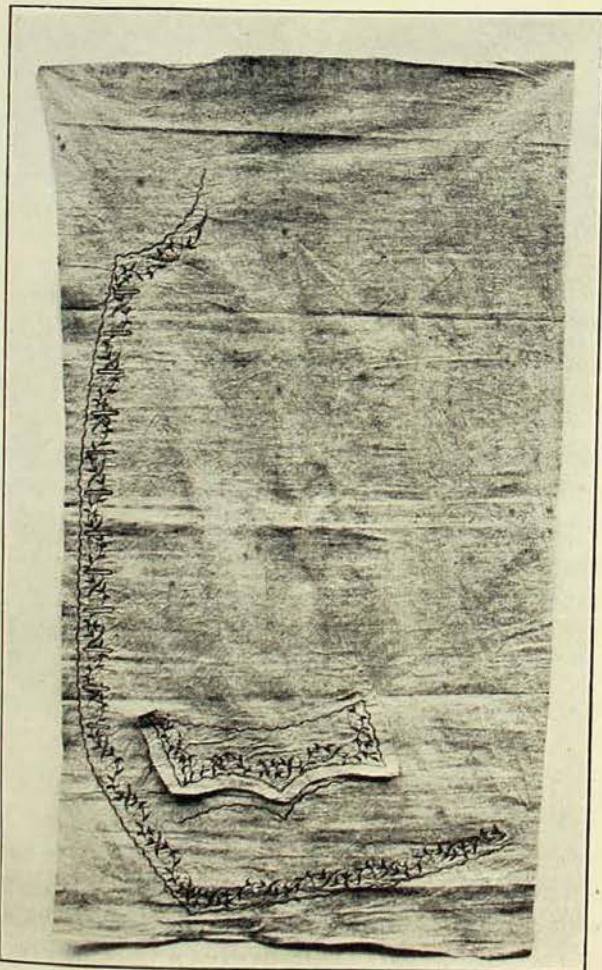
came into contact. By his tact and forbearance he won the confidence of the natives, and it was through a regrettable misunderstanding that at last he met his death at the hands of the natives at Kealakekua Bay, Hawaii. To Australians in particular Cook's is a revered name, and his memory is honoured throughout the length and breadth of the country. It was largely by the advocacy of Sir Joseph Banks, companion of Cook on his First Voyage, that a settlement was made on the shores of Port Jackson in 1788, the humble beginnings of the Australian Commonwealth.

The accounts of his memorable voyages fired the imagination of the civilized world, and directed attention to the vast possibilities



Feather cape given to Captain Cook by a Hawaiian chief. The border of red and yellow triangles is composed of feathers of honeyeaters (*Vestiaria coccinea*, Reichb., and *Acrulocercus nobilis*, Wilson). The long feathers on the back are those of the tropic or boatswain bird (*Phaethon rubricauda*, Salvin), and, probably, the Frigate bird (*Fregatta aquila*, Gmel).

[Photo.—G. C. Clutton.]



A waistcoat embroidered by Mrs. Cook during her husband's absence on his third voyage, and from which he did not return. The garment is made from tapa-cloth, a material manufactured by the primitive races of the Pacific from bark.

[Photo.—G. C. Clutton.]

of the Pacific region. The enterprising merchants of Britain and America were not slow to realise the potential wealth of this part of the world, and fur traders, whalers, sandalwood hunters, and others, were soon reaping a harvest and laying a foundation for the future occupation and development of Pacific lands.

It is natural therefore that the British, particularly Australians, and the Americans should join in honouring this famous sailor and discoverer, whose exploits and achievements have excited the admiration of the whole world.

For many years the Government of New South Wales has endeavoured to collect and preserve manuscripts, memorials, and relics associated with the life of Cook and his voyages. These are housed in the Mitchell Library and in the Australian Museum, which has a special exhibit of Cook relics.

Most of the Cook relics preserved in the Museum were secured by the efforts of a former Agent-General, Sir Saul Samuel. In 1887 and succeeding years, Sir Saul was successful in obtaining an exceedingly valuable series of Cook relics, notably the bulk of the collections exhibited by Mr. John Mackrell at the Colonial and Indian Exhibition of 1886 and now deposited in the Australian Museum. The collection has been

could know but very little of their Customs as we never were able to form any
 Connections with them, they had not so much as touched the things we had left in
 their Huts on purpose for them to take away, during our stay in this Harbour
 caused the English Colours to be displayed ashore every day, an inscription to be
 cut out upon one of the Trees near the watering place, setting forth the Ships
 Names, Date &c. having seen every thing this place afforded we at day light in
 the morning weighed with a light breeze at N.W. & put to sea, the wind soon after
 coming to the Southward we steered along shore N.W. & at Noon we were by observa-
 tion in the Lat. of $33^{\circ} 50'$ about 2 or 3 Miles from the Land & about 5 Miles
 where in there appeared to be the anchorage which I called Port Jackson This
 I thought to be the Northward of Botany Bay. I had almost forgot to mention that it
 is high water in this Bay at the full & change of the Moon about 8 o'clock & rises &
 falls up & perpendicular about 4 or 5 feet
 Little wind southerly & serene & pleasant weather for the night
 found the Lat. by sun to be $8^{\circ} 3'$ about set the Northern Island in sight
 bore N. 26° E. & some broken land that appeared to form a bay bore N. 40° E. dist 4° E. of
 this Bay I named Botany Bay Lat. $33^{\circ} 36'$ we steered along shore N.W.

Portion of leaf from the Journal of the Proceedings of H. M. "Bark Endeavour," 368 tons, on a voyage round the World by Lieutenant James Cook, Commander, commencing the 25th of May, 1768. A little more than half way down is the record of the discovery and naming of Port Jackson. Presented by the late F. H. Dangar.

[Photo—G. C. Clutton.]

added to from time to time and now forms a priceless assemblage of Cook souvenirs.

Among the Cook relics preserved in the Museum some are of special interest and value. Included is a copy of the journal kept on the First Voyage, when the east coast of Australia was surveyed. There were three copies of this journal and the one exhibited is believed to be that sent to the Admiralty from Batavia. This exceedingly valuable historical document was presented by F. H. Dangar in 1894. Among articles which were personally used by Captain Cook, and are therefore of particular interest to us, may be mentioned an inlaid dressing case, and a dress sword or hanger worn by him on official occasions. The bible on view is said, on the authority of Mrs. Cook, to be that used by him in conducting divine

worship on his three voyages; it was printed at Oxford and is dated 1765. Another interesting object is an oriental box, the first present made by Captain Cook to Miss Elizabeth Batts, of Wapping, London, who became his wife in 1762 and survived her husband 56 years. She died at Clapham, Surrey, 13th May, 1835 in her ninety-fourth year.

A tapa-cloth waistcoat, beautifully embroidered by Mrs. Cook, has a pathetic interest. It was intended to be a dress waistcoat for her husband, but he did not live to wear it. Several native weapons, ornaments, and other objects presented to or collected by Cook during his voyages are exhibited. One of the most interesting of these is a cape adorned with the feathers of Hawaiian birds some of which are now ex-

tinct; this was presented to Cook by the native king Tereoboo.

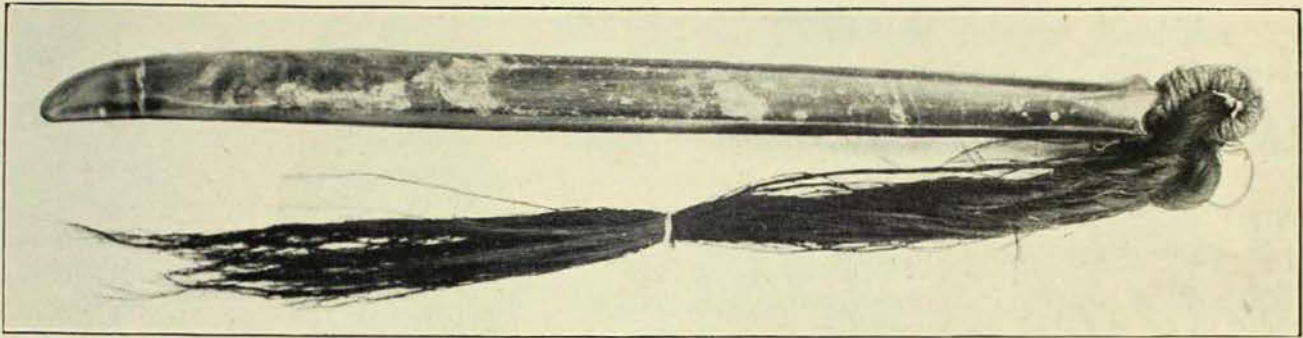
The earliest memento of Captain Cook to enter the Museum is the stern plate of the *Resolution*, which was presented in 1869 by the Portsea Athenaeum Literary Mechanics, Institute.

Particularly prized are two volumes containing original drawings by artists who accompanied Cook on his voyages. These comprise scenes, charts, illustrations of birds, natives and other subjects.* Very valuable, too, is a volume containing auto-

graph letters of Captain Cook, leaves of diaries, and other documents.

The collection of Cook memorials is at present exhibited on the first floor, near the entrance from the bird room into the ethnological galleries. Visitors are strongly recommended to examine the collection on this the two-hundredth anniversary of the birth of the illustrious navigator, Captain James Cook, R.N., F.R.S.

*See article by T. Iredale, "Captain Cook's Artists," Australian Museum Magazine, ii, 7, July-September, 1925, p. 224.



A bowenite, or tangiwai, ear-drop. This is the largest Maori ear-drop known, measuring 13½ inches in length and weighing 5½ ounces. It formed part of the John Mackrell Collection and was displayed in the New South Wales court at the Colonial and Indian Exhibition, 1886, in the catalogue of which it was stated to have been "worn by a New Zealand chief through his ear as an ornament, and presented by him to Captain Cook."

[Photo.—G. C. Clutton.]

On Thursday, October 25th at 8 p.m., Dr. T. Storie Dixon, a member of the Board of Trustees of the Australian Museum, and formerly President, will lecture on Captain Cook, in the Australian Museum lecture theatre; admission will be free.

Dr. Dixon is a close student of the great circumnavigator and has amassed a considerable amount of material. The lecture will be illustrated with lantern slides and objects drawn from our collections.

By the death of Mr. J. F. Connelly, of Perth, Western Australia, which took place in June last, an earnest student of the

Australian aborigines and their culture has been lost to us. Mr. Connelly had travelled widely in the Commonwealth ever on the look out for specimens of scientific interest, and from him we obtained many valuable acquisitions and interesting items of information.

For some months past a class of Art Students from the East Sydney Technical College, under their teacher, Miss P. S. Shillito, visits the Museums on Thursdays and Fridays to make drawings and studies of natural history specimens in the collections.

Jenny Hanivers.

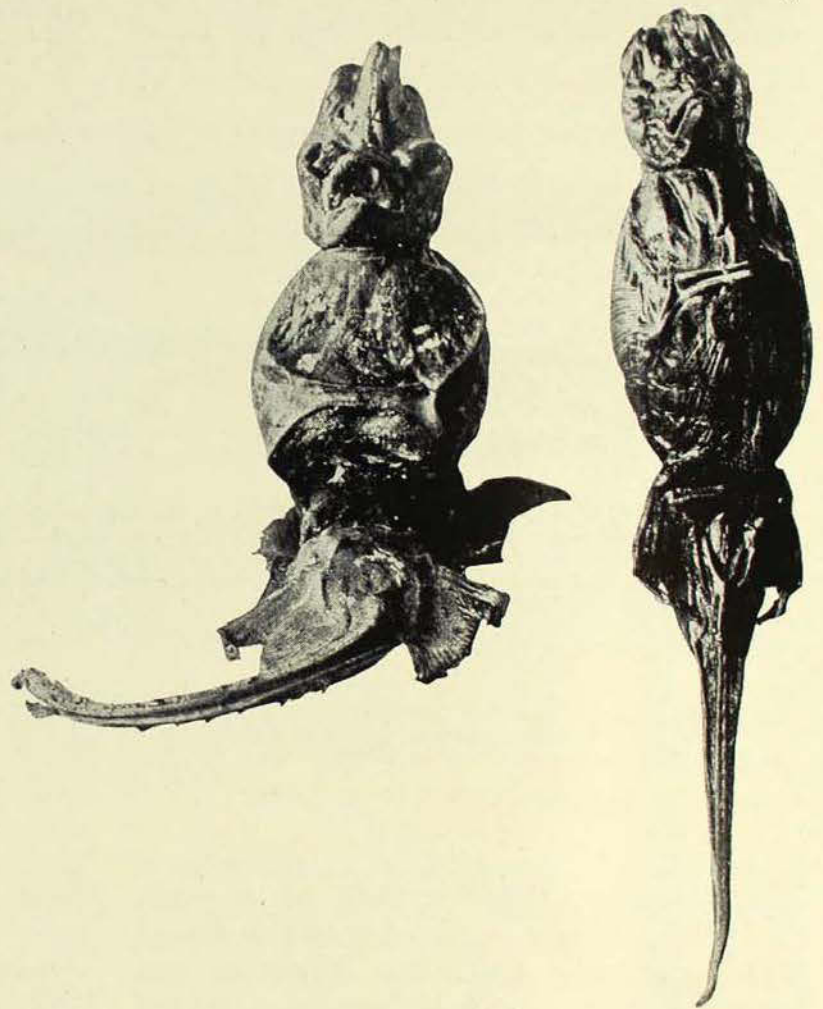
BY GILBERT P. WHITLEY.

WHEN a trawl is hauled in and the draw-rope securing the cod-end of the net is loosed, a slippery mass of squirming fishes and other marine creatures is dropped violently into the pound provided on the deck of the trawler. The edible kinds having been rapidly sorted into baskets by the seamen, a great many small sharks, rays, invertebrates, lumps of rock, and other "rubbish" remain. Before this is swept into the sea again, a trawler hand may select a shell or starfish for future decorative purposes in his home, or perhaps a humorous fancy seizes him, and, in a few spare moments, he makes a Jenny Haniver.

This is done by taking a small dead skate, curling its side fins over its back, and twisting its tail into any required position. A piece of string is tied round the head behind the jaws to form a neck and the skate is dried in the sun. During the subsequent shrinkage, the jaws project to form a snout and a hitherto concealed arch of cartilage protrudes so as to resemble folded arms. The nostrils, situated a little above the jaws, are transformed into a quaint pair of eyes, the olfactory laminae resembling eyelashes. The result of this simple process, preserved by being coated with varnish and perhaps ornamented with a few dabs of paint, is a Jenny Haniver, well calculated to excite wonder in anyone interested in marine curios. The front aspect of the finished article is really the under surface of the skate, whose back and true eyes are hidden by the curled pectoral fins.

Recently the Australian Museum received from Dr. R. Mead of Quirindi, New South Wales, two Jenny Hanivers which had been obtained in Whitby, England. They are also procurable in Normandy and Belgium, but lately the knack of making them has

been introduced into Australia by English seamen on the New South Wales trawlers. Such a Jenny Haniver, made for me by Mr. H. Howell, is shown in the left hand figure below; another was pictured as a "baby stingaree" in the Sydney

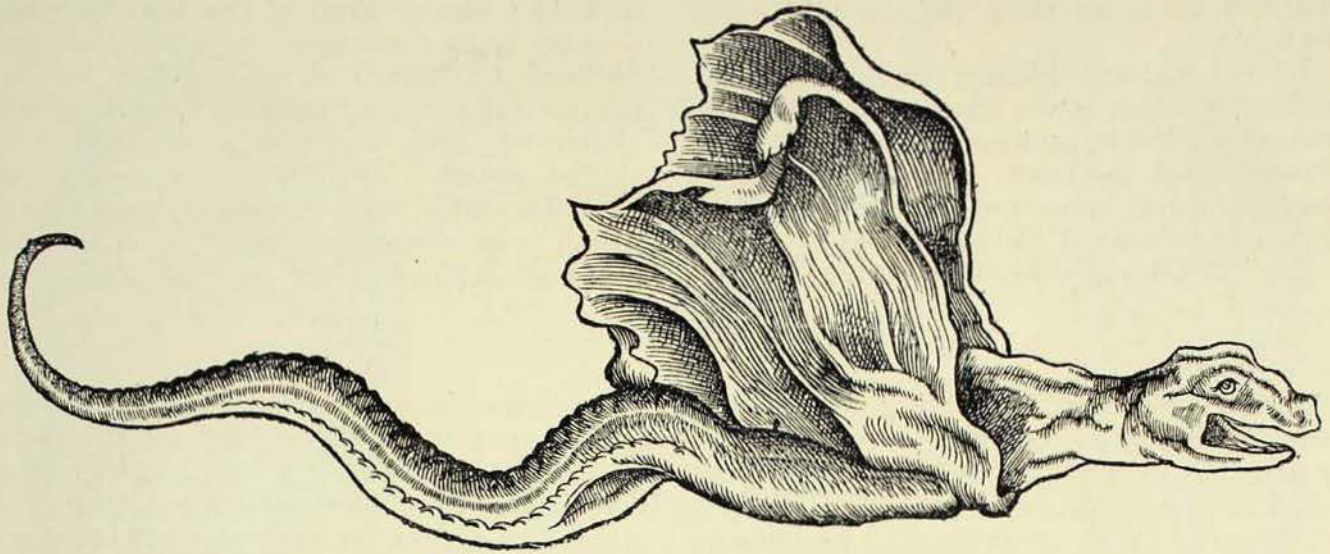


Jenny Hanivers. The left hand one was made from an Australian Skate (*Raja australis*); that on the right came from England.

[Photo.—G. C. Clutton.

Daily Guardian last June, whilst a request by a Museum inquirer for the identification of a "monkey fish" brought to light one more. Soon these curious fakes may be quite common in Sydney.

Though a novelty in Australia, Jenny Hanivers have apparently been fabricated for a long time in Europe. In an old catalogue, the *Museum Calonnianum* published in 1797, there appears in a list of specimens:—



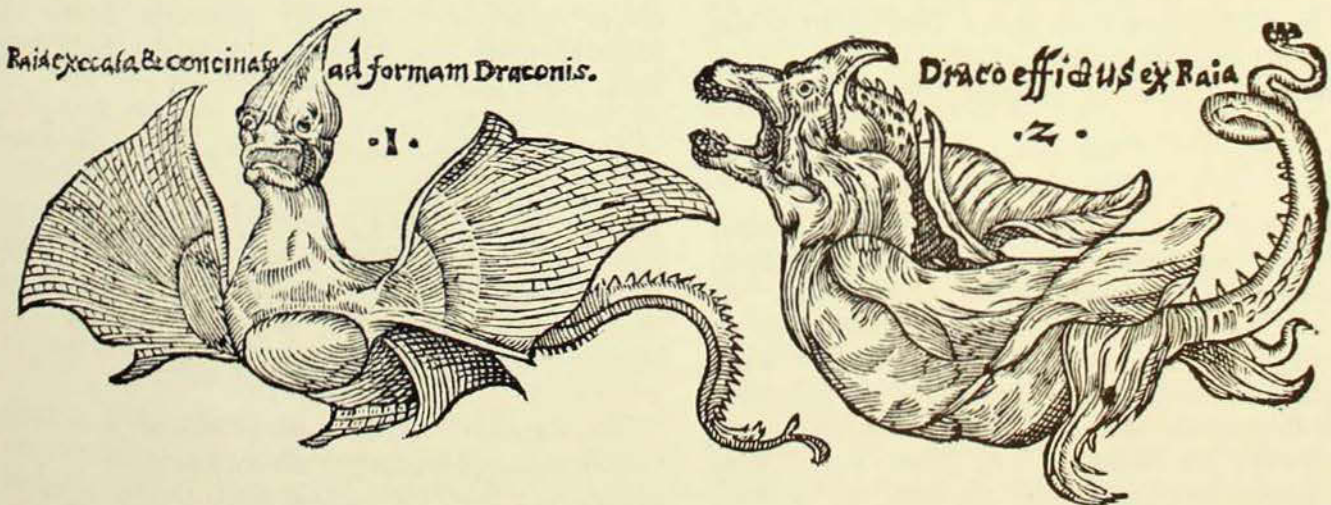
This curious figure of a Jenny Haniver appeared in 1560 in Gesner's "Icones Animalium." The head has been bent forward and the "wings" have been trimmed. [Photo.—G. C. Clutton.]

Young—Maid—Normandy—Raia Clavata Linn. This has been bent so as to represent a dragon, and has even, in this state, been figured by authors, and called the Sea Eagle.

The term Maid is applied to immature specimens of the European Skate (*Raja batis*) and its cousin the Thornback (*Raja clavata*), and may have been associated with the queer little Jenny Hanivers, whose shape rather suggests girls in the cap and national costume of a bygone age. It is also possible, however, that in olden days Jenny Hanivers were intended to represent robed priests and thus may have had a

somewhat religious significance. I have been unable to learn the source of the name Jenny Haniver. Perhaps it belonged to some second-sighted fishwife who long ago imparted lucky qualities to the little effigies to which her name has now been transferred.

The oldest picture of a Jenny Haniver known to me appeared in Conrad Gesner's *Icones Animalium*, a book published at Zurich in 1560; this is reproduced here. Gesner tells us that alchemists used to fashion rays into the shapes of serpents and dragons by bending the fins and distorting the head. Sometimes they cut or trimmed



The "Spitzrogen" of Aldrovandus, shown in the left hand figure, has been regarded as a skate whose pectoral fins have failed to unite with the head, but it seems probable that it too is a Jenny Haniver, as is undoubtedly the subject of the right hand picture.

[After Ulysses Aldrovandus.]

the fins to make their objects still more fantastic.

In old natural history works one occasionally comes across illustrations of skates and rays whose pectoral or side fins are separate from the head; such abnormalities occur at times in nature and are not artificially produced. The so-called "Spitzrogen" of Ulysses Aldrovandus was figured

in 1613; the original of this may have been a skate with malformed pectorals, but I am inclined to regard it as a Jenny Haniver, fantastically incised perhaps by some cunning alchemist and vigorously depicted by a skilful artist. The figure is copied here, as is also one of a more normal Jenny Haniver which was associated with it on the same plate in Aldrovandus' ancient work.

On July 26th an interesting lecture entitled "From Cape to Cairo" was delivered by Mr. E. J. Bryce, F.R.G.S., to a large audience in the Museum Lecture Hall.

The onward rush of civilization has not as yet entirely spoilt the African Continent for the naturalist and anthropologist. Large tracts of virgin country still provide shelter and food for wild animals and primitive natives.

Mr. Bryce and his companions travelled through the equatorial forest of the Congo with its dense tropical vegetation, where the gorilla has his home; through the open forest country of Tanganyika, and Kenya, the haunts of the lion, the giraffe, and the rhinoceros, on to Urganca, rightly called by Stanley the pearl of Africa; through the Sudan, richer than any other part of Africa in wild life and peculiar native tribes, and finally down the Nile to Egypt, the ancient land of the Pharaohs.

Elephants are still common in some parts of Africa, particularly in the Sudan, where they can be seen from the Nile steamer in herds of fifty or a hundred. One night while the party were camping on the road from Tabora to Mwanza (Tanganyika Territory)

a lion came into the camp, but the noise and commotion soon drive him away. Certain parts of Africa afford good collecting for the zoologist, and several expeditions from American museums were met with in Central Africa, all of them made possible by the generosity of well-to-do Americans, an example which might well be followed in Australia.

Australians appear to be very successful in Africa. They were met with at the Broken Hill Mine, Rhodesia, others are growing sugar in Kenya, and in the Sudan, many are employed as officials, or in other capacities.

The natives encountered were a source of great interest. The warlike Dinkas and Shilluks of the Upper Nile are exceedingly tall; they average six feet six, and some reach a stature of seven feet. The Dinkas are great hunters and fleet runners, capturing game on foot. If they do not secure their booty by nightfall, they are accustomed to camp on the trail and resume the chase next day, finally running down the animal and dispatching it with their long broad-bladed spears.

Among recent visitors to the Museum may be mentioned Mr. George L. English, Consulting Mineralogist to the Frank A. Ward Foundation of Natural Science, University of Rochester, New York, with whom an important exchange of minerals was arranged. Mr. Lee S. Crandall, Curator of Birds, Zoological Park, New York, who is proceeding to New Guinea to collect birds for the New York Zoo and the American Museum of Natural History, inspected our collection of birds during his stay in Sydney.

Mr. H. Rutherford Purnell, Librarian, Public Library of South Australia visited the Museum in August, was shown over our library and discussed library matters with our librarian, Mr. W. A. Rainbow.

Mr. G. A. Thomas, of Berowra, has been appointed Honorary Archaeologist to the Museum. Mr. Thomas has made a close study of Egyptian hieroglyphics and archaeology, and has in manuscript a comprehensive dictionary of hieroglyphics.



Wooden mask enclosed in laced rattan binding. Sepik River. (Australian Museum specimen.)
[Photo.—G. C. Clutton.]

New Guinea: Land of the Devil Devil.

MOTION PICTURES AND
STONE AGE PYGMIES.

BY E. A. BRIGGS, M.Sc.

Acting Professor of Zoology in
the University of Sydney,
Australia.



Long nosed mask. Sepik River. (Australian Museum specimen.)
[Photo. G. C. Clutton.]

BYOND the mountains of the Torricelli Ranges, which rise sheer and ominous along the Finsch Coast of north-eastern New Guinea, lies a wild and remote region in the valley of the Sepik River. Here, in the vastness of this unexplored territory, four members of the Sydney University Filming Expedition fought their way through fetid swamps and open grass lands to the almost impenetrable forests of the interior in order to secure motion pictures of the lives and strange customs of the primitive, stone age savages of these tropical jungles.

Dwelling in scattered villages behind their mountain barrier, these tribes have lived on, isolated and unchanged, preserving to the last the legacy of the prehistoric past. Stone age pygmy and primitive Melanesian meet and mingle in this secluded valley where we spent so many adventurous months exploring the mysteries of the "devil devil" houses, and filming the erotic native dances, the weird tribal ceremonies, and the intimate phases of village life.

We landed through the surf at Aitape, a Government post on the fringe of civilization

and the last link with the outside world. A hurried search for carriers and personal boys, a quick repacking of our cameras, camp-gear and provisions, and two days later we were ready to start on the first stage of our long march into the mountains. Before us stretched the low, sandy coastal plain with its thickly timbered belt crossed by a native pad which for the most part followed the shallow snaky creeks. Along these water-ways we passed occasional clusters of miserable huts. These are the dwellings of the inhabitants, who are the cowed and unhappy victims of their dismal surroundings.

Owing to the heavy and continuous rains, which delayed us for several days in these depressing villages, we had ample opportunity of observing the old men of the tribe as they prepared the boys for initiation into the "devil devil" houses. These are intimately connected with the worship and reverence paid to ancestors who may become beneficent or malevolent ghosts. Consequently the fear-ridden natives usually wear the lower jaw bones of deceased relatives

on their right arms as charms or tambourans to ward off evil spirits.

With our cinema cameras we secured some interesting "shots" of the large wooden drums and long bamboo pipes used by the natives during the performance of these eerie ceremonies. These curious musical instruments are housed in a rude palm-thatched shelter which covers a small raised platform decked out with rows of human skulls. The wooden drums are fashioned from hollowed tree trunks, and,



Human skull with features restored in resin and clay. Sepik, or Kaiserin Augusta River. (Australian Museum Specimen.)

[Photo.—G. C. Clutton.]

when pounded with a stout club, give out a deep reverberating boom. The bamboo pipes also employed on these occasions resemble gigantic flutes, and emit an extremely soft and rather pleasing musical note. This is produced by partly filling the pipes with water. They are then held almost vertically in the arms and played by blowing from the lips across a diamond-shaped opening in the side of the tube.

The women and children, of course, are not permitted to take part in, or even witness these scenes, but must remain hidden in the bush or secluded in the huts until the termination of the performance and its accompanying magical rites. At other times, however, the women take an extremely active part in the tribal life; in fact, they are invariably the beasts of burden, the

toilers in the home, the labourers in the fields. They have charge of the village gardens; they work in the taro patches and among the sago swamps; they fish the neighbouring streams with large circular nets; and armed with flat wooden mallets they sit before a long log on which they beat out strips of water-sodden bark into broad thin sheets of *mal* to serve as loin cloths for the men.

Our passage over the mountains of the Torricelli Ranges is a confused and unchronicable story. Before us rose the massive ramparts like grim sentinels challenging our advance towards the unknown. For two days there was a nightmare of climbing and mountain torrents which had to be stemmed, of cold and tropical downpours, and the inferno of endless clambering, slipping, and hacking before we reached the summit. At last we knew what lay beyond the mountains. And so we entered into the valley of the Sepik River and passed through the portals of time into the Stone Age.

Stone axes and adzes of various kinds are used extensively in this region for house building, clearing and other work. They are made of some kind of green stone or more rarely of course gray granite from the river beds. Nearly all the examples which we collected are polished, but some are chipped on the upper part and only the points or ends polished and sharpened. These stone implements are manufactured in various sizes and are often beautifully finished. The axe heads are tightly bound to wooden handles by means of long strips of rattan fibre, but they can be readily detached and safely stowed away in specially-constructed baskets when carried into the jungles or down to the sago swamps.

These primitive savages of the Sepik Valley arm themselves with long bows and bone-tipped arrows, and carry large wooden shields that cover the body from head to knees. The outer surface of the shield is deeply incised with a curious spiral design, which also appears in various forms in all their carvings and crude paintings. The men wear no clothing, but frequently bind their waists with long girdles formed from the polished vertebrae of a snake's backbone. The women, both single and married wear



Gigantic flute of bamboo used at initiation ceremonies.

[Photo.—E. A. Briggs.]

a short fringe of palm-fibre string in front and a long tail of similar material behind.

The villages are always difficult of access. Owing to the internecine strife, which is waged continually by these warring tribes, the natives build their houses along the ridges of the foothills and cultivate the steep slopes leading to the floor of the valley. These terraced gardens are planted with yams and taro, sweet potatoes, bananas and sugar cane, while coconut palms and bread-fruit trees growing around the village also supply the needs of the inhabitants.

About the swamps and estuaries of the Sepik Valley flourish the indigenous sago palms which furnish the natives with an important source of food. During our wanderings we had ample opportunity of seeing the whole pro-

cess of making sago, and filming the tedious and intricate steps in its manufacture. The sago tree is a palm, thicker and larger than the coconut tree, although rarely so tall, and having immense leaves which completely cover the trunk until it is many years old. It grows in swamps, or in swampy hollows on the slopes of the hills, where it seems to thrive equally as well as when exposed to the influx of salt or brackish water.

When sago is to be made, a full-grown tree is selected just before it is going to flower. It is cut down close to the ground, the leaves and leaf-stalks cleared away, and a broad strip of the bark taken off the upper side of the trunk. This exposes the pithy matter, which is of a pinkish colour near the bottom



A woman at work with a flat wooden mallet beating out a strip of water-sodden bark into a thin sheet called Mal to serve as loin cloths for the men.

[Photo.—E. A. Briggs]



A group of wooden carvings representing the "Devil Devils" of the tribes.

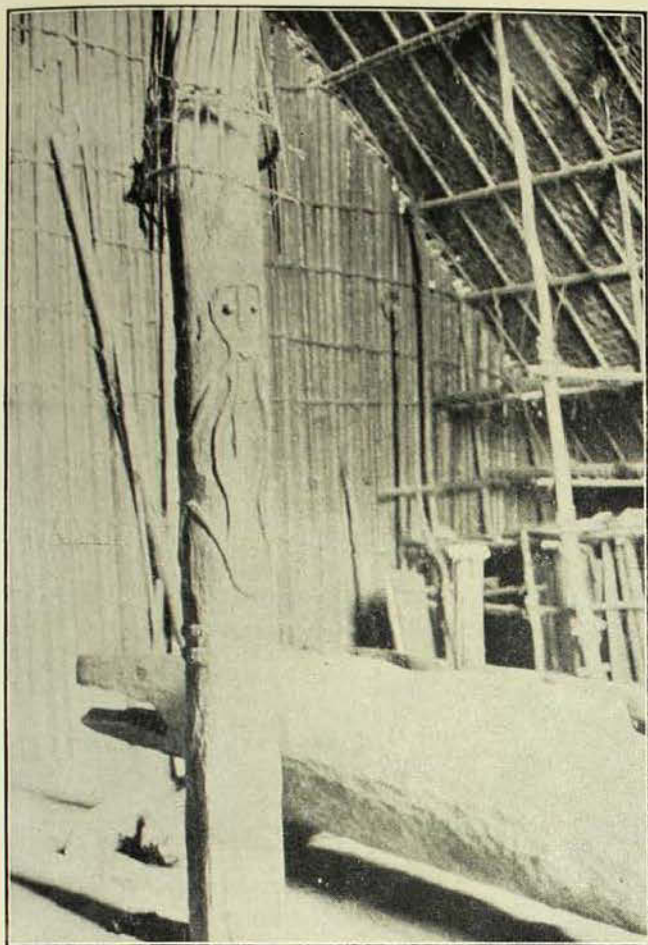
[Photo.—E. A. Briggs.]

of the tree, but higher up pure white, with woody fibres running through it about a quarter of an inch apart. This pith is cut or broken down into a coarse powder by means of a curious axe fashioned from a length of bamboo with a short wooden handle projecting from the side. By successive blows of the axe, the narrow strips of the pith are cut away, and fall into the cylinder formed by the bark. Proceeding steadily on, the whole trunk is cleaned out leaving a skin not more than half an inch in thickness.

This material is carried away to the nearest water, where a washing machine is set up, which is composed almost entirely of the sago tree itself. The large sheathing bases of the leaves form the trough, while the fibrous covering from the leaf-stalks of the coconut is used as a strainer. Water is poured on the mass of pith, which is kneaded and pressed against the sides of the trough and the bottom of the strainer until the starch is all dissolved and has passed through, when the fibrous refuse is thrown away, and a fresh supply put in its place.

The water charged with the sago starch passes into the settling buckets, which are arranged at different levels in order to catch the overflow. The mass of starch is finally deposited in the lowest bucket, where it is allowed to partially dry. It is then packed into short lengths of bamboos, each closed with a plug of green leaves, and in this state is stored as raw sago. This will keep rather well, although it very soon develops a sour odour, but the unpleasant smell does not appear to affect the natives. Boiled with water, the sago forms a thick glutinous mass with a rather astringent taste, and is eaten with yams, taro, and sweet potatoes.

Although their culture is only slightly developed, the natives have an elaborate method of drum-talk by means of which signals can be broadcast on the signalling drum or garamut. Along the top of the drum, which is constructed from a hollowed tree trunk, runs a narrow, slit-like aperture expanding into a central and two terminal openings. The signaller beats out his message with a stout piece of wood, not on a



An anaglyph, with pebble eyes, carved on a wooden support in the "Devil Devil" House.

[Photo.—E. A. Briggs.]

code system, but by an attempt to make the drum actually boom out its communication. These drums can be heard over great distances, and in this way the Sepik warriors are able to exchange messages between the scattered villages. In some districts the drums are twelve feet or more in length, with tapering ends elaborately carved with spiral designs, but usually they are much smaller and quite severe or only very slightly decorated.

In their superstition and fear of malignant ghosts, these savages have set up many strange carvings in the form of human figures, birds and serpents, lizards and crocodiles. These dread and mysterious tambourans, capable of working good or evil at will, symbolize the totems of the tribe, and cast their spell over the lives and every action of those who come under their baneful influence.

Dynamic and sinister, these wooden images stand in the dim recesses of the "devil

devil" houses, which constitute one of the most interesting and prominent features in the villages throughout the length and breadth of the Sepik River valley. In some cases the totem houses are merely large huts containing a few rude cubicles occupied at night time by the guardians of the tambourans. Frequently, however, much labour and artistic skill have been expended on the building of these houses. They are spacious and most elaborate affairs, with the ceilings formed from large sheets of bark on which the artists, working with charcoal and various clays, have depicted many fanciful animals associated with spiral designs and cabalistic signs.

The tambourans, like huge pieces of fretwork, usually occupy a raised platform which is supported at the four corners by elaborately carved and highly colored totem poles. These extend to the roof, where each is surmounted by a large wooden object



The ceiling of a "Devil Devil" House composed of large sheets of bark on which the artists have depicted many fanciful animals associated with cabalistic signs.

[Photo.—E. A. Briggs.]



A group of performers at a Sing Sing or native dance.

[Photo.—E. A. Riggs.]

representing a conventionalised carving of the sun. Sometimes an anaglyph with pebble eyes stands watch beside its ghostly neighbours, or strange serpent-sticks rear their forked heads above the grinning countenance of some heathen god.

Such, then, are these elusive devils whose effigies dwell in the gloom of the tambouran houses, but whose unfettered wraiths stalk through the land dominating and bending to their will the simple minds of these primitive people.

The superstition-ridden inhabitants of the valley are, for the most part, black frizzly-haired Melanesians. By their passive resistance and, on more than one occasion, open hostility they greatly hampered us in our work of exploring and mapping these unknown regions.

Sullen and suspicious of every movement, they fled the villages at our approach, or attempted to check our advance by obstructing the native pads with fallen tree trunks and bamboo barriers.

Dwelling side by side with these hostile tribes are the separate and distinct pygmy

racers. They have the characteristic flat wide nose, short woolly hair, and clean-bulit slender frame. Like their taller neighbours, these pygmies use bows and bone-tipped arrows, and carry crude daggers about a foot in length fashioned from the hollow thigh bone of the New Guinea cassowary.

All the Sepik pygmies are shy, aboriginal, cunning creatures living together in small communities on the inaccessible and remote hills. They are no longer nomads of the jungle. They have been affected by contact with other tribes, for they build houses on piles and cultivate crops of yams and taro in their garden plots along the banks of the streams. They have a thorough knowledge of plants, which is one of the pygmy traits.

Their villages are usually overrun with abject pariah dogs, which the natives, when faced with a food shortage, kill and eat owing to the scarcity of other animal life in the interior of New Guinea.

While attempting to film these dwarfs of the forest and their tribal totems, we experienced the greatest difficulty, since they were extremely timid and very loath to

exhibit their tambourans. It was only after considerable delay that we eventually succeeded in shooting a few scenes showing the men grouped about these grotesque images. Our efforts at friendliness, however, were finally rewarded, when, in the late afternoon, we had the satisfaction of filming a procession of pygmies on its way to restore the ancient carvings to their gloomy abode in the "devil devil" house.



A native dandy at work plaiting a handbag from the leaf of a coconut palm.

[Photo.—E. A. Briggs.]

Like most aborigines, the dwellers in this sequestered valley have an extraordinary sense of rhythm, and are enthusiasts in dancing, especially in connection with their feasts and initiation ceremonies. The singings or native dances are customarily performed by night in the glare of flickering torches of burning bamboos, and once begun may be continued for three or four evenings in succession.

The men are the principal performers at

these dances, in which they frequently attempt to dramatise by gesture and movement some outstanding event in the history of the tribe. In some instances the dancers merely depict the everyday happenings of village life, such as the hunters returning in triumph from the chase, or the planters preparing the ground to receive the taro and sweet potato crops.

Generally we were able to follow the meaning of the stories underlying these simple actions, but in the more intricate pantomime we unfortunately failed to visualise the important incidents, and so missed the deeper significance of many of the dances.

In the course of our wanderings through the jungle we visited many villages and witnessed the performance of many strange singings. Night after night we watched these colorful, erotic dances, or beguiled the long hours listening to the sensuous music rising and falling amid the din of pounding feet as the stream of wild humanity moved voluptuously in the circle of light cast by the blazing brands.

To the thump of the hand drums and the deep reverberating boom of the garamuts the warriors executed their involved steps and concerted manoeuvres in which they met in serried ranks of swaying forms around the images of their sacred tambourans. On the outskirts of the throng hovered the women, uncertain and apprehensive, with their lean bodies streaked with great bands of yellow clay in order that they might pass humbly beneath the all-seeing eye of the awesome "devil devil." The men, however, were alert and aggressive. Their bodies steamed with the exertion of the dance, and in the bright shafts of light their painted faces stood out in bold relief against the fantastic background of wildly-tossing heads decked out with waving tufts of gleaming osprey plumes.

Suddenly the drums ceased. The excitement and the frenzy died away. In the first flush of the dawn the dancers, weary and dishevelled, silently sought their huts or crept uneasily to rest beneath the shadows of their dread totems. Life, for the day, had returned to its old channels.

In normal times the natives are usually

very early astir, and the regular work in the village begins shortly after daybreak, when the women go down to the neighbouring streams and swamps to fill their long bamboo pipes with supplies of fresh water. Soon the fires are lighted, the water set to boil in lengths of green bamboos tilted over the tops of the flames, and the morning meal of sago hastily prepared and served in glutinous masses on freshly-cut banana leaves.

The men do not concern themselves with these domestic arrangements, but sit stolidly smoking crude cigars in bamboo holders, or chewing betel-nut rolled with lime in the leaves of the wild pepper vine.

The household utensils are few in number and far from elaborate. They comprise two or three large wooden bowls and some clay cooking pots, but frequently these display a certain amount of skill and dexterity as well as artistic treatment on the part of their makers. Although the use of the potter's wheel is unknown among these primitive savages, nevertheless the men are adept workers in clay, and they regard the manufacture of pottery as their own special province.



Netted bag, decorated with shells. Sepik, or Kaiserin Augusta River. (Australian Museum Specimen).
[Photo.—G. C. Clutton.]

Willing hands deftly roll the wet clay into long rods, which the potter proceeds to coil into a tightly-wound spiral with a deep concavity at the centre. On this base successive rolls of clay are built up until in a surprisingly short time the vessel begins to take on its definite shape beneath the skilled hands of the worker. The irregularities are soon smoothed away with a circular movement of the wet finger tips, and the artistic embellishment added to the rim and sides with a sharp-pointed stick or a piece of bone. The baking of this coiled pottery is usually carried out over a slow smouldering fire.

Occasionally a wild pig or a lone cassowary is speared in the long grass on the outskirts of the village. The hunters immediately set to work with bamboo knives and dissect their prize with remarkable neatness and dispatch. These knives are about a foot in length, and are merely large splinters broken from a dry bamboo, though they possess a natural edge as keen as the finest-tempered steel.

These sharp cruel blades are frequently used by the men to remove their scant and bristly beards. Some individuals, however, prefer to shave with a flake of stone, or a chip of volcanic glass, which they rasp slowly and painfully over their agonized countenances. In the same way the women, both single and married, shave their heads, but widows usually wear their hair in hard plaited, greasy curls falling over the shoulders. A mother may even attempt to improve her baby's appearance by plucking out the eyebrows, which she removes with a quick jerking movement between two pieces of twisted rattan cane.

A primitive land and a primitive people! Their culture is still shrouded in the dark ages, for as yet they are untouched by contact with the outside world. And so they live on, unheeded and unhampered, a stone age race in the twentieth century.

Whether they will emerge from their palaeolithic existence and enter upon a new and higher phase, or whether they will retain their old culture in spite of the inevitable advance of the white man, time alone will tell. New Guinea is a *terra incognita*, but the penetration of the interior has begun,

and the work of exploration will go steadily forward. For all that, we may hope that these primitive peoples will escape, at least for a time, the clash that must come with the rapid march of civilisation.

We were fortunate enough to meet and know them in their primeval jungles at the noontide of their splendid isolation, but surely the twilight of these tribes cannot be so very far away.

Reluctantly we climbed the mountain

slopes and halted silently on the summit of the Torricelli Ranges. We were leaving behind that wild and glamorous region where the prehistoric past has lingered on so persistently into the present. And as we looked back over the golden transfigured valley we knew that we had probed, and perhaps solved, some of the mysteries of that silent land. But we realised to the full that we had been vouched only a fleeting glimpse into the secret chamber of the black heart of New Guinea.

Notes and News.

The science of anthropology may be succinctly defined in five words, "Man, his works and ways." The origin, progress, and destiny of man, from his humble beginnings, his struggle with the forces of Nature to a higher future, are all comprised in the word *anthropology*. As Pope says, the proper study of mankind is man. In the aborigines of Australia we have a wonderful heritage to study. In the past mistakes have been made in the treatment of this wonderful human document, and there has been much neglect, but it is to continue the study of the autochthonous inhabitants of this country and of the islands of the Pacific that a band of enthusiasts and specialists have decided to form the Anthropological Society of New South Wales. During the past few months much time and endeavour has been spent in framing a constitution and by-laws to govern this society. Sufficient support has already been promised to ensure its successful launching, but its founders, nevertheless, would like to hear from others interested. Mr. W. W. Thorpe, ethnologist of this Museum, who is taking an active part in this young society, would be pleased to afford details to anyone interested.

The Department of birds, reptiles and amphibians now contains some 50,000 specimens of which 33,000 are birds and their nests and eggs, the remainder being snakes, lizards and frogs. These vast collections have not been amassed in a few years, but have been steadily growing over a period of about one hundred years. Quite apart from the occasional scientific expeditions which augment the collections, there are numbers of private collectors who spend much time in an endeavour to broaden their knowledge of natural history and at the same time enrich the collections of their State Museum by their donations. Mr. N. F. Heffernan and Mr. C. E. Hart of the Solomon Islands have done much in this regard, while Mr. C. T. McNamara, of the Northern Division, Papua, is doing a lot of voluntary work for us in those parts. There are many others who in a greater or less degree have helped and are helping to enrich our collections, and all might be advised not to overlook the tiny creatures, for it is among them that the new, rare, and otherwise interesting species are to be found.

Nothing that is in good condition is too common to be added to the collections, for it is only by the possession of large series of specimens that comparative work can be carried out.

The Mountain Minnow.

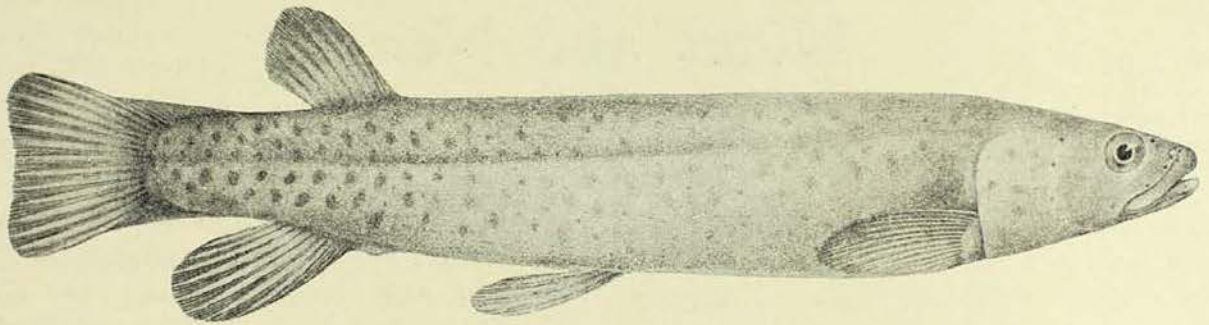
BY FRANK WALFORD.

THE Blue Mountains, New South Wales, are drained by two major streams.

On the south lies Cox River, and on the north the Grose. Into each pour the numerous creeks which have their origin in gorges on the respective sides of the dividing shed. Certain creeks, flowing into the Cox, harbour the pretty little Mountain

temperature, 50 to 70° F. ; winter, 35 to 50°) I have not seen it frozen, as is commonly the case with streams on the surrounding ridges, which lift 1,500 feet higher.

Little is known of the breeding habits of *G. coxii* ; but I regard it as beyond doubt that it reproduces in Megalong Creek. Near the mouth of this stream there occur several



The Mountain Minnow (*Galaxias coxii* Macleay).

[After Regan.]

Minnow (*Galaxias coxii*, Macleay). This fish occurs in the Cox River itself, but my personal observations have been confined to the waters of Megalong Creek. The latter is a typical mountain burn, rising in the shady recesses of Nellie's Glen, near Katoomba, and flowing some six miles in a general south-westerly direction to Cox River, thence to pass into the ocean by way of the Warra-gamba, Nepean, and Hawkesbury Rivers.

The mean annual rainfall of Megalong Valley, through which the creek of the same name winds, is approximately fifty-eight inches, so that in this locality *G. coxii* never has to contend with failing water. This may explain the fact that I have discovered no evidence of aestivation, or of that burrowing into banks which is stated to be the practice of its Tasmanian cousin, *Galaxias truttaceus*. Nor is it driven to seek lower levels during winter, as has been noted with the species about Mount Kosciusko.

Megalong Valley is some 2,000 feet above sea level ; and though the waters of Megalong Creek are comparatively cold (summer

vertical falls, varying in height from four to twelve feet, up which it would be impossible for the fish to swim or leap. Thus any possibility of fry ascending the stream, soon after hatching, or even at any stage of life, is precluded. As I have procured specimens of very minute fry (I believe the smallest yet recorded) in the upper reaches of the creek, I am forced to the conclusion that they have been bred locally.

The largest specimen which I have managed to net was approximately five inches in length ; nor have I seen one which appeared to be larger. Following close observations, extending over some twenty months, I have arrived at the opinion that five inches is the maximum growth attained in this creek. However, I should not care to dogmatize on the question, and merely hold this view tentatively. My investigations have not been sufficiently extensive to warrant any definite assertion.

Once I had the pleasurable experience of watching the passage of a tiny rapid by a mature *G. coxii*. This rapid is an inclined

chute, some three feet in length, debouching into a rocky pool at an angle of about 120° (or its complement, 60° , according to whether you take the outer or inner angle of incidence). The fish would hover in the centre of the stream, and make a sudden dash at the turbulent little rapid. Time after time, for about two and a quarter hours, it made desperate attempts to swim the chute, only to be washed back at each essay, fighting desperately against the overwhelming force of the water. After each rebuff it would take refuge in the still water beside the bank, to sulk or recover its strength; then it would repeat the performance. I began to fear that the task was beyond its capacity; but finally, as the culmination of a tremendous struggle, it reached the brink of the rapid, hung balanced momentarily, and then shot athwart the current into still water.

To facilitate observations of this interesting fish, which is prettily striped in longitudinal bands, I constructed a shallow concrete pond in my yard. This pond is fourteen inches in depth, and holds approximately one hundred and sixty gallons of water. Except when experimenting with the amount of turbidity which the fish will resist, I empty it weekly, and refill with a hose. In this artificial environment, *G. coxii* has withstood temperatures verging close on 90° F., with substantial variations recorded in the space of twenty-four hours. It also has survived the surface of the pond being completely frozen for the space of a whole week. In fact, this virtual "sealing" of its habitat did not appear to affect the fish in the remotest degree, as it could be observed, through the film of ice, pursuing its wonted course in the water beneath.

In my pond the fish have grown very tame, and will nibble the fingers of an intrusive hand. I possess a black tom-cat, which sits for hours on end, enviously eyeing the potential meals swimming idly in the depths of the pond. Occasionally his gluttony overcomes his instinctive aversion from wetting his paws, and he endeavours to catch the fish. He cautiously inserts a front foot, which the fish at once proceed to nibble. Suddenly puss will unsheath his claws, and rip his paw viciously upward. So far, he has not managed to impale one

of my pets; and I fancy that he is doomed to perpetual disappointment. Despite their trustfulness, they are too alert thus to be snared.

On the other hand, they are not at all suspicious of myself. I merely have to "cup" my hand, and they will swim into its palm. They do not grow alarmed when lifted from the water by this means. There is no flurry or scare on their being returned to their native element; they placidly re-join the circle playing about my fingers, and immediately are nibbling them again.

As there is not sufficient natural food in my pond to sustain its comparative host of inhabitants, I am driven to artificial feeding. This takes place weekly, when they are regaled on a strictly limited ration of chopped earth-worms (when available), or minced liver or steak. If the ration is not regulated, I find that they gorge themselves, and for days are bloated and listless.

One of my favourite experiments is to dangle a piece of raw steak in the water. At once they will attack it voraciously. Such is the tenacity of their grip, that, when the meat is lifted gently from the water, a number of fish come out with it, clinging with the grimness of bulldogs. I have timed them actually to hang suspended for thirty-seven seconds, before dropping back into the pond.

I also derive considerable amusement from casting whole earth-worms into the pond. The fish rush them greedily; and I have noted as many as eight, all hanging desperately to a single worm, and swimming vigorously in different directions. They flash in streaks of silver as their bellies become upturned in this tug-of-war, which persists for any period from a few minutes to half-an-hour.

G. coxii rises freely when an insect alights, or falls, upon the surface of the water, and the luckless intruder vanishes in a flash, if of small size. Large insects, such as moths, grasshoppers, and others, immediately become the centre of a swirling mass of fish, which clutch the wings, legs, or antennae, in typical bulldog manner. Ultimately the victim is borne to the bottom, where the tender portions are devoured, and the chitinous parts rejected.

Only once have I seen these fish actually leaping clear of the water. A midge was flying above my pond, an inch or two above water level. It hovered and darted, but maintained approximately the same elevation. There was great excitement among the fish, which followed it eagerly in a compact shoal. Suddenly one leaped at the tantalizing fly. He was imitated by others, and soon a round twenty were playing chevy-chase with the fly, presenting the appearance of an animated game of leap-frog. They leaped over each other, making desperate snatches at their quarry while in the air, and, as often as not, landed upon the back of a comrade when descending into their native element. After a few minutes one little striped beauty executed a graceful leap, engulfed the unhappy fly in its jaws, splashed back into the pond, and sought the seclusion of an overhanging stone to enjoy its hard-won meal in peace.

Audacity is not confined to "tame" specimens. In their native stream they will nibble the toes of one who stands perfectly still for a few minutes. I also have enticed them to attack my fingers, by the simple process of rubbing my hands with a piece of raw steak. Of course patience and stillness are essential to success in these little experiments. Still, the fish are instinctively bold, and speedily gain confidence.

Although the fish do not appear to interfere with each other, when at all developed, they certainly war viciously with their fry. The latter are wary as hawks, and are most difficult to net, whereas the catching of larger specimens is merely a question of a little patience and skill. I attribute the wariness of the fry to the remorseless persecution by their elder brethren. They are chased ferociously at sight, a factor not conducive to trustfulness when foreign monsters, in the shape of human beings, make their appearance.

So wary are the fry that, on one occasion, when seeking specimens for the Australian Museum, I was forced to shoot them quite literally. The impact of the bullets on the water induced sufficient shock to stun the little fish; and, when the resultant turbidity cleared, I was able to secure four unconscious victims as the result of five separate shots with an automatic pistol.

With a marked penchant for actively running water, *G. coxii* dislikes turbidity. After exceptionally heavy rain, the waters of its native stream become very opaque from the presence of mud in suspension. On such occasions the sweeping of a net through the actual currents proves fruitless. On the other hand, the same process, executed in "dead" water, behind sheltering rocks, etc., finds victims at each essay. I incline to the opinion that this is due to the fact that the water necessarily is clearer where still, owing to precipitation of the mud particles.

To test the resistance of *G. coxii* to "thick" water, I have allowed my pond water to remain unchanged for as long as five weeks in succession, without injurious effect on its inhabitants. So opaque has the water become, that the presence of fish was revealed only when they "rose" at some insect on the surface. In this relation it must be borne in mind that the turbidity was the outcome of organic growth, and not due to intrusive particles of mud.

Still, it is evident that *G. coxii* is extraordinarily hardy and adaptable. Fed artificially, maintained in an artificial environment, and subjected to abnormal and extremely variable temperatures, in the course of the past eight or nine months I have had only one fatality in my pond. Even this, I suspect to have been the outcome of an injury inflicted by a boy, as the side of the fish bore a gaping wound.

Temperature has a decided effect upon the activity of this fish. The warmer the water, doubtless within reason, the more vigorous they appear to be, and the more food they require. In support of this contention, I find that the advent of winter sends them into retreat under weeds, behind rocks, etc., except during the hours of strongest sunshine—say, from 10 a.m. until 4 p.m. Even then, they are comparatively lethargic, and trifle with the food which they attack so hungrily in warmer periods. I also find that, in winter, they refuse to nibble one's fingers, and will not cling to a piece of raw meat with sufficient tenacity to be lifted above water. In fact, in their native stream, they will not pursue the meat to the surface, though quite willing to attack it at the bottom of their rocky pools.

Summed up, all that I know of the habits of *Galaxias coxii* could be condensed into a few terse sentences. They frequent Megalong Creek continuously. I have discovered no evidence of aestivation or hibernation. I am convinced that they breed in the creek. Experiments have revealed that they are active throughout the whole twenty-four hours, except during winter, but that their vigour reaches its maximum about 2 p.m. An abnormally hot temperature stimulates them to increased energy, which, however,

may be somewhat pathologic, as their natural habitat is cold. This response to undue heat may be akin to the proverbial dance of a cat on hot bricks. They are docile, hardy, and able to adapt themselves readily to an altered environment. I have observed minute fry only during the summer months; but, owing to the difficulty of detecting their presence, I am unable to state definitely whether they are present in winter. Lastly, the maximum growth that I have noted is five inches.

Obituary.

THE LATE B. BERTRAM.

BY A. MUSGRAVE.

On July 20th, 1928, at Albury, N.S. Wales, occurred the sudden death of Mr. Bert Bertram, an entomologist of great promise and from whom much was expected. Mr. Bertram was born in Melbourne in 1895, and prior to the war was engaged in farming. During the war he lost his right arm. At the time of his death he was Health Inspector for the Municipality of Lane Cove, Sydney.

His keen interest in sanitary entomology was inspired by the late Dr. E. W. Ferguson, Microbiologist to the Health Department, who was ever ready to assist those interested in entomology, and his successor in office, Dr. I. M. Mackerras, also did much to keep the flame of his enthusiasm burning bright. Both doctors had written on the mosquitoes of the Sydney districts and, as every summer the residents of Sydney and its suburbs are plagued with the Domestic Mosquito, *Culex fatigans* Wiedemann, Mr. Bertram made the study of mosquitoes and methods for their control his special work. His efforts to combat the mosquitoes in his municipality were pioneering ones so far as Sydney is concerned, and his labours would have been crowned with even greater success, as he once pointed out at a meeting in the City Health Officer's Rooms, if the neighbouring municipalities had carried out their share of the work of mosquito control in a true spirit of co-operation. The methods of control he adopted, are given by him in a paper

published in the *Proceedings of the Linnean Society of New South Wales*, Vol. lii., 1927, pp. 563-569.

He was also interested in general entomology and made a collection of insects which he has bequeathed to the Australian Museum. He attended the meetings of the Entomological section of the Royal Zoological Society of New South Wales, and was a member of the Council of the Naturalists Society of New South Wales. Recently he became a member of the Linnean Society of New South Wales.

Apart from entomology and its problems, he took a keen interest in ethnology making a study of Australian aboriginal stone flakes and rock carvings. His readiness to assist the Museum in every way is instanced by Mr. Thorpe, our Ethnologist, who on several occasions accompanied him on local trips to investigate rock carvings or aboriginal kitchen middens. The Museum was always permitted to have first selection of the treasure trove resulting from these expeditions.

His genuineness and his indefatigability as a worker impressed all who met him, and his cheerful personality will be greatly missed among the Museum Staff who were always delighted to meet him and to share his enthusiasms.

A widow and two little girls survive him.

Textile Work on Pentecost Island, New Hebrides.

BY ELEANOR S. WILLIAMS of the Melanesian Mission.

IN most countries the artistic sense of the people is expressed in some form or other—often in many ways. On the island of Raga, or Pentecost, in the New Hebrides, there are no signs of carvings or drawings on rocks as found in the lands of other primitive communities. There are no carved wooden bowls, no inlaid shell work, or pottery to be found on this island. The people are almost devoid of the musical sense; even after years of patient training very few of them can sing a tune correctly to the finish. Their dances accompanied by song are very primitive. There is a certain amount of rhythm and a big noise accompanied by the beating of drums, the clapping of hands, and the stamping of their feet. They make bird and fish models to carry at these dances, but so little do they value them that they are often trampled on before the dance is over, or are thrown away immediately at its close. The dancers decorate themselves with bright leaves and flowers. But all is for the day only, nothing is preserved.

In their hand-weaving, however, the women of Raga find expression for their artistic sense. The women of Central Raga are professional weavers, and we find there the art at its best. The leaf of a fibre-producing pandanus is gathered green, and the leaves are then made into equal lengths by cutting off the points. Each leaf is heated over a fire, great care being taken not to scorch it. In north Raga sufficient for one mat or basket only is prepared at a time; but in Central Raga enough for fifty or one hundred may be prepared at once.

When the leaves are thoroughly softened over the fire the serrated edge and mid-rib is peeled off and the leaf divided into equal strips of the width desired either for coarse or fine weaving. These strips are then soaked in fresh water for a little while and spread in the air to bleach. If dried too quickly in the sun they do not bleach well. Care is taken that no rain or dew should fall on the leaves while drying.

There are two kinds of pandanus in general use, the coarser variety being used for the larger baskets and sleeping mats, the smaller being used for *bwanas*, *baris*, and small baskets.



A Central Raga girl wearing a native dyed skirt from Maewo.

[Photo.—Miss E. S. Williams.]

The winter months in the New Hebrides are often quite cold, and so one imagines that the mats on Raga were first woven with a desire for warmth. The *bari*, or small mat, which is about three feet long by fifteen inches wide, is the loin cloth still generally worn by the women, or by the men only for dancing. The *bwana*, a larger



Carving the design for stencilling a burial mat. The design is carved through two layers of the banana plant. Central Raga.

[Photo.—Miss E. S. Williams.]

mat from eight to twelve and fourteen feet in length and about three feet wide, is generally used as a burial mat, and is still used in some parts as a covering at night, a wrap in the day time, and a sling for carrying the baby. Sleeping mats are as a rule just large enough for a man to lie on, and are generally more coarsely woven.

There must be a hundred different designs used in the weaving of these mats, each design having its special name. Many of the mats have several inches of each end woven with beautiful lace-like designs, and some of them have as much as twelve or fifteen inches of openwork at each end. The larger mats also have a wide fringe on both sides along the entire length, and some have a fringe at the ends.

The people of central Raga carry the art still further by dyeing the *bwanas* and *baris* with a red native vegetable dye procured from the root of a creeper found in the forest. When a woman of central Raga has woven fifty or one hundred *baris* and five or more *bwanas*, she soaks them in sea water for eight days or more, and then washes them frequently in

fresh water and dries them in the sun. When the mats are soft and pliable they are tinted yellow by the following process. The leaf and soft shoots of a native grass are procured, wrapped in banana leaves, and baked in a native oven. When soft they are placed on the mats, which are then rolled up and tied. As many as one hundred mats will be treated at once. They are placed in fresh water for four days then shaken out and dried in the sun. The grass stains the mat a light yellow.

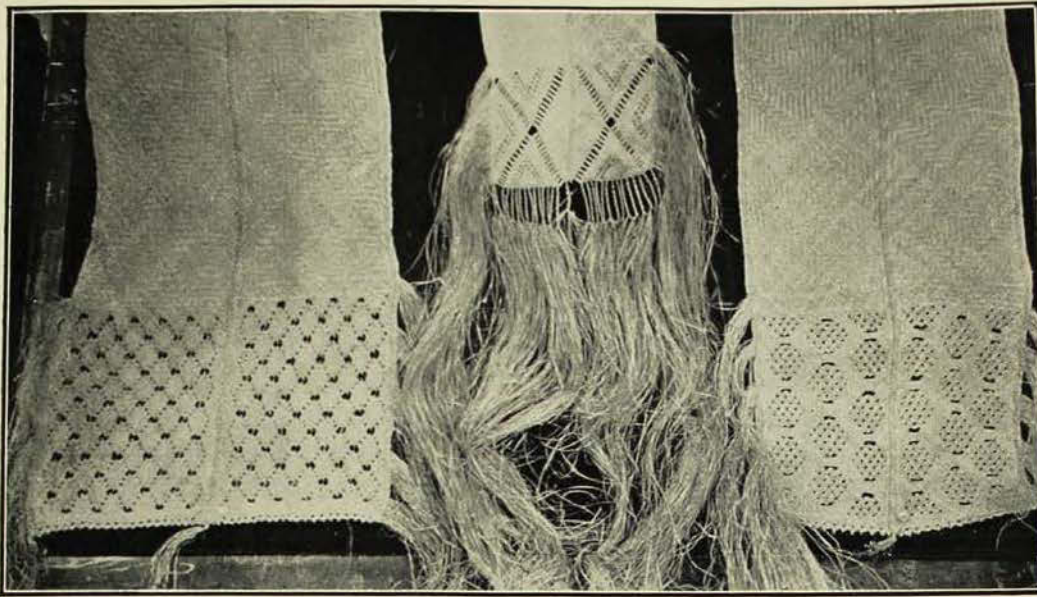
When the mats have reached this stage a house is prepared in which the dyeing will be done. Men and women are hired to bring great quantities of firewood, soft bark of certain trees for tying the mats up with, and lengths of creeper-root from which the dye is procured.

A large piece of bark is carefully stripped from a tree to form the "dye-pan." Sometimes there are two dye-pans in use at once. For the large mats a design is carved with a sharpened piece of bamboo or a knife through two layers of the succulent stem of the banana leaf. Certain women are skilled in carving the designs and each design has a



Preparing a native skirt for the dye pot. Tying on the stencil design. Central Raga.

[Photo.—Miss E. S. Williams.]



The ends of three baris showing beautiful lace-like designs. Raga.

[Photo.—Miss E. S. Williams.

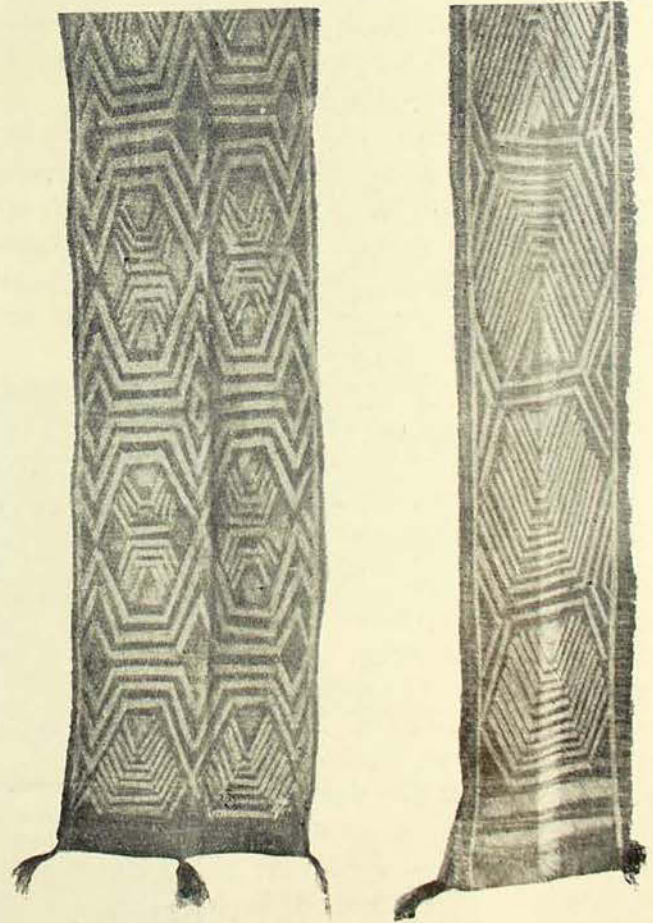
special name. Half the mat is wrapped around a smooth tree trunk, which has been hollowed out with an opening down its full length on one side. Into this opening the fringe of the mat is pushed, with pieces of the grated vine root from which the dye is obtained pressed amongst it. The designs are then placed on the mat around the tree trunk, one on each side of the midrib of the mat, and are tied in place with rope made from absorbent bark. The other half of the mat is carefully held out of the way and the log with the half mat and design is placed in the dye-pan, into which grated vine root mixed with fresh and sea water has already been poured. The dye-pan is then tied round the mat with vines. Large fires are lit on either side about four feet away so as not to burn the dye-pan. After the dye has been heated for about four hours the mat is lifted out. The dyed end is removed and the same design placed on the other end of the mat. Where the banana stem touches the mat it is white, and the design carved in the banana and the edges of the mat are red. The heat in the house while the fires are burning is terrific. The small mats are dyed in the same way but the whole mat is dyed at once. The design, however, is placed on differently. The mat is bound to a solid log with absorbent rope. Pieces of banana stem and strips of non-absorbent bark of various widths according to the design are placed

in position under the binding ropes.

These red mats have become (with pigs) the chief means of barter in north and central Raga. The value of the mat varies according to the depth of the redness of the dye and the clearness of the design, a rich bright red being of highest value. The large mats therefore vary in value from ten to thirty shillings, and the small ones from

one to three shillings.

The people of north Raga buy these red mats from central Raga in exchange for pigs,



Maewo mats, dyed. Left, a woman's skirt; right, a man's loincloth. The value of these garments is about two shillings each.

[Photo.—Miss E. S. Williams.

clothes, or money. They are used in the buying of rank, in the making and paying of debts, the buying of a wife, and in burial. The ordinary dress of the women is a small mat and a red mat is always worn on special occasions.

deceased, which then become their property. Nowadays calico, blankets, and clothing bought from the trader are taking the place of mats.

It is interesting to note that the people of south Raga do not weave with pandanus.



Mats spread out in the sun to dry after having been washed. Central Raga.

[Photo.—Miss E. S. Williams.]

The higher the rank of the person the more the mats used in burial. A chief will be enveloped in ten or more large mats, which are called by foreigners burial mats or shrouds, and forty or more small mats. An ordinary grown person will be buried in three, four, or five large, as well as small mats. These are provided by the relations on the mother's side, and are given as a mark of respect for the dead. But some of the mats are given by the father's relations in exchange for certain pigs belonging to the

Their burial and sleeping mats are made from coconut leaves and their ordinary clothing from banana leaves. Neither do they trade with the central Raga people for their mats. However, on the two adjacent islands of Maewo and Aoba the art of weaving is as advanced as on Raga, and on Aoba and north Maewo they also dye their mats. The designs in weaving and manner of placing the designs for dyeing is distinctive on each island, and one can tell at a glance to which island the mat belongs.

Messrs. J. R. Kinghorn and Ellis Le G. Troughton, Zoologists, have been elected associate members of the Australian National Research Council. Such appointments are a recognition of merit in original research. Mr. T. Hodge Smith, mineralogist, has been appointed by this council as honorary abstractor in geology to Science Abstracts; Mr. W. A. Rainbow, librarian, has been appointed to represent the Trustees of this Museum on the committee on standard typography. This committee has been formed by the Australian Commonwealth Association of Simplified Practice.

Dr. C. M. Yonge, leader of the British Barrier

Reef Expedition, and members of his party, visited the Museum in July on their way to Queensland, when arrangements were made for members of the Museum scientific staff to take part in the Expedition. Subsequently Messrs. G. P. Whitley and W. Boardman joined the party at Low Island, and will be followed later by Messrs. F. A. McNeill, T. Iredale, and A. A. Livingstone.

From reports received we learn that the party has now settled down, all work planned is going smoothly ahead, and there is every reason to anticipate results of the greatest interest and value from the investigations of the Expedition.

Days on the Daintree—A Tropic River.

BY CHARLES BARRETT, C.M.Z.S.

BOONGARY! Boongary! As the launch left the mangroves behind and rain-forested slopes of a mountain appeared, I seemed to hear the shouted words, and imagined aboriginal men coming out of

a new world to a nature lover from the south. Port Douglas is a dreary place for one who is in quest of north Queensland's tropic beauty and novelties of plant and animal life. But it has something to offer,



"The Port," below Daintree township.

[Photo.—C. Barrett.]

the gloom, one bearing on his back a tree-kangaroo. The chance of seeing *Dendrolagus* in its haunts had lured me to this northern river, the Daintree, only a name on the map, even to many Australian naturalists.

A glorious tropic river, settled more than fifty years ago, but still, save for township and a farmstead here and there, in wild Nature's keeping. It is less than half a day's run by sea from Port Douglas to Daintree township, a dozen miles or so up the river, yet the country unfarmed is like

and my memory of the Port is shadowed by the memory of a wonderland—the Daintree River district. Too little known this country is; the days I spent there, rambling in the brush and voyaging on the river and its tributaries, enriched my golden store of "impressions." Of course, I collected—orchids and ferns, insects and spiders, and land shells, but the harvest gathered only with quiet eyes is most desirable, more enduring than specimens.

There are times when the naturalist's

instinct to collect what may be new in a field hardly touched sleeps, while he looks on Nature in her pure beauty unveiled. Then it were vandalism to gather a flower, or net a butterfly, to play the spoiler's part where but to venture seems a liberty. Mere sentiment, maybe, yet many have thought as I thought on the Daintree, when in the presence of Nature unmarred. Too swiftly wild beauty is passing, and even on this far northern river progress has set its seal. Men are timber cutting in the rain forest, dairy farmers are increasing in number along the riverside, and a main road through to the nearest port is in the making.

There is a prosperous future for this tropic district. I was told so by leading residents, and consoled, when I spoke of reserves, with assurance that miles of the river banks, for many years to come would be unfarmed.

I came up the river in darkness, and strolling down to the punt below the mill at sunrise next day, had my first glimpse of one of Australia's noblest streams. Noble not for its size, but in beauty. The small craft moored near the banks were mirrored, with palm trees and sky and a pyramid hill, the water as clear as a dewdrop, and all the riverside foliage still. Presently a drongo called, then a flock of fruit pigeons flew over to settle in a tree with "blue-plum" fruits. A bird-wing butterfly (*Troides priamus*) flew lazily into view from some lantana thicket, a wonder-insect, green and gold, resplendent in the sunlight.

RIVER ROAMING.

The township of Daintree, which has a sawmill, a butter factory (the most northerly one in Australia), and a school, is picturesque, in a frame of forest and stream, with bits of jungle here and there, doomed to disappearance. A few minutes' walk in almost any direction takes you to wild Nature. The road away from the river goes through an "island" of rain forest, where the lawyer-vine (*Calamus*) and beautiful-leaved creepers hide shrubs and trees, and the polished fronds of *Bowenia* gleam close to the ground. A score of times I followed this road, through the hollow and round a hill into Fairyland. A fairy place of ferns and palms, of birds and running water. The creek flows in

shadow among little stones, all green with mosses and filmy ferns; and its banks, where they rise rather steeply into sunshine, are thick with ferns of many kinds, and a giant lycopod. Here, on leaves of *Macaranga*, broad leaves on long, ruby-colored stalks, I found a land snail with the daintiest shell, a species new to me and perhaps to science. The platter-like leaves of *Macaranga* shelter beetles and bugs, brilliant emerald green bugs, spiders and other little lives, as well as arboreal snails; as a rule they cling to the under-surface.

The creek, with its mosses and ferns, and clumps of arrow-leaved lilies in the least shadowed spots, lured me often; but the river's lure was stronger. Each day I made a launch voyage on the Daintree, to land at a clearing, or where the timber-cutters' spoil is brought from distant "stations" by bullock-teams.

Every reach of the Daintree is beautiful, until the mangroves are reached, though, where dairy-farming flourishes the banks have no charm for a naturalist; "good feed for cows" gives no enchantment to the view. The river flats, claimed by farmers, form only a small province of this wide realm. The banks for miles are walled with rain-forest, in parts impenetrable. There are dark mysterious gullies, creeks flowing from the heart of darkness, and lofty hills, with blue peaks far beyond them. Mount Alexander, which may be as rich in novelties as the Barrington Tops, N.S. Wales, proved to be, dominates the river. Rare orchids grow in the scrub on this mountain, and there, they say, the tree-kangaroo is likely to be seen; it certainly exists in the Daintree country, and may not be rare.

IN THE FOREST.

One day I spent with the timber cutters, taking "pot-luck" in the brush. These men go hunting for good trees; they are the choosers of the doomed, and no tree with payable timber in it is safe from the axe if it is accessible and grows in the area of operations. Following the tracks—to leave them was to fight against lawyer-vines—I saw the stumps of many noble trees, and came to one just felled. The axeman, lucky man, had seen a cassowary, close by that morning, and said that it was not unusual for one of the great birds to appear.

This was cassowary country. All the way from Cardwell news of the cassowary had been gleaned. A Tully River farmer said that he could show me one any morning, in the scrub near his farm. As I approached the Daintree, cassowary stories were told, and my friends who live in these parts seemed surprised at my eager inquiries after a familiar bird.

One story, vouched for by several persons,



The Jungle Pathway. It goes through haunts of the cassowary.

[Photo.—C. Barrett.]

is tragic. Out hunting a party of boys put up a cassowary, which suddenly turned in its race from the yelping dogs. The boys turned, too, but one stumbled and fell. The cassowary, charging wildly, struck, with intention or by chance, hit the lad as it rushed over him, and ripped his neck with a claw. The wound was fatal.

The cassowary, according to my notes gleaned on the Daintree and in other lo-

calities, is numerous still, with a fair chance of survival as a not uncommon species for many years. Close to Cairns cassowaries may occasionally be seen. A Daintree farmer told me that one often visits his yard. The birds are wary, yet confiding where they are never hunted or troubled by noisy intruders in their haunts. They come to drinking-places near homesteads, and even venture, in the early hours of morning, to appear among the outpost dwellings of a township. The service car from Mount Molloy now and then surprises a cassowary on the road.

CLIMBING KANGAROOS.

Though one searches long and keenly in their favourite haunts, he may be disappointed, fail to win even a glimpse of *Dendrolagus*, the tree-kangaroo. These animals are nocturnal in their habits, or mainly so, and unlike the cassowary, always shun the neighbourhood of man or his dwellings. "They are not so rare," a Daintree man said, "but I've never seen one wild yet." They keep to the tableland scrub mostly.

It was not on the Daintree but further south, near Atherton, that my quest for the boongary ended in a find. One, recently captured, was displayed and plainly regarded as a prize. The captive already was reconciled to the change from a life of freedom among forest trees, to life in a wire-netted yard, with a stump to climb on.

We were on friendly terms very soon, the boongary and I. If you have seen *Dendrolagus* so newly-captured as to possess the bloom of wildness still, you know what a handsome fellow he is, good looking and graceful, and charming in his ways. None of the kangaroos is more attractive than the tree-climber, with his fine intelligent eyes, black head and feet, and yellow-brown body. He is variegated you see, and artistically, not in the bold contrast style. His proportions are perfect too; and Lumholtz was right in describing the boongary as the most beautiful mammal he had seen

in Australia. His observations in his book *Among Cannibals* on *Dendrolagus* agree with what I learned of its haunts and habits on the Atherton Tableland and elsewhere. The most inaccessible localities are preferred, and mostly the tree-kangaroo keeps to rocky places near the summits of the mountains, at least during the wet season. It frequents both tall and low trees, and climbs



A Tree Kangaroo on a bough twenty feet from the ground

[Photo.—C. Barrett.]

with the greatest ease. It will leap from a fairly high bough to the ground, and, despite its arboreal habits, is a good runner. One I was photographing gave a lot of trouble; he seemed to delight in dodging the lens, nicely posed for a second, then out of range, displaying his skill as a climber prettily.

ALLIGATORS.

I could not persuade them. "What's the difference, any way?" a lugger hand demanded, as we plodded against tides up the river. I tried to explain but only gained a shrug of unbelief.

Crocodiles, among Queenslanders, and southern folk for that matter, will continue to be "alligators" to the end of the chapter. Generally, I mean, for, of course, many people know that our saurians are crocodiles. And crocodiles are common enough in north Queensland. Even in the little creek at Edgehill, an hour's walk from Cairns G.P.O. one was seen lately. They haunt the tidal flats, lurk among mangroves, and bask on mud-banks and sandy spots along the creeks and rivers. Darkness and deep water are preferences of the crocodiles frequenting inland waters. The big dangerous species, *Crocodylus porosus*, is met with far from the sea, though not an inland creature.

The Daintree has its share of crocodiles. No fewer than thirteen have been seen in the course of one trip down the river. One slid from beside a log on the mud in a shadowy spot, as our launch swung round a bend, and went under without a flurry; a neat and almost noiseless disappearance.

It is risky swimming horses across a north Queensland tidal stream. On the Daintree horses have been seized by crocodiles. I heard of an aboriginal woman being attacked; she escaped with the loss of a leg. But the aborigines are heedless of crocodiles. Close to the lurking place of an "alligator," I photographed a family party of blacks, waist deep in the water, gathering river-mussels. They were jolly as you please, and may be laughter and splashing are useful in haunts of the crocodile.

The blacks' camp, on a high knoll above the river, was visited, against the will of many dogs. Barking and snarling, the pack of nondescript curs rushed at the white intruders, while their owners, men, women, and children pelted stones at them and hard words! The camp of huts, or humpies, built of boxes, and bags, and good timber, was picturesque as an aboriginal "township" I have seen, and much neater and cleaner than those I saw last year, in Central Australia. It reminded me of a Maori pah, a hill fort, though lacking fortifications.

Here I bought from an aged aborigine a fine womera, made long ago, and a three-pronged fish-spear. Spearing fish is an everyday occupation. Some of the white men on the river are more adept than the



Blacks' Camp on the Daintree River.

[Photo.—C. Barrett.]

blacks, it was declared, in this primitive method of fishing, which is not so easy as it looks. At the camp I engaged an orchid hunter, a strong-limbed, tall, broad shouldered aborigine, noted as a daring climber. He "signed on" for a florin, and the pay was to be two shillings a plant for desirable specimens. "Two bob" is a standard price, judging by the frequent use of the words, among the aborigines. "How much spear?" I asked, and "Two bob" was the quick reply. The same for a boomerang, for a womera, and a tassel-fern.

My orchid-hunter soon earned enough to buy a new pipe, tobacco, and a small bag of sugar. I met him at the Daintree store next morning, investing his earnings. He asked for "two bob" almost mechanically, and promised a harvest of orchids. But he was content to rest on his laurels, at least. I did not see him again.

The tassel-fern, really a giant lycopod, grows freely in the Daintree River forest, high up as a rule on eucalypts and other trees. It is a noble plant, and under favour-

able conditions grows to an amazing size. The demand for specimens is creating a scarcity of tassel-ferns in the vicinity of townships and homesteads. Blacks are the keenest and most successful collectors; they find a ready sale for the ferns that "sit down" on lofty boughs, and earn many a florin easily. But the tourist pays high prices to the middleman, often as much as five pounds for a very fine specimen of the exquisite tassel-fern. Of course this is not the rule. I was offered several beautiful plants; the Daintree folks are generous. Tourists who give pounds for specimens buy far from the source of supply.

NEW SPECIES.

It may be only luck that rewards with new species my rambles in Queensland wilds, but on this Daintree excursion, as on three in other years further south, I discovered several insects new to science. One beetle of aquatic habits is the second species only of its group recorded from the State. It



The Orchid Hunter. A Daintree River aborigine who collected orchids and ferns.

[Photo.—C. Barrett.]

was captured on a submerged log, in a little jungle stream, all green with ferns along its banks and rich in moss-upholstered stones.

A new ant of the genus *Polyrhachis* was taken. The novelty, though, interested me far less than the green tree-ants (*Oecophylla virescens*) observed nest-making. Nothing in nature is more wonderful than the use of "living" tools by these insects. The larvae instead of weaving cocoons are compelled to yield their silky secretions as material for webbing leaves together. Worker ants carry each a larva in their mandibles, and, squeezing it, pass it to and fro along the edges of two leaves drawn in close to-

gether by holding-squads. The strands are almost invisible until many have been woven across from leaf to leaf. This operation, unexplained by hypotheses concerning social insects' behaviour, suggests intelligence in the green tree-ants. I watched it at close range on the Daintree, where the ants nests are common objects even on trees along the road.

Flowers and fruits and young foliage provide gay notes of colour in the tropics. Along the Daintree river banks a yellow-flowered *Hibiscus* grows freely, and its blossoms, which fall easily from their stems, float downstream in thousands. They are fairy craft, without crews, and on them alight, for a moment or two, butterflies sometimes, and dragonflies with crimson-barred wings.

Though it was winter time still, the first week of August, Papilios were on the wing. Out of the gloom of a jungle creek, to the broad sunlit highway of the river, came the glorious *Papilio ulysses*, king of Australian insects for grace and colour beauty. A leisurely great insect, disdainful and proud, if one may be fanciful, *ulysses* is a swallow-tail, splendid as a specimen in the cabinet, and in nature more beautiful still. A child of the tropics, it flies serenely past palms and cedar trees, hibiscus, and green trellis-work, *Lygodium*, the climbing fern and, perhaps, a crocodile warming his wits on the mud.

Where *ulysses* is at home you may meet with a python, coiled on rocks or a log, or gliding among green lilies. Tales of monster carpet-snakes are told; I heard of one which "went about twenty-five feet." Fortune has not favoured me with a sight of such a monster; my biggest Australian python measured a shade less than twelve feet in length, and was a good-natured giant, captured with ease.



Famous as the "Tassel-Fern" this giant club-moss is coveted by tourists, and fine specimens fetch up to £5.

[Photo.—C. Barrett.]

Carpet snakes are good ratters, and often, when one takes up quarters in a tropic dwelling, it is allowed to stop, among the rafters maybe, as a destroyer of vermin. If pythons overcame their taste for chickens, they would be welcome on farms where poultry is reared, as they are about the huts of some settlers whose livestock does not include fowls.



Our python is big but harmless to man. This specimen was handled freely and made no objection at all.

[Photo.—C. Barrett.]

Mr. T. G. Campbell, Assistant Entomologist, spent part of his annual leave in accompanying Dr. F. Antill Pockley on an extensive motor trip. The party proceeded to the Queensland border and reached within forty miles of the Gulf of Carpentaria where they turned westwards through Camooweal, Avon, Alexandria and Brunette Downs Stations to Anthony's Lagoon, and Newcastle Waters. Then turning south they followed the general direction of the Overland Telegraph Line, south to Alice Springs, Oodnadatta, and on to Port Augusta, whence they

turned west to Broken Hill, and so home *via* Wentworth, Mildura, and the Riverina. A total of about 5,300 miles was covered in the trip, and much interesting country was traversed. As, however, much of the area was in the grip of a severe drought, many difficulties were encountered, and favourable opportunities for collecting were scanty. Nevertheless a number of interesting mammals, lizards, insects, and aboriginal implements were obtained. An article by Mr. Campbell describing his trip will appear in a later number.