

ART. XXIX.—Notes on a Land Planarian (sent by F. V. Knapp, Hampden State School, Nelson).

By Sir J. HECTOR, K.C.M.G., F.R.S.

[Read before the Wellington Philosophical Society, 13th July, 1892.]

THIS worm is of some interest, as it is a land Planarian, and probably a new genus and species. Three species of marine Planarians have been described from New Zealand, but only one land form—*Geoplana traversii*—which was described by Mr. Moseley, of the "Challenger" Expedition, from two specimens collected by Mr. Travers, found by him near Wellington. The largest of these only measured 1 in. in length, and from other characters was probably very different from the specimen now exhibited. Two genera are known in Australia—*Geoplana* and *Rhynchodemus*—and thirty-five species have been described of the former in Victoria, and only one of the latter. Last year Professor Spencer, of Melbourne, described eight species from Lord Howe's Island. Two belong to a new genus (*Cotyloplana*) and six to *Rhynchodemus*. The discovery of a New Zealand form is therefore important, so as to determine if it is more allied to the Lord Howe's Island form than to the Victorian. The specimen is, however, very distinct, I should think, even generically, from any that I can find described.

It is worthy of note that Professor Baldwin Spencer believes that the genus *Geoplana* is not represented in Lord Howe's Island, whereas Professor Moseley has referred our only hitherto known land Planarian to that genus. This would rather associate our zoological area with south-east Australia, whereas it is well known that in its fauna and flora Lord Howe's Island is far more related to New Zealand than to any part of Australia.

ART. XXX.—Notes on the Southern Seals.

By Sir J. HECTOR, K.C.M.G., F.R.S.

[Read before the Wellington Philosophical Society, 14th September, 1892.]

THE following notes having been prepared in reply to an application from the Minister of Marine, it has been thought advisable to place them on record:—

At least nine species of seals frequent the South Island, but the nomenclature has been greatly confused and rendered

untrustworthy by the injudicious record of species founded on imperfect specimens, on characters due only to age and sex, and to reliance having been placed on hearsay evidence. For commercial purposes the following classification may be considered sufficient.

I. Eared Seals (the Otarias).

These, like land mammalia, have a direct communication through the integument from the organs of hearing, and have also an external ear-lobe, which enables them to appreciate the direction from which they receive sounds.

These are again divided into—

A. **HAIR-SEALS, or SEA-LIONS**, which are covered with long coarse hair and have no under-fur, and are therefore only commercially valuable for the production of oil, and formerly as food and clothing.

B. **FUR-SEALS, or SEA-BEARS**, which have an under-fur as well as a clothing of long hair, both of which are cast and renewed each summer, so that the skin of the animal when taken at the proper season is of value as a "pelt" or furrier's material. As food they are so inferior as not even to have been used by the aborigines.

II. Earless Seals (the Phocas).

The common varieties of the North Atlantic, such as the Greenland seal, the harbour seal, crested seal, &c., belong to this group, but they are not represented in the southern seas.

This group is known by the following Antarctic representatives:—

A. **SEA-LEOPARDS**, which are large spotted seals covered with coarse hair; but, not being gregarious in their habits, although abundant and widely distributed, having no commercial value.

B. **SEA-ELEPHANTS**. These are massive, unwieldy, and gigantic animals, which have a very restricted distribution, being confined to the islands in the extreme south. They are chiefly prized for the large quantity and fine quality of oil which they produce.

III. Walruses (the Sea-pigs).

These are valuable for their oil, and for their ivory, which, though inferior to elephant ivory, is used for the same purposes. The evidence of the actual existence of a southern walrus is at present founded only on hearsay report, but it is very probable that when the great Antarctic islands and ice-floes, as yet unvisited, are explored, not only this but other novel forms will be found.

The walrus, or morse, is now found only in the Polar seas, about and northward of Behring Strait; but their range has been restricted of late, as Captain Cook found them much further south along the coast-line of the North Pacific.

To describe more in detail :—

I. Eared Seals.

A. HAIR-SEALS.

This group, the sea-lions, rendered so familiar by the rookery outside the Golden Gate of San Francisco, is represented in the south by *Zalophus lobatus*, which is found chiefly in the longitude of the Cape of Good Hope, and by *Protoarctus hookeri*, which is supposed to be a different species frequenting the islands in the longitude of New Zealand and southward, and is best known at the present time as the Auckland Islands sea-lion.

Like all the eared seals, these species are polygamous, and have a very definite life-history. The males are enormously larger than the females. About December they take up stations on the coast in warmer latitudes, such as the west coast of New Zealand, and formerly used also to frequent the islands in Bass Strait and on the west coast of Tasmania. Soon afterwards the cow-seals appear, and, on landing, give birth to the young, each male securing a harem of ten to twenty cows, and protecting the mothers and young pups. The rutting-season is in January, after which the males (or lions) leave the mothers to bring up the young until May, when they all leave the coast for the winter. The mode of life of the hair-seals has, however, been much altered since 1863, when I made my first observations, and I believe that the New Zealand hair-seals have now become much more solitary, and that they will soon become extinct.

B. FUR-SEALS, OR SEA-BEARS.

This is in the southern seas "the seal" of commerce, and it is much to be regretted that so little accurate information was collected in former years about its life-history. Three species are supposed to exist (after weeding out many synonyms), but I am inclined to think these even are all the same—*Arctocephalus falklandicus* (of Cape Horn longitude), *A. antarctica* (of the Cape of Good Hope longitude), *A. forsteri* (of New Zealand longitude).

I can only speak of the latter, or New Zealand fur-seal. Formerly they were very abundant along the west coast of the South Island and on the Tasmanian coast. I spent from June, 1863, to January, 1864, in the western sounds of Otago, and have since made many occasional visits at other

seasons, but chiefly during the summer months, from February to May. I have always observed the seals closely, and have collected many specimens.

The male fur-seal used to arrive about the 5th November on inaccessible rocky platforms outside the entrance to the fjords, or sounds, and the cows began to arrive about the 1st December. At the same date all the young stock—males up to seven and females up to three or four years old—went to still more exposed places by themselves, and spent the moulting-season, until about the end of March, when, having acquired the new fur coat, they proceeded to sea. The last of these "hauling-grounds," as they are called, I have known in New Zealand was at Cape Foulwind, but formerly they were all round the coast. In the breeding-grounds or "rookeries" the old males keep guard on the females and newly-born pups until the close of the rutting-season, about the 15th February, and then desert them, being then in a feeble and emaciated condition from having fasted, and fed only on their own fat, for several months. The females remain with the pups until they learn to swim and to catch fish for themselves, and about the end of May they all leave the coast, only occasionally a groggy old bull remaining behind for the winter months.

II. Earless Seals.

A. SEA-LEOPARDS.

Of these, four species are known. *Stenorhynchus leptonyx*: This is common round the New Zealand coast, but is a solitary animal. They frequently come on shore, and, notwithstanding their feeble powers of locomotion, they scramble far back into the bush in flat country, and occasionally ascend rivers for a long distance. For instance, one of the seals ascended the Waikato River, a few years ago, as far as Hamilton, and was claimed by the Maoris as being a real "taniwha." Another species, *Leptonychotes weddelli*, was only known until lately from a single specimen obtained by Ross's Antarctic expedition; but last month I identified a splendid specimen in Mr. Drew's museum at Wanganui as being of this species. It was stranded on the beach outside Wanganui Heads. The other two species of earless seals are *Lobodon carcinophaga* and *Omatophoca rossii*; they were both collected in the Antarctic seas, but are only imperfectly known.

B. SEA-ELEPHANT (*Macrorhinus elephantina*).

This huge seal was formerly abundant on many of the Antarctic islands, but is now almost confined to Kerguelen's Land, Hood Island, and the Macquarie Islands. It is remark-

able from having the power when enraged of inflating its nose so as to form a proboscis. The male is much larger than the female, being sometimes 22ft. in length, while the female measures about 10ft. They never go far from land, and in the month of November they go ashore in large herds for the purpose of shedding their winter coats, after which the calving takes place. The mating-season is in February, by which time the males become very thin, as they eat no food during their sojourn on land.

This seal was greatly prized for its oil, which is obtained from a thick layer of blubber underneath the skin. They formerly assembled in incredible numbers on the various southern islands, and their bones are found in old Maori camping-grounds on the New Zealand coast. They were first hunted about the commencement of the present century, but it is now many years since they were ruthlessly extirpated on all but a few of the most desolate and inaccessible of their retreats.

A very interesting note regarding the sea-elephant has been given by Professor Scott in his account of the Macquarie Islands (Trans. N.Z. Inst., vol. xv., p. 492).

In conclusion, I may remark that the information which we possess concerning the life-history of the forms which exist in the Antarctic seas is most imperfect and unsatisfactory, especially with regard to the forms that are commercially valuable, such as seals, whales, and fishes.

Professor Sir W. Turner, of Edinburgh University, gives the following classification in vol. xxvi. of the "Reports of the 'Challenger' Expedition":—

A. EARLESS SEALS.

PHOCIDÆ.

Phocinæ.

Arctic.

- Phoca vitulina.* North Atlantic.
- " *greenlandica* (harp seal). North Atlantic.
- " *hispidæ* (ringed seal). North Atlantic.
- " *barbata* (bearded seal). North Atlantic.
- Halichærus grypus* (grey seal). North Atlantic.

Ogmorhininæ.

Antarctic.

- Ogmorhinus leptonyx* (sea-leopard).
- " *carcinophagus* (crab-seal).
- Leptonychotes weddelli.*
- Omatophoca rossii.*

Northern.

- Monachus monachus* (monk-seal). Mediterranean.

Cystophorinae.

Northern.

Cystophora cristata (crested seal).

Antarctic.

Macrorhinus leoninus (elephant-seal).*Trichechidae.*

Arctic.

Trichechus rosmarus (walrus).

B. EARED SEALS.

OTARIIDÆ.

- S. *Otaria jubata* (S. sea-lion). South America.
 N. *Eumetopias stetteri* (N. sea-lion). North Pacific.
 N. " *californianus* (Californian sea-lion).
 S. " *hookeri* (Auckland Islands hair-seal; tiger-seal).
 S. " *cinereus* (grey hair-seal). New Zealand and Australia.
 S. *Arctocephalus australis* (South American fur-seal).
 S. " *gazella* (Kerguelen's Land fur-seal).
 S. " *pusillus* (Cape of Good Hope fur-seal).
 N. " *ursinus* (northern fur-seal).
 S. " *forsteri* (New Zealand and Australian fur-seal).
 S. " *philippii* (Juan Fernandez fur-seal).
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