

STUDIES IN TASMANIAN MAMMALS, LIVING AND
EXTINCT.

No. XIII.

THE EARED SEALS OF TASMANIA.

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The following notes upon the eared seals that inhabit the islands and rocks of our coasts are contributed with a view to putting upon record such data as have been accumulated from time to time, respecting these interesting members of our native fauna. It is, as we have urged elsewhere, essential that a comprehensive study of our seals should be immediately undertaken, but, pending this, it is thought advisable to collect under a common heading such notes as we have hitherto committed to Museum registers, cards, and note books.

Quite recently Professor Wood-Jones has aided the taxonomy of the question by the publication of an interesting monograph upon South Australian Eared Seals in general, and the total result of his researches is now available. The extensive synonymy of the subject is tabulated in handy form, and the animals themselves are classified under three species of the genus *Arctocephalus*.

For the seal believed to be the most common resident of our smaller islands, Professor Wood-Jones proposes the new specific name of *doriferus*, an animal found in South Australian waters also. He also states that *Arctocephalus cinereus* inhabits the Straits Islands, but he is rather doubtful if the New Zealand seal *Arctocephalus fosteri* comes into our waters, although reports claim its appearance there, and Mr. Le Souef has claimed recently the Straits seal as *A. fosteri*. It will then be manifest that upon an extreme possibility no less than three species of eared seals may at times appear in Tasmanian waters, but, according to Professor Wood Jones, a single species covers most of the facts, the other two being more or less in the nature of "accidentals."

A considerable body of popular lore at our command supports the suggestion that allowing for sex, age, and seasonable variations, a single species will not cover all the facts, and thus again we urge the need for a systematic investigation into the whole seal question.

OSTEOLOGY.

We are indebted to Professor Wood-Jones for skulls of the South Australian seal of his list—*Arctocephalus cinereus*—but of the several skulls of Tasmanian seals available to us, this skull does not appear in our collections, although as likely as not the animal does come into the Straits as the Professor suggests.

At the same time our really adult, that is aged, and super-ossified skulls, come from animals well over eight feet in length (the limit set for *A. doriferus*), and, although they agree better with that species than with *A. cinereus* of the list, they do not comply with the sagittal and nuchal crest characters, unless of course we take skulls of less than twelve years of age. Skulls of eight, nine, ten, and eleven years still show phases of crest development, and we very much doubt if any male seals of our coasts ever acquire a maximum, in this matter, at anything earlier than twelve years.

Having pooled the resources of both of our Museums upon the item of seals' skulls, we find the following facts to obtain:—

A male of our eared seal, of at least twelve years of age, shows a sagittal crest that extends forwards to the middle of the orbital processes of the frontals, a total length of 135 mm. Bifurcating into a pair of V-shaped ridges, the super-ossification extends forwards until it involves the original maxillo-frontal sutures, which are buried beneath the bony overgrowth, as are practically all the sutures of the skull. This specimen was obtained at Cooe.

A male skull of 10½ to 11 years of age obtained by the Launceston Marine Board (from our coasts) shows much sutural extinction, a true crest of 90 mm., with a remaining incipient crest of 40 mm., and the bifurcating ridges well in evidence.

A male of 9½ to 10 years of age, from North Bay, South Eastern Tasmania (Tas. Mus. No. D. 737), shows an individual age variation, inasmuch as the crest is fairly well marked for 120 mm., but the secondary bifurcations are

still unossified. In the cranial regions this skull shows much super-ossification, but the maxillo-palatine sutures are all open.

In an 8 to 9 year-old male from Scamander (animal in the flesh measured over eight feet long) the sagittal crest is only 65 mm. long, all sutures are in evidence, and the ligamentum nucha was chiefly implanted into two well-marked fossæ 25 mm. long. The cranial areas of the skull show mottled super-ossification, and the whole skull generally might—in the absence of other evidence—be regarded as a fair example of a mature skull, but any characters derived from the condition of the sagittal crest would be tentative only.

In a male of 5 years of age, believed to have come from Barren Joey, the characters of the male skull are well marked off from those of the female, but the crest is now only developed as far forward as the parieto-frontal sutures, a matter of about 35 mm. in length. The texture of the skull is compact and an area of 35 x 25 mm. on either side of the crest is syndesmosially pitted and roughened. The fossæ for the nucha are nearer the centre than obtains in the older skull, and are shallow and less extensive in other ways.

FEMALE SKULLS.

In a fully adult female skull from Bicheno, Eastern Tasmania (Tas. Mus. D. 746), in which super-ossification has obliterated all the cranial sutures, ankylosed into a solid mass the whole of the hard palate and left no fenestrated bony tissue in evidence anywhere, the nuchal and sagittal crest conditions are as follows:—A long low sagittal crest is present, some 8 mm. in height and 90 mm. long, its foremost point of extension being 18 mm. behind the line of the left orbital process and 12 mm. behind the right process. Once seen, this female crest would never be mistaken for that of a young male, even if the calvarium of the skull alone were available. It is a well-formed solid, but low crest and its highest point is in the middle. The nasals in this skull extend backwards 6 mm. beyond the maxillo-frontal and sutures, and apparently this obtains in all the Tasmanian crania at our disposal. This should be noted as it does not agree with Professor Wood-Jones's determinative character for the species *doriferus*, of which he says—"Posterior ends of the nasals nearly reaching posterior margins of the superior maxillæ" (*loc. cit.*). The fossæ for the implantation of the nuchæ are well marked and extend for 25 mm.

beneath the crest—they are grooves rather than pits, thus adding another age character to the skull. It is at present assumed by us that this skull is at least 8 years old, and that female skulls mature much faster than male skulls, as the animals do themselves, but in the absence of skulls from duly branded animals, our data are comparative only, the standard taken being that of Californian seals.

In a mutilated female skull from Tamar Heads, in which the sutures are all open, the squamosal and otocranial elements are movable, and although the parietals are pitted no true super-ossification has taken place, we get the appended notes upon the crest. The total outline of the future crest is well indicated, its length being 85 mm. Its strongest ossification is at the fronto-parietal sutures, which later in life would have been its highest point. Except for its lesser development, it duplicates the conditions of the maturer skull just passed in review, and is distinct from the method of development found in the young male skull, in which latter the crest slowly creeps forward with a stronger posterior elevation throughout the process.

RECAPITULATION.

It would appear, therefore, that our most common eared seal is rather larger than Professor Wood-Jones allowed for in the construction of his table of specific characters of *Arctocephalus doriferus*, that its nasal and crest osteological data do not quite agree, but these are minor matters in a way, and easy of emendation if a study of the living creatures we are so strongly urging does not show them to belong to another species. As no age standards for our eared seals founded upon branded animals exist, we have set up the best standard the circumstances permit of, and its application to the development of the males and female sagittal and nuchal crests, should be of interest in any case.

LITERATURE CITED.

1. The Eared Seals of South Australia. Rec. South Aus. Mus., Vol. 3, No. 1, June, 1925. By Frederick Wood-Jones, D.Sc., F.R.S.
2. Seals of the Challenger Expedition. By Sir William Turner, F.R.S.
3. Fur Seals of Pribolof Islands, &c. Amer. Bur. of Fisheries. June, 1915.