STUDIES IN TASMANIAN MAMMALS, LIVING AND EXTINCT.

No. XIV.

THE EARED SEALS OF TASMANIA (Part 2).

Arctocephalus tasmanicus, sp. nov.

By

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and

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Plates XVI.-XXI.

(Read 14th December, 1925.)

As pointed out in our last paper (1925, p. 75), the Eared Seals of the Australian coasts have been revised recently by Professor F. Wood-Jones, D.Sc., F.R.S. (1925, p. 9), who lists three species under the genus *Arctocephalus*, namely:—

1. *Arctocephalus cinereus*, Péron.
2. *Arctocephalus doriferus*, Wood-Jones.
3. *Arctocephalus forsteri*, Lesson.

When listing the Tasmanian vertebrates a year or so ago (Lord and Scott, 1924, p. 307) we referred to the Fur Seal of Bass Straits as *Euotaria cinerea*, but whilst referring to and accepting McCoy's data, we drew attention to the need for further research.

These further investigations we have been endeavouring to carry out, and the publication of the paper on the Eared Seals of South Australia (Wood-Jones, 1925) was of considerable assistance, as it dealt fully with the synonymy, etc., of the three above-mentioned species.

As a result of Professor Wood-Jones's visit to Tasmania he was able to see certain of our collections, and also we are indebted to him for an exchange of specimens.

Concerning *Arctocephalus cinereus*, we would point out that this is a large so-called "hair seal" ranging in size from 10 to 12 feet in length for the males, and 8 to 10 feet for the females. As the skull characters are well defined, and the size, as well as the nature of the pelts, marks them out as a specific group, they do not strictly come within the scope of our present paper.

As regards *Arctocephalus doriferus* with its eleven synonymies, we have already stated (1925, p. 78) that it does not agree with the specific characters of the common seal of our coasts, while in point of size they do not agree with the third species, *Arctocephalus forsteri*.

Having examined certain of the skulls of our Tasmanian seals since writing his paper, Professor Wood-Jones agrees with us that they do not fit in with either of the three species of his list, and he has suggested specific distinction, which we propose to give in this paper. Within the last few weeks the Tasmanian Museum was able to secure a series (adult pair and young) of this seal, and our thanks are due to the Police Department for securing the specimens, which have proved of considerable assistance, as the series contains associated skulls and pelts of both sexes as well as the young.

Before dealing with the specific characteristics, however, it may be as well to refer once more to Professor McCoy's descriptions (1879, p. 31, and 1883, p. 71) as given in the Prodromus of the Zoology of Victoria. His splendid notes detail *Euotaria cinerea*, and upon the evidence of Constable G. Ardill he regards this as the only seal found from Philip Island to Wilson's Promontory. Ardill says that the seals inhabit all the islands of Bass Straits, but he evidently knows nothing definite as to their classification. In McCoy's earlier account (1879, Dec. 4, p. 11) it was stated that the species in question had at one time been found in Bass Straits, but was then (1879) exceedingly rare.

Lucas and Le Souef (1909) re-listed *Euotaria cinerea* under the heading of "The Australian Sea Bear" (*Arctocephalus forsteri*) and reproduced McCoy's illustrations and data.

Professor Wood-Jones (1925) includes both the above names as synonymies of his recently-created species *Arctocephalus doriferus*, and, having examined skulls of our Tasmanian seals, notes that their structural departure is specific from the crania of the species described by him.

Under the circumstances we propose in the present instance to describe the specific characters of the common Tasmanian seal and to assign to it the designation *Arctocephalus tasmanicus* (the Tasmanian Fur Seal).

ARCTOCEPHALUS TASMANICUS, SP. NOV.

GENERAL DESCRIPTION.

MALES.

Eight feet six inches when fully grown, a stature that is probably reached at the eighth year, although no super-ossification of the skull will have then taken place. The palatine, zygomatic, and facial sutures will be in strong evidence, and the sagittal crest will be as detailed previously (1925, p. 77) concerning the Scamander skull. The mandibular symphysis will withstand careful maceration, but if an exceptionally well-cleaned jaw is required the rami will part company.

Skin, if tanned, will form mat of the following size:—

Length, including hind feet	8 feet 6 inches
Width of skin	4 feet 3 inches
Length of arm	1 foot 9 inches
Width	1 foot 2 inches
Length of hind limb	1 foot 2 inches
Width of hind limb	6 inches

Nails of hind limb a full inch in length (for the central three), their points being three inches from the ends of the skin flaps, the two outside nails being smaller.

Colour.

Hairs of face and nose greyish, but darker upon the cranium, lighter again upon the neck, although darker than the face. All the back brown, with a hint of grey caused by the lighter tips of the longer hairs. Dark isabelline upon the chest, with light but rich chocolate upon the sides and belly, darker from the pectoral axilla downwards. The haired parts of the arms and feet very dark brown, under full chocolate colour.

In the males at maturity the front limb greatly exceeds the length of the hind limb, but in the females and young they are of even length, whiskers 8 inches long, horn colour at tips, and black at the basal ends. In very old males these whiskers become quite black, and longer and stronger than in early adult life.

FEMALE.

The notes here given were collected from an animal that had just reared its first pup, its age being very close to 4 years, but under rather than over that amount. The total length of the skin is 5 feet 2 inches and 35 inches wide with-

out any skin trimming. The forearm is 12 inches x 4½ inches, and the hind limbs are the same size. The nails are similar to those of the male in the reductiou of size consistent with the smaller bulk of the animal—being just an inch in length and 3 inches from the tips of the skin flaps. The whiskers are 7 inches long, and quite black in colour.

Pelt Colour.

The face is lighter than that of the male, and the cranium a dark silver grey, that shades to brown as it crosses the neck. The whole of the dorsal areas are brown, and in the spread skin—with its lighter edges—it might be described as a wide dorsal stripe. Chest isabelline tint, belly rich chocolate which grades by shades of yellowish brown up to the dorsal areas.

The under fur is lighter in colour than that of the male, and agrees with the young in this respect. In an animal at this stage of development, the skull will be quite devoid of a sagittal crest, all sutures will be open, in the face, zygoma, and palate, and the basi-cranial synchrondrosis unankylosed. The mandibular symphysis would not resist maceration.

YOUNG.

The animal here described is the young of the female just passed in review, and therefore the first pup of a young mother. The total length of the skin is 4 feet 5 inches and the width 26 inches. The forearm is 9½ inches long x 4½ inches wide, and the hind limb is of the same size. The nails are about ¾ of an inch long and 2 inches from the tips of the skin flaps.

Colour of Pelt.

Face a very light fawn shade, and this tint is carried on to the throat and chest. All the areas that are rich chocolate in the adults are here several shades lighter. Practically the whole back is a uniform tint of grey-tipped brown shafted hairs, that give grey or brown shades if the hand crosses the pelt. In the winter it is, of course, grey. The rich under-fur is similar to that of the female. The whiskers, which are black, are 7 inches long.

As this animal is assumed to be less than two years old, the following skull notes may be inset here. All cranial and facial sutures open, with evidence of a fronto-parietal fontenel. Mandibular symphysis not ankylosed.

CO-TYPES.

Having thus dealt with three stages, and incidentally both sexes of the seal in question, it will be necessary to now conduct an inquiry into the diagnostic skull characters of the new species, and in this work as no Holotype could be readily selected a series of ten Co-types has been created with four associated skulls, of which five are the property of the Tasmanian Museum and five belong to the Launceston Museum.

The following list gives details concerning the abovementioned Co-types:—

Arctocephalus tasmanicus.

1. Skull and associated skin. Tasmanian Museum No. D 751. Male. Estimated age 7½ to 8 years. Collected at Councillor Rock, S.E. of Clarke Island, Bass Straits. August, 1925.
2. Skull and associated skin. Tasmanian Museum No. D 752. Female. Estimated age 3½ to 4 years. Councillor Rock, Bass Straits. August, 1925.
3. Skull and associated skin. Tasmanian Museum No. D 753. Young. Councillor Rock, Bass Straits. August, 1925.
4. Skull. Launceston Museum. Male. Estimated age 12 years. Specimen obtained from Cooee, Northern Tasmania.
5. Skull. Launceston Museum. Male. Estimated age 10½ to 11 years. Northern coast of Tasmania.
6. Skull. Tasmanian Museum No. D 737. Male. Estimated age 9½ to 10 years. Two Mile Beach, North Bay, South-Eastern Tasmania.
7. Skull and associated skin. Launceston Museum. Male. Estimated age 8-9 years. Collected at Scamander.
8. Skull. Launceston Museum. Male. Estimated age 5 years. Northern Tasmania (Barren Joey?).
9. Skull. Tasmanian Museum No. D 746. Female. Estimated age 8 years. Bicheno, East Coast, Tasmania.
10. Skull. Launceston Museum. Female. Tamar Heads, Tasmania.

SKULL.

The sagittal crest characters have already been given in our former paper, so we will here begin with the teeth. The dental formula is as follows:—

Incisors $\frac{3 \cdot 3}{3 \cdot 3}$ Canines $\frac{1 \cdot 1}{1 \cdot 1}$ Molars $\frac{6 \cdot 6}{5 \cdot 5}$

All the molar teeth with anterior and posterior cusps (the two important departures from *Euotaria cinerea* of McCoy being the extra pair of mandibular incisors, and the retention of cusps throughout the molar series). The first four teeth of the cheek series, in both males and females, are larger than the fifth and sixth pairs, but in the young skull the second pair are the largest of the series. An interesting variation in the immature skull is to be found in the fact that the large lateral incisors are developed in excess of the true canines, exceeding them in length by 5 mm. In the mandible of the male, the first pair of molars are smaller than the remaining four pairs, the latter being almost even in size. In the female mandible the disproportion between the first molars and the remainder of the series is much less marked, and even less so again in the immature animal.

To assist the busy man in separating skulls of *A. cinereus* of Wood-Jones and the animal described by McCoy and listed as *Euotaria cinerea*, Péron, but now reduced to a synonym of *A. doriferus* by Professor Wood-Jones, we supply the following diagnostic characters.

OUTLINE DETERMINATIVE CHARACTERS.

The skulls of *Arctocephalus tasmanicus* are all furnished with strong, post-orbital molar processes, *even in the very young animals*, and if the skull is turned base upwards, these molar processes will be found curving well into the zygomatic area. These *do not obtain* in the Victorian animal, but are very slightly in evidence in *Arctocephalus cinereus*. McCoy gives the molar tooth line at 58 mm. for a male animal in *A. tasmanicum* (this would vary from 65 mm. to 72 mm. with age and individual developments), and well up to 80 mm. for the molar series of the South Australian seal, *Arctocephalus cinereus*. The nasal bones supply another test, as the following data will show:—

Arctocephalus cinereus—Maxillary moieties pass the posterior ends of the nasals.

Arctocephalus tasmanicus—The nasals pass the maxillary moieties and expand behind them in matured males and females, but only just pass them in young animals.

Arctocephalus doriferus—Nasals nearly reach the maxillary moieties (Wood-Jones).

If the skulls of the above and those of *Arctocephalus forsteri* of New Zealand (and possibly our waters also) be placed upon the measuring table we get as a result these figures:—

Arctocephalus cinereus, condylo-basal length 290 mm. to 300 mm.

Arctocephalus tasmanicus, condylo-basal length 280 mm. to 290 mm.

Arctocephalus doriferus, condylo-basal length 250 mm.

Arctocephalus forsteri, condylo-basal length 230 mm.

The above are for male skulls and of the species *doriferus*. Professor Wood-Jones gives similar sizes for male and female skulls, but this does not obtain in our Tasmanian species, in which the female skulls seldom exceed a condylo-basal length of 240 mm.

The quickest way to separate skulls of *A. tasmanicus* from those of *A. cinereus*, if the anterior parts are mutilated, is to take the supra-orbital processes of the frontals as a guide, as these in *A. cinereus* are nearly 90 mm. across—as against an absolute maximum of 75 mm. in old and heavily ossified skulls of *A. tasmanicus*. In the female skull of our species these processes reach a maximum—in old skulls—of 50 mm. Although we have collected a much larger body of osteological data than that just presented, we cannot at the moment extend the limits of the present paper, but may return to the subject at a future date.

Of the thirty-six synonyms listed by Professor Wood-Jones for the three species of his determination, it is more than likely that some should be accredited to the seal we have just named *Arctocephalus tasmanicus*, but as our aims are practical we can find no accurate description of the animal we are dealing with, and it certainly falls outside the determinations last presented to Australian science, we have decided upon the designation submitted in the present text—namely, *Arctocephalus tasmanicus;* vernacular name, the Tasmanian Fur Seal.

We desire to draw attention to the economic value of the species, as we are convinced that if taken at the proper time

of year and correct stage of growth the pelts would be of considerable value. The economic aspect is well worthy of attention by the Tasmanian authorities concerned, particularly so in view of the attention at present being given to the fur seals by the countries bordering on the Pacific.

LITERATURE CITED.

1879-1883 McCoy, Prodromus Zoo. Vic., Decades IV. and VIII.
1909 Lucas and Le Souef, Animals of Australia.
1924 Lord and Scott, The Vertebrate Animals of Tasmania.
1925 Wood-Jones, Records S. Aust. Mus., Vol. 3, No. 1.
1925 Scott and Lord, Pap. & Proc. Roy. Soc. Tas., p. 75.

EXPLANATION OF PLATES.

Arctocephalus tasmanicus (sp. nov.)

Plate XVI. Co-type 1. Male skull to show teeth. Estimated age 7½ to 8 years. Tasmanian Museum No. D 751. Collected at Councillor Rock, South-east side of Clarke Island, Bass Straits, and about 35 miles from Tasmanian coast.

Plate XVII. Co-type 2. Female skull to show teeth. Estimated age 3½ to 4 years. Tasmanian Museum No. D 752. Collected at Councillor Rock, Bass Straits.

Plate XVIII. Co-type 4. Old male skull showing large malar post-orbital processes. Estimated age 12 years.

Plate XIX. Co-type 4. Basal view of old male skull.

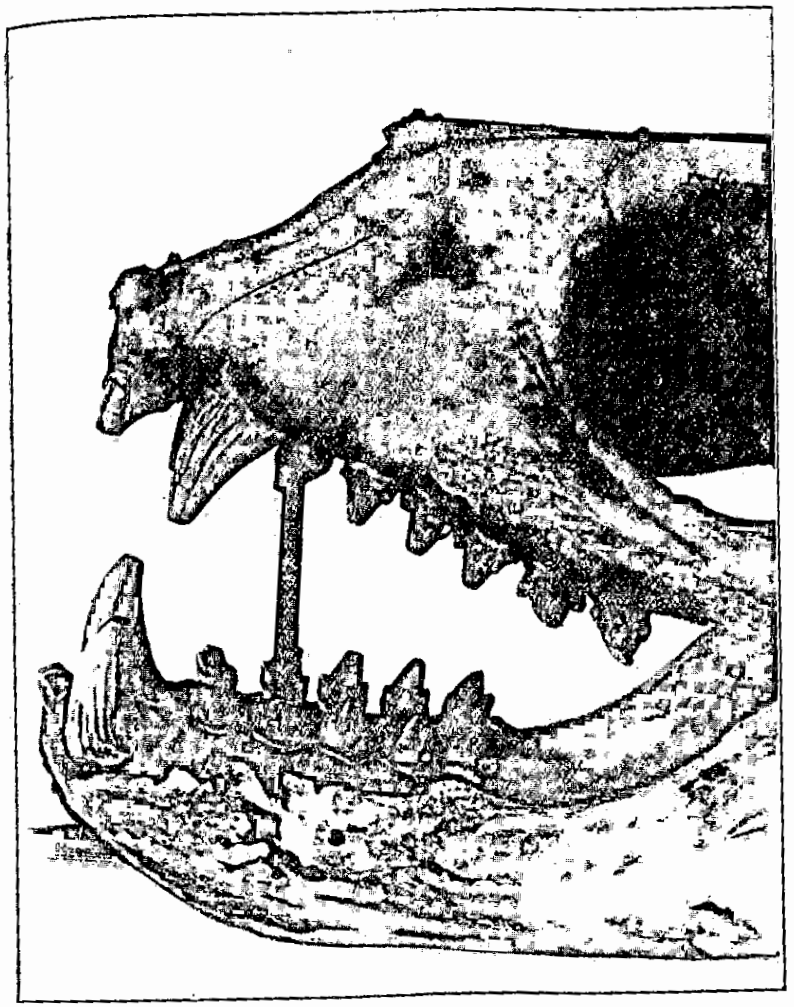
Plate XX. Co-type 9. Female skull showing super-ossification. Estimated age 8 years.

Plate XXI. Co-type 9. Basal view.

ADDENDUM.

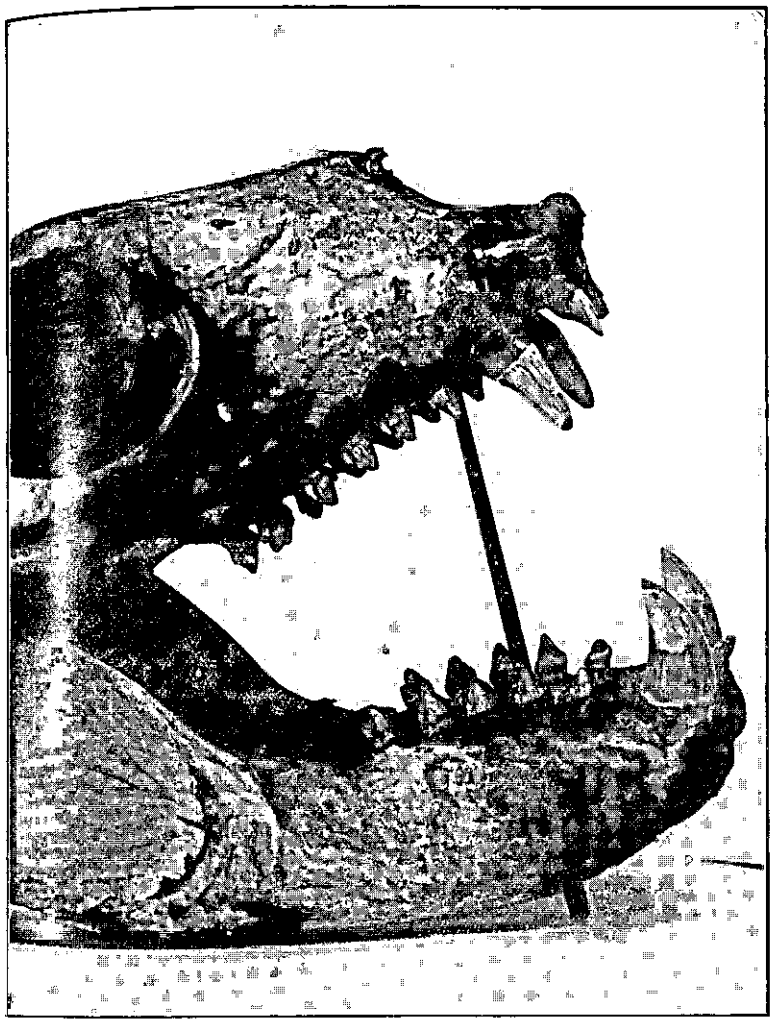
Since writing the above, we have received a copy of Mr. A. S. Le Souef's paper (Aust. Zoologist, Vol. 4, p. 112) which was published on the 10th November last. We fully agree with Mr. Le Souef as regards the economic value of our seals, and there is also the evidence of fishermen and others that there are more than one species of fur seal in Bass Straits.

Arctocephalus forsteri may occur in the Straits, but so far we have not secured specimens, and the common seal of Tasmanian waters is the animal which we have designated *Arctocephalus tasmanicus*.



Arctocephalus tasmanicus (♂).

(Co-type 1.)

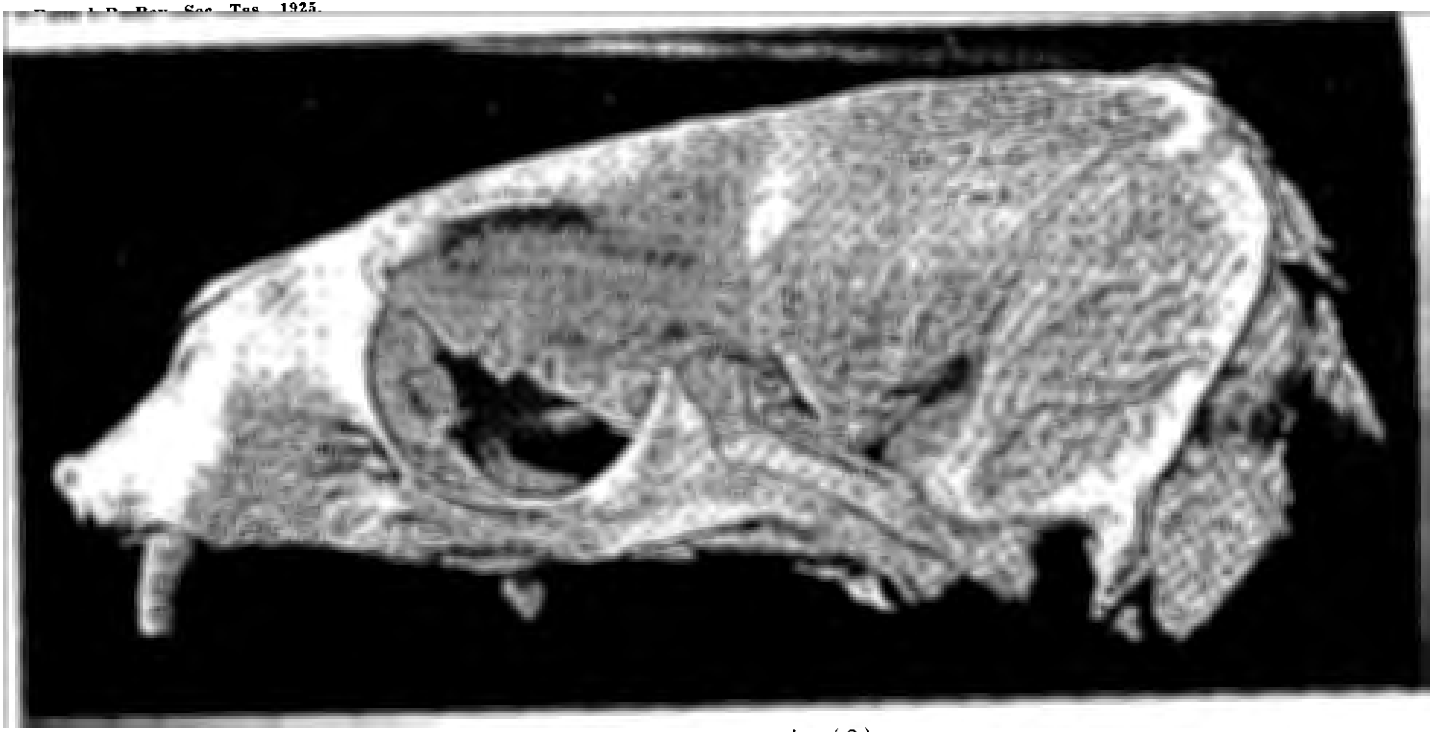


Arctocephalus tasmanicus (♀).

(Co-type 2.)

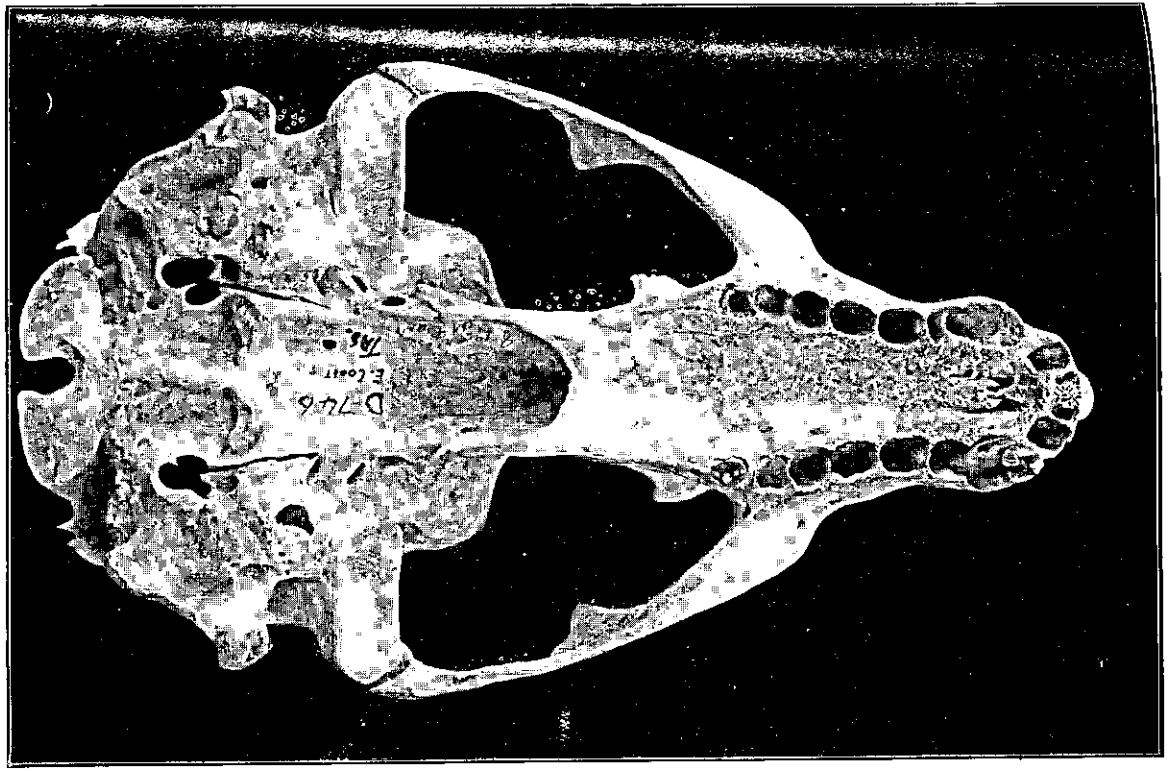
Arctocephalus tasmanicus (♂).

(Co-type 4.)



Arctocephalus tasmanicus (♀).

(Co-type 9.)



Arctocephalus tasmanicus (♀).

(Co-type 9.)