STUDIES IN TASMANIAN MAMMALS, LIVING AND EXTINCT.

No. XII.

ON CERTAIN TASMANIAN PLEISTOCENE MARSUPIALS.

By

H. H. SCOTT, Curator of Launceston Museum,

and

C. E. LORD, F.L.S., Director of the Tasmanian Museum, Hobart.

(Read 10th July, 1924).

INTRODUCTION.

These notes clear up an apparent contradiction between the writings of Lydekker (1889) and De Vis (1884). They explain the real size of the Giant Wombat in terms of Professor Owen's original conception of its dimensions, and show why later workers, upon such remains, were naturally misled (Scott, 1915). They supply some data respecting the Nototherian animal called *Nototherium tasmanicum*, and add to our knowledge of the variation in the premolars of the species *N. mitchelli*. The notes have been culled from two separate "finds" recently made at the Mowbray Swamp, and are directly associated with the names of Mr. and Mrs. K. M. Harrisson and Mr. E. W. Reeman.

From tooth marks found upon one bone we again stress the former existence in Tasmania of powerful carnivorous animals, but to date of writing this, their remains have not been recovered.

PALORCHESTES AZAEL (?) (OWEN).

PALORCHESTIA PARVUS (?) (DE VIS).

The fragments of this gigantic macropod that have recently come to light do not justify the accurate specific determination of the specimens. If we follow Lydekker, and

agree to admit but one species for the genus, then the specific name *Azael* covers all the remains referable to these gigantic kangaroos. De Vis (1894) when reviewing the fossils in the Queensland Museum created a new species, namely, *Parvus*, which he claimed stood to the type, in the same relationship that *Sthenurus outeul* did to *Sthenurus goliah*. As De Vis's determinative generic characters are more workable than those finally adopted by Lydekker, and his whole paper is carried out to extreme detail, his contention that more than one species existed is here admitted, although our specimens are too imperfect to relegate to either with absolute certainty.

MANDIBLE.

Parts of the right and left rami of the mandible are present, but in neither are the coronoid processes, or more than an inch of the symphysis.

CHEEK TEETH.

We are fortunate enough to possess a right upper maxillary of a *Palorchestes*, with four teeth *in situ*, that came from the Mowbray Swamp, and has already been figured and described (Scott, 1915). This specimen enables us to compare a serial tooth line with the detached teeth that are now in process of description, and when this is done it is easy to reconcile the contradictory statements of Lydekker and De Vis. The fact is, the teeth start by having anterior and posterior talons, and then can even be traced in old teeth—if the latter are available for examination—as separate moieties; but under the mutual pressure of a forwardly thrusting dentition (as is known to exist in the *Macropodidæ*) they become obscured and so justify Lydekker's statement when the teeth are examined in position in the jaw. With our more perfect specimen we can compare a right upper molar No. 3 from the material just to hand, and exceedingly welcome the latter is, as it adds a note as to a missing crest from our former specimen. This tooth may thus be described—Total length 26 x 20 mm. Crests but slightly worn, height of enamel surface, to top of crest, 16 mm., pre-basal and post-basal ridges, the former being the larger of the two. The connecting link is central and the two equal valleys are open and quite *unclosed*. The enamel is punctate especially upon the posterior surface. This almost unworn tooth is nearly 4 mm. taller than the same molar in our former specimen, thus indicating the amount of wear that went on in the dentition of these ancient animals.

The remaining fragments of teeth, although listed for comparative work in the future, need not be passed in review in the present communication to the Society.

CLASSIFICATION.

As all our specimens are imperfect, extreme caution is needed in any attempt at exact classification, the more so, as Owen figured and described (Owen, 1874) the premolar of *Palorchestes* as being sub-elliptical, with the contact surface with molar No. 1 not the widest face as obtains in Kangaroos generally. De Vis (*loc. cit.*) figures the premolars, of both species, and describes them as being triangular in the upper jaws, a condition that is duplicated in our first Mowbray Swamp find, and indeed better shown (owing to splendid preservation) than anything elsewhere depicted. This latter specimen suggested, to us, an animal too large for anything but Owen's *Azael*, yet *Azael*—as Owen knew it—had premolars of a different type altogether, so evidently we have yet much to learn respecting the dentition of these mighty animals. Our second specimen has no premolars, but in a general way agrees with De Vis's *Parvus*, and so provisionally we leave it under that taxonomic heading, and await other parts of the skeleton to ultimately determine the outstanding problems. Owen's specimen is too perfect to allow any element of uncertainty, and so are those described by De Vis, and yet they do not fall into line, and nothing short of a series of such remains will meet the needs of the case.

THE GIANT WOMBAT.

Phascolonus, Owen.

From the specimens given by the Harrissons we next select a mutilated shaft of a femur relating to the Giant Wombat, *Phascolonus*, this being the second time that a single bone of that animal has reached us from the Mowbray Swamp, and thus attesting to the former existence of that Marsupial in Tasmania. In dealing with this femur we have as comparative data the two fine figures given by Dr. Stirling in his Monograph upon *Phascolonus* (Stirling, 1913), together with some sketches, measurements, and notes supplied to us by Dr. Stirling himself in 1922. Although both of our Tasmanian specimens are devoid of proximal and distal ends, enough remains to make it certain that the Tasmanian animals were larger than those studied in South Australia, a circumstance of interest, as it bears upon the question of the

general size of these extinct animals. Dr. Stirling, working with femora that did not exceed 334 mm., thought the original estimate made by Professor Owen far too high, as indeed it would have been, had the South Australian specimens been average adult size for these animals, in all parts of Australia, which it now seems was not the case. Both of our femora must have been well over 400 mm., and the Buchan Cave femur is apparently another 60 mm. in excess of that estimate, so apparently there were large and small races of these creatures as there are to-day among Wombats, and Owen's statement need not be called in question. Nobody knew better than Dr. Stirling that the Normanville specimen was that of an animal only just finishing growth, and his splendid figure duly illustrates the point, since the line of the trochanter minor is seen to be on a level with the floor of the trochanterian fossa, while in the older Callabonna specimen it is placed higher up, all of which conditions obtain to-day with growing and mature wombats' femora.

In handling the *Phascolonus* bone, last received by us, it became manifest that some marks upon the surface relate to the action of the teeth of an ancient carnivore, a point of some interest to us as it confirms our former statement (Scott and Lord, 1913) made to the Society respecting mutilations to a Pleistocene fossil femur. Our conviction is that these marks were not made by man.

It is our duty to point out that an alteration in our notions respecting the size of *Phascolonus* was almost certain to take place when the true limb bones of *Nototherium* were determined, since all writers upon the subject prior to 1910 were under the conviction that the Nototheria linked the Wombats with Diprotodons, and all extra large phascolonian bones were according relegated to *Nototherium*, while the smaller ones were reserved for *Phascolonus*. The bulk of Dr. Stirling's work upon the Giant Wombat was completed prior to his seeing the true limb bones of the *Nototheria*, and accordingly had he met with femora as long as 420 mm. he would not have readily associated them with *Phascolonus*, hence his estimate of the size of the extinct Wombat. In 1871 Professor Owen stated that some of the bones he had relegated to *Nototherium* might have belonged to a gigantic wombat, but the point was not cleared up until 1910, when a complete skeleton was found in the Mowbray Swamp at Smithton, Tasmania.

NOTOTHERIUM TASMANICUM (SCOTT).

Of the animal called *Nototherium tasmanicum* (Scott, 1910) we have fresh evidence in the shape of parts of the lower jaws of a fully adult creature. The acquisition is due to the kindness of Mr. and Mrs. Harrisson. The right ramus is especially perfect as to teeth, though otherwise very much mutilated, and they work out true to type. The total tooth line from premolar 4 to molar 4 is 162 mm. in both animals, as against 175 mm. for a *Nototherium mitchelli*. These jaws depart materially from *Nototherium victoriæ* and can be separated from them by the following characters:—

1. Dental foramen 25 mm. above molar 4, as against alveolar level in *victoriæ*.
2. Angle slightly inturned and jaws rounded as against angle strongly inturned and lower surfaces of jaws wide and flat.
3. Slight and narrow post alveolar platform as against wide and extensive one in *N. victoriæ*.
4. Tusks sharply rounded in fore and aft direction and strongly upturned, as against an arc of a much larger circle and position in jaws more procumbent in *N. victoriæ*.

All specimens of both species in our possession agree in these details.

5. The astragali of the two animals vary enormously.

NOTOTHERIUM MITCHELLI (OWEN).

A small, but interesting series of remains have come to us from Mr. E. W. Reeman, of Smithton, the find of course relating to the Mowbray Swamp area. The specimens relate to the upper maxillary regions, and give us two absolutely complete tooth lines with the premolars perfect and but recently erupted, indeed, the "craters" have not filled in. In spite of the youth of the animal the tooth line being completed is typical of the species and measures just on 174 mm. as against 175 for the male whose skeleton is in the Tasmanian Museum, Hobart, and 158 mm. for the male of *N. tasmanicum*.

THE PREMOLARS.

As these teeth have just come into position and are unworn, a description of them should be of interest.

R. Premolar No. 4 Antero-posterior length—25mm.

" " Greatest width—24mm.

The working surface of the tooth consists of a large, isolated anterior tubercle, which with its valley accounts for about one-third of the total length of the tooth. Externally there is a single cutting edge that occupies the rest of the length of the tooth upon that side. Exactly in the centre is a raised ridge of enamel, that extends from the cingulum to the crown. Viewed from above, the whole working surface is seen to simulate the five spots of a domino, with the fifth slightly removed from the common centre of the other four. The lingual pair of spots are well marked tubercles and their valleys deeply cut, but the external pair are not seen in a side view of the tooth, but appear as slightly worn spots in the common external ridge when viewed from above.

The left premolar is not the same, since the two lingual tubercles are blended together to form a cutting ridge, their dividing valley being uncut, but indicated by grooves only. Looking upon the working surface of this tooth the last thing one would compare it with, would be a domino, yet its fellow so strongly suggests that simile that we could not but use it. If these two premolars were separated, and their history lost, it would be hard to justify their relegation to a single skull, and the differences would increase as wear took place. This is a point worthy of note.

LITERATURE CITED.

1824 Owen, Professor. Extinct Mamm. Aust. Phil. Trans., p. 800, pl. 82.

1887 Lydekker, R. Cat. Foss. Mam. Brit. Mus., Vol. 5, p. 237.

1894 De Vis, C. W., M.A. "A review of the fossil jaws in the Queensland Museum." Proc. Linn. Soc. N.S.W.

1910 Scott, H. H. "Monograph of *Nototherium tasmanicum*." Tas. Mines Dept.

1913 Stirling, Dr. E. C., M.D., F.R.S. "On the identity of *Phascolonus* and *Sceparnodon* (Owen) with a description of remains." Royal Society, South Australia.

1915 Scott, H. H. "*Palorchestes* as a Tasmanian Pleistocene Genus." Pap. & Proc. Roy. Soc. Tas., 1915, p. 100.

1923 Scott, H. H., and Lord, Clive. "Note on a mutilated Femur of *Nototherium*." Pap. & Proc. Roy. Soc. Tas., 1923, page 56.