

ON A NEW SPECIES OF KANGAROO (*DORCOPSIS*
CHALMERSII) FROM THE SOUTH-EAST END OF
NEW GUINEA.

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(PLATE 19.)

During my visit to the South-east and South-Coast of New Guinea, in December, 1880, I got a young Kangaroo from the mainland, opposite to Dinner Island. I obtained the animal an hour or two after death, having previously seen it alive for weeks. Without delay I took some measurements, and made a few sketches and notes, before putting it in spirits, but only had the opportunity a few weeks ago of examining it more completely.

On the first inspection it appeared to me very like, and possibly identical with the Kangaroo, known as *Halmaturus luctuosus* (1), but which is, as Mr. A. H. Garrod has proved, more correctly called *Dorcopsis luctuosa* d'Albertis (2.)

The examination of the dentition confirmed me in including the animal in the Genus *Dorcopsis* (on account of the size of the premolars, the general shape of the skull, and the direction of the hair of the neck), but it became evident that it could not be rightly identified with the species *D. luctuosa*. The dentition

(1.) Proceedings of the Zoological Society, 1874, p. 110, and loc. cit., 1874, p. 247, pl. XLII.

(2.) On the Kangaroo called *Halmaturus luctuosus*, by D'Albertis, and its Affinities, by A. H. Garrod, M.A., F.R.S., in Proceedings of the Zoological Society, 1875, p.p. 48-59, pls. VII.-IX., or in collected scientific papers of late A. H. Garrod, 1881, p.p. 264-276, pls. VIII.-X.

proved also that the specimen was a young animal : the temporary premolar and temporary-molar, (1) were followed only by 2 molars, with the third molar just cutting the gum.

The plates appended to Garrod's paper made the comparison easy between the dentition of this young Kangaroo and that of *Dorcopsis luctuosa*. The form of the incisors of the canine and of the permanent premolars (which I cut out of their formative cells) was so different from that of the corresponding teeth of *Dorcopsis luctuosa*, that I found it justifiable to describe this animal as a new species : *Dorcopsis Chalmersii*, in honour of the Rev. James Chalmers, the well-known and distinguished missionary of the South Coast of New Guinea.

DORCOPSIS CHALMERSII. Mcl. (Young ♂.)

3 i.,	1	1 temp, p.m.	1 temp. m.	2	
—	— c.,	—	—	—	m., the 3rd m. cutting the gums
1	0	1 temp, p.m.	1 temp. m.	2	

(1.) Prof. Flower says that "in *Hypsiprymnus*" (a genus which in many respects agrees with the gen. *Dorcopsis*. *Vide* Prof. Owen on a new species of *Sthenurus*. Proc. Zool. Soc., 1877, p. 357 and 358), "the reserve premolar is relatively later in acquiring its position in the jaw than in *Macropus*, being still in germ, at least in some species (pl. XXIX., fig. 4), after the last permanent molar is in place and use." (W. H. Flower. On the development and succession of the teeth in the marsupialia. Philos. Transact. for the year 1867, p. 634). On pl. XXIX., fig. 4, (l.c.) the "temporary" molar (coloured red) were followed by 4 "true" molars.

Prof. Owen (loc. cit. Proceed, Zool. Soc., 1877, p. 352), taking as the base of his terminology a comparison of the dentition of the marsupials with higher mammals (he compared as is well known, the dentition *Macropus Major* with that of *Sus scrofa*. Loc. cit., p. 358), calls *all* the teeth between the molars and canines, or [in case of the non-existence of the latter], the incisors ; *deciduous molars* (*Vide* Prof. Owen on the Fossil Mammals of Australia." Philos. Transact., 1874), which on the figures of the plates illustrating the above paper, and others of the same author, are designated : *d* 1, *d* 2, *d* 3, *d* 4 ; *d* 2 is the tooth I have called "the temporary premolar," and *d* 3 "the temporary molar." In the last mentioned paper (p. 246), Prof. Owen describing the dentition of *Macropus (Halmaturus) erubescens*. Sci., calls *d* 3 "the second deciduous molar."

In the paper about *Sthenurus* (loc. cit., p. 353, and pl. XXXVII., *d* 2 and *d* 3 are called by Prof. Owen, "deciduous predecessors of the premolar."

According to the last named author, the dentition of our young *Dorcopsis Chalmersii* would consist of :—

3 i.,	1 c.,	<i>d</i> 2	(temp. premolars.)	<i>d</i> 3, <i>d</i> 4, and	<i>m</i> 1, or
—	—	—	—	—	—
1 i.,	0	<i>d</i> 2		<i>d</i> 3, <i>d</i> 4,	<i>m</i> 1,

MEASUREMENTS :—

From tip of nose to base of tail	400	Mm. or about	26·2 in.
Tail	270	„ — „	15·8 „
From tip of nose to occiput.....	96	„ — „	3·8 „
Fore limb	180	„ — „	7·1 „
{ From caput humeri to elbow	62	„ — „	2·4 „
{ From elbow to wrist ..	78	„ — „	3·1 „
{ From wrist to end of nail middle finger	40	„ — „	1·6 „
Hind limb.....	385	„ — „	15·2 „
{ From Trochanter to knee.....	111	„ — „	4·4 „
{ From knee to ankle	142	„ — „	5·6 „
{ From heel to end of nail of fourth toe	132	„ — „	5·2 „
Length of ear (from behind).....	49	„ — „	1·9 „
Circumference of base of tail	52	„ — „	2·1 „

Colour.—Back dark grey, with a silvery tinge on the neck and shoulders. Fur short, soft, white on the roots. (1) Chin, throat and chest light grey. Feet dark, covered with shorter hair than on the back. The arms light grey inside, and of the general colour of the body outside.

The peculiar direction of the hair on the neck, which occurs in *Dorcopsis luctuosa* exists in *D. Chalmersii* and may be described just as Garrod (2) does it, in *D. luctuosa* and others, namely :—

(1.) The hair on the back is from 26-28 mm. (about 1 inch long.) Each hair is whitish on the base for $\frac{2}{3}$ of its length, and black for the next $\frac{1}{3}$, with a white tip (1 mm.) on the end, which tip however, could not be distinguished in many hairs. The hair of the tail about 12 mm. long, is black, nearly the whole length. On the arms, as well as on the head, where it is 6-8 mm. long, the hair was whitish on roots for 2 or 3 mm. The black portion of the hair is also the thickest. The light hair on the chest is about 13 mm. long.

(2) Garrod. (Loc. cit. p. 51) mentions, that this peculiarity in the direction of the hair of the neck has been found in *Dendrolagus ursinus*, *Dendrolagus inustus*, *Dorcopsis Muellerei* and *Dorcopsis luctuosa*. To this number *Dendrolagus Dorianus*. (Vide: E. P. Ramsay. Contributions to the Zoology of New Guinea. Proceedings of the Linnean Society of New South Wales, Vol. VIII., p. 15), may be added as well as *Osphranter rufus*. The occurrence of this peculiarity in the last named species, I have observed in a very fine specimen of *O. rufus* in the Macleay-Museum (♂, 5 feet from the tip of the nose to the base of the tail, and the tail 3 feet 3 inches long),

"All the hair covering the space bounded in the front by a line
 "running transversely across the parietal region, and behind by two
 "lines joining the middle line between the shoulders to form a right
 "angle, seven inches behind the occiput and extending, forward and
 "outward to the shoulder joint, being directed *forward*, whilst the
 "general body covering of hair is directed normally backward."

Eyes large, with very distinct eyelashes, Iris dark brown.

Ears rather narrow, covered inside with very fine hair.

Muzzle divided in the middle line by a perpendicular groove and the margin of the lips naked. Instead of 4 large conspicuous glandular *hair-follicles* in the middle-line over the laryngeal region of *Dorcopsis luctuosa*, shown on pl. VIII., in Garrod's paper, there are in *D. Chalmersii* only 3 of them arranged to form a triangle. (Fig. 2.) (1) Some long hairs are also found between the conspicuous hair-follicles and the underlips. Similar hair-follicles appear as well over the upper eyelid (over the inner canthus) and three larger ones under the outer canthus. (Fig. 1.)

The *skull* of *Dorcopsis Chalmersii* resembles that of *D. luctuosa*.
 Length of the skull 90 mm. (3, 6 inch.)
 Greatest breadth from Zygoma to Zygoma... 46 mm. (1, 8 inch.)

The *Palatine Foramina*. Two large ones on each side with several smaller behind.

Teeths of the upper jaw. (Fig. 5.)

about which I was informed by Mr. W. Macleay, that the skin for the specimen in question, was quite fresh and in the best order when it was stuffed, so that no artificial manipulation during the stuffing could have produced an abnormal diversity in the direction of the hair.

The hair-ridge (where the hair of the head meets the hair of the neck) is in *Osphranter rufus* (of the Macleay-Museum) on the occiput, just behind the ears; and the converging point, between the shoulders, is 18 inches behind the occiput. On two other specimens of *Osphranter rufus* in the Australian Museum, I found, however, the hair turned backwards. These two contradicting statements leave therefore the question about the direction of the hair of the neck of *O. rufus* open.

(1) I do not think, however, that the number and position of the *glandular hair-follicles* presents a constant character for a species.

The under surface of the lateral incisors is an oval flat groove, surrounded with a cuspidated margin. The exterior margin is divided in both teeth into 4 distinct cusps, which are characteristic of the incisors of this species.

Incisors. The size of the first (central) incisor, compared with the lateral ones, shows less difference in *Dorcopsis Chalmersii* than in *D. luctuosa*, and the second incisor of the former is, relatively to his neighbours, not so small as in the latter species.

In the second right incisor the incision between the median cusps, extends in a vertical ridge, (fig. 8) which is not marked in the corresponding (left) tooth of the other side. (Fig. 7.)

The *canines* are in *D. Chalmersii*, relatively to the other teeth, smaller and shorter than in *D. luctuosa*.

The *temporary premolar*, measured on the neck, is only a little more than half the breadth of the permanent one [the first being 9 mm. or 0.4 inch, the second 16 mm. or 0.65 inch.] On the cutting edge 4 cusps are distinguishable, of which the first (the anterior) is the most marked. These cusps are the ends of vertical ridges which run from the base (the cingulum) on the internal as well as on the external side.

The *permanent Premolar* (fig. 9, A.-E.) which I dug out of its formative cell, showed a breadth (16 mm.) just equal to the breadth of the temporary premolar and the temporary molar together.

On the external side, 7 ridges ending in the same number of cusps may be distinguished, of which however, only 3 are well-marked. On the internal side, the ridges, with the exception of the first (or the anterior), are less apparent than on the external side. On the posterior end of the tooth, behind the cutting edge, appears a tubercle, the cusp of which is lower than the edge. A smaller tubercle is to be found on the base corresponding to the second, anterior ridge on the internal side of the premolar.

The *temporary molar*. Though in general, presenting the character of the permanent molar, the temporary molar is smaller in size, and shows a marked difference from the molars, in the shape of an elongated anterior and external cusp, which gives the tooth, examined from the outside, a somewhat premolar-like appearance.

The *Molars* of *D. Chalmersii* do not present any special deviation from the general type of Molar teeth of Macropodidæ.

Teeths of the lower jaw. (Fig. 6.)

Incisors.—Rather long and narrow, terminating not in a point, but with a horizontal edge of $1\frac{1}{2}$ mm. breadth.

The *temporary premolar*, smaller than the corresponding tooth of the upper jaw; 4 cuspidate and 4 ridged, with the cutting edge slightly convex outwards.

The *permanent premolar*. (Fig. 9, A.-E.) The under jaw being much harder than the maxillary bone, as well as on account of the fangs of the temporary teeth, it was not easy to get the permanent premolar out of its formatory cell. Not having sufficiently delicate instruments and fearing to destroy not only the jaw but the tooth, I thankfully accepted the kind assistance of Mr. P. R. Pedley, who, after fully 45 minutes of filing and breaking away, succeeded in making the tooth free without the slightest injury. The premolar of the under jaw showing a general resemblance to the corresponding tooth of the upper jaw is shorter, ($12\frac{1}{2}$ mm. on the neck and 10 mm. between the extreme cusps), and on the cutting edge only 6 cusps are visible, corresponding to the number of vertical ridges on the external and internal side of the tooth. Another distinction from the premolar of the upper jaw is the absence of tubercles on the internal side of the mandibular premolar; the tooth consists only of a cutting edge, like the temporary premolar.

The *temporary Molar*. Very different from the other molars, consists of an elongated premolar-like anterior half and a

molar-like posterior half. The cutting edge of the anterior part forms a sort of continuation of the edge of the temporary pre-molar, and is higher than the two molar-like cusps of the posterior portion of the tooth.

The *Molars* are macropodiform, smaller than those of the upper jaw, and presenting some differences in the shape of the transversal ridges. (Fig. 10 and fig. 11.)

Habitat. The specimen of *Dorcopsis Chalmersii* has been, as already mentioned, caught by the natives of the mainland of New Guinea, opposite Dinner Island, one of the small islands in the China Strait. The coast in that locality is hilly and intersected by grassy plains. The *D. Chalmersii* is found solitary, not in mobs.

During my stay of about one month at Aruabada (the principal village of Port Moresby) I saw numbers of *Macropus papuanus* (called by the natives there "Makane"), but never met a single *Dorcopsis*. *Dorcopsis luctuosa* appears to be plentiful further north. Signor D'Albertis mentions in his book (1), that during his stay in one of the villages near Hall Sound, "that at dusk several men and women arrived in the village on their return from hunting the Kangaroo, or 'Barai' (*Dorcopsis luctuosa*), of which they have killed twenty. They use long nets in hunting, with which they surround its haunts, and when it is entangled in the nets they kill it with clubs."

The specimen of *D. luctuosa* in the Australian and Macleay Museum, have been received from Mr. Goldie, who got them inland, at some distance from Port Moresby. The name for *Dorcopsis luctuosa* in use by the natives of the Motu tribe (on the coast near Port Moresby) is "Gove."

(1.) L. M. D'Albertis. New Guinea. Vol. I., p. 295.

EXPLANATION OF PLATE 19.

Fig. 1.—Outline of the lateral view of the head of *Dorcopsis Chalmersii*, a short time after death, accurately drawn to show the relative position and size of the eyes, ears, hair follicles, &c., &c. (Natural size.)

Fig. 2.—Fore-part of the same head showing the outline of the mouth and the position of the three conspicuous glandular hair follicles. (Natural size.)

Fig. 3.—The under surface of the hand. (Natural size.)

Fig. 4.—The under surface of the foot covered with thick black scales, which near the heels are worn down and the skin there appears glossy and flaky. (Natural size.)

Fig. 5.—Teeth of the upper jaw and the posterior palatine openings. (Natural size.)

Fig. 6.—Teeth of the lower jaw. (Natural size.)

Fig. 7.—Lateral view of the teeth of both jaws. *Twice* the natural size. The dotted line indicates the position of the formative cells (f.c.) of the permanent premolars.

Fig. 8.—Side view of the second, right upper incisor with a verticle ridge which is not marked in the corresponding tooth of the other side. (*Twice* the natural size.)

Fig. 9, A.-E.—Upper permanent premolar. (*Twice* the natural size.)

A.—View from below. t.—tubercle on the posterior end, behind the cutting edge (e).

B.—View from outside.

C.—View from inside.

D.—View from the front.

E.—View from behind.

Fig. 10, A'-E'.—Permanent premolar of the lower jaw. (*Twice the natural size.*)

A'.—View from above.

B'.—View from outside.

C'.—View from inside.

D'.—View from the front.

E'.—View from behind.

Fig. 10.—Crown of the upper molar from below, to show the ridging. (*Twice the natural size.*)

Fig. 11.—Corresponding mandibular molar, to show the ridging of the crown, from above. (*Twice the natural size.*)

The same lettering in all the figures.

i. —Incisors.

c. —Canines.

tp. —Temporary premolars.

tm. —Temporary molars.

m. —Molars.

fc. —Formative cells.



Miklouho-Maclay, N De. 1884. "On a new species of kangaroo (*Dorcopsis Chalmersii*) from the south-east end of New Guinea." *Proceedings of the Linnean Society of New South Wales* 9, 569–577.

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