On a Collection of Mammals from Central and Northern Queensland,

by

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(Christiania).

In the summer of 1880, a young Norwegian, Dr. Carl Lumholtz, undertook a journey to Queensland, partly on account of his health, partly in order to collect specimens for the different museums of the University of Christiania.

Dr. L. remained in Queensland during a period of 4 years which he spent chiefly in the neighbourhood of Rockhampton, (immediately below the Tropic of Capricorn), at the station Gracemere, belonging to an English family Archer, residing in Norway. From this station as his base of operations, he made longer or shorter excursions to the interior, also along the coast northwardly as far as Cardwell.

One of the most extended of these expeditions was untertaken in the years 1881—82 to the West, during which Dr. L. reached the Diamantina River, about 600 miles from the coast. The collections obtained during this journey were, however, smaller than had been anticipated, owing to an attack of illness which befell the traveller.

The most important expedition in its results was undertaken at the end of 1882 to the northwards to as far as Herbert River, situated in the vicinity of Cardwell, about the 18° S. Lat., and thus on the boundary of York Peninsula[1]).

1) This Herbert River must not be confounded with the important

This river, which reaches the sea immediately to the south of Cardwell, flows in its upper course through a wild mountainous district with steep declivities, and an almost impenetrable scrub. It contains hardly any appreciable amount of water except during the rainy season. The object of his expedition was to explore the coast ranges beyond Herbert River which rise to a height of from 3000 to 4000 feet, and can be perceived as an extended chain of mountains from far out at sea. In these districts, many parts of which have hardly ever been trodden by a white man, Dr. L. spent narly six months, only accompanied by a couple of black attendants, and without any other society than the natives.

From the mountains, excursions were made over the table lands, to within 170 miles from the coast.

The stay at Herbert River formed in many respects the most interesting portion of his travels. Although the principal object of his journey was to secure as full a collection of birds as possible, Dr. L. by no means neglected the mammals, of which the specimens obtained proved of great interest. Among these were examples of a species of *Dendrolagus* new to science, and representing a type previously unknown from the continent of Australia.

In the middle of 1884 Dr. L. returned to Europe, after having forwarded most of the collected specimens to the University Museum in Christiania.

Although Dr. L., as above mentioned, had not attached the most importance to the collecting of mammals, yet the number of species, of which specimens were brought home, amounts altogether to 51, to which must be added. *Ornithorhynchus anatinus* (Shaw), of which owing to an accident, no specimen was preserved, or in all 52 species, to be treated of further on.

Besides these, several other species were noticed without his being able to obtain any specimens; amongst others, several larger and smaller forms of Macropodidae (for instance the great red *Halmaturus rufus* and several *Hypsiprymni*).

The collection is moreover comparatively poor in Chiroptera and Muridae, as of these groups, only a few specimens were preserved, as occasion offered.

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river of the same name, which flows in a north easterly direction into the extremity of the Gulf of Carpentaria; according to Dr. L. this latter river has been re-named Georgina River.

The species collected were the following:

Subclass. ***Eutheria.***

Ordo **Carnivora.**

Fam. Canidae . . . . . 1. *Canis dingo* Blumenb. 1790.

Ordo **Rodentia.**

Fam. Muridae . . . . . 2. *Mus greyi* Gray 1841.
3. *Mus assimilis* Gould 1857.
4. *Mus musculus* Lin. 1766.
5. *Uromys macropus* (Gray) 1866.
6. *Hydromys chrysogaster* Geoffr. 1805.

Ordo **Chiroptera.**

Fam. Pteropodidae . . . . . 7. *Pteropus poliocephalus* Temm. 1827.
8. *Pteropus scapulatus* Peters 1862.
9. *Pteropus gouldii* Peters 1867.
10. *Macroglossus minimus* (Geoffr.) 1810.

Fam. Vespertilionidae . . . . 11. *Nyctophilus timoriensis* (Geoffr.) 1806.
12. *Scotophilus greyi* (Gray 1843) Dobson 1875.
13. *Vespertilio adversus* Horsf. 1824.
14. *Kerivoula papuensis* Dobson 1878.
15. *Miniopterus australis* Tomes 1858.

Fam. Rhinolophidae . . . . . 16. *Rhinolophus megaphyllus* Gray 1834.

Fam. Emballonuridae . . . . 17. *Taphozous australis* Gould 1854.
18. *Nyctinomus australis* (Gray) 1838.

Ordo **Sirenia**.

Fam. Halicoridae . . . . . 19. *Halicore dugung* (Erxl.) 1777. *var. australis*, Owen 1847.

Subclass. ***Metatheria.***

Ordo **Marsupialia.**

Fam. Dasyuridae . . . . . 20. *Dasyurus maculatus* (Shaw) 1800.
21. *Dasyurus geoffroyi* Gould 1840.
22. *Dasyurus hallucatus* Gould 1842.
23. *Phascologale penicillata* (Shaw) 1800.
24. *Phascologale flavipes* Waterh. 1837.
25. *Phascologale minutissima* Gould 1851.
26. *Phascologale* (*Sminthopsis*) *virginiae* de Tarrag. 1847.

Fam. Peramelidae . . . . . 27. *Perameles macrura* Gould 1842.
28. *Perameles nasuta* Geoffr. 1805.

Fam. Macropodidae . . . . . 29. *Macropus giganteus* (Zimm.) 1777.
30. *Halmaturus robustus* (Gould) 1840.
31. *Halmaturus parryi* (Benn.) 1834.
32. *Halmaturus agilis* Gould 1841.
33. *Halmaturus dorsalis* Gray 1837.
34. *Onychogalea frenata* (Gould) 1840.
35. *Lagorchestes conspicillatus* Gould 1841. *var. leichardti* Gould 1853.

36. *Petrogale penicillata* (Gray) 1827.
37. *Dendrolagus lumholtzi* Coll. 1884.
38. *Bettongia penicillata* Gray 1837.

Fam. Hypsiprymnodontidae . 39. *Hypsiprymnodon moschatus* Rams. 1876.

Fam. Phalangistidae . . . . 40. *Phalangista vulpecula* (Kerr) 1792.
41. *Pseudochirus archeri* Coll. 1884.
42. *Pseudochirus herbertensis* (Coll.) 1884.
43. *Pseudochirus caudivolvulus* (Kerr) 1792.
44. *Pseudochirus (Hemibelideus) lemuroides* (Coll.) 1884.
45. *Petaurista volans* (Kerr) 1792 *var. minor*, Coll. 1887.
46. *Petaurus sciureus* (Shaw) 1794.
47. *Petaurus breviceps* Waterh. 1838.
48. *Dactylopsila trivirgata* Gray 1858.
49. *Acrobata pygmaca* (Shaw) 1794.

Fam. Phascolarctidae . . . . 50. *Phascolarctos cinereus* (Goldf.) 1819.

Subclass. ***Prototheria.***

Ordo **Monotremata.**

Fam. Echidnidae . . . . . 51. *Echidna aculeata* (Shaw) 1792.

Fam. Ornithorhynchidae . . . 52. *Ornithorhynchus anatinus* (Shaw) 1799.

The various localities in which the mammals were obtained, and which are mentioned further on, are as follows:

Rockhampton, a town in Central Queensland, lying almost under 23½° S. Lat. As before mentioned, Dr. L. had his head quarters at the station Gracemere, not far from that town.

Peak Downs, lying about 23° S. Lat., and 200 miles NW. of Rockhampton.

Minnie Downs, a station about 330 miles W. of Rockhampton, 25° S. Lat.

Calliungal, a station about 80 miles W. of Rockhampton.

Coomooboolaroo, a station about 80 miles SW. of Rockhampton. Dr. L. on two several occasions made a lengthened stay at this place.

Manaroo, a station about 450 miles W. of Rockhampton.

Torilla, a station on the coast about 80 miles N. of Rockhampton.

Winton, a village lying about 23½° S. Lat., and about 550 miles W. of Rockhampton.

Diamantina River, about 600 miles W. of Rockhampton; this was the most westerly point visited by Dr. L.

Mackay, a coast town lying about 21° S. Lat.; Seaforth is a sugar plantation near Mackay.

Cardwell, a coast town lying 18° S. Lat. on the boundary of York Peninsula.

Herbert River, a river flowing from NW. towards SE., into the sea a little to the south of Cardwell. Lower Herbert is the lower, Upper Herbert the upper part of Herbert River.

Herbert Vale, a station on the Herbert River, lying about 18° S. Lat.

All the above named localities are found in Northwest Queensland, south of York Peninsula, and lying between 18° und 25° S. Lat., extending westward from the sea (at 151°) to 142° W. Long.

The following memoirs have previously appeared upon material belonging to this collection:

I. In 1884 the writer published short diagnoses of 4 species, regarded as being new to science: „On some apparently new Marsupials from Queensland“ (in: Proc. Zool. Soc. London 1884, May 13, p. 381—389, with woodcuts, and 4 coloured plates).

These species were *Pseudochirus archeri*, *Pseudochirus herbertensis*, *Pseudochirus (Hemibelideus) lemuroides*, and *Dendrolagus lum-*

holtzi, all from the Herbert River district. One of these was taken as the type of a new subgenus.

2. In 1884, Dr. LUMHOLTZ published some remarks concerning the occurrence and habits of the last mentioned 4 species: „Notes upon some mammals recently discovered in Queensland" (in: Proc. Zool. Soc. Lond. 1884, June 3, p. 406—409).

3. At the close of the same year, the writer published an account of the specimens of *Echidna*, from the Rockhampton district, which he regarded as a species different from either the South Australian *E. aculeata* (SHAW), or *E. lawesii* (RAMS.) 1877, from New Guinea: „*E. acanthion*, en sandsynligvis ubeskreven Art Myre-Pindsvin fra Nord-Queensland" (in: Forh. Vidensk. Selsk. Christiania 1884, 12. Decbr. Nr. 13, pp. 12).

4. A Resumé of this last memoir was published the next year: „On *Echidna acanthion* from Northern Queensland" (in: Proc. Zool. Soc. Lond. 1885, Jan. 13, p. 148—161, whith woodcuts, and a coloured plate).

In accordance with the views, set forth by Mr. THOMAS in his memoir: „Notes on the characters of the different races of *Echidna*" (in: Proc. Zool. Soc. Lond. 1885, April 21., p. 329), I now regard *E. acanthion* as not being specifically distinct from *E. aculeata*.

5. Finally, in 1886, I gave the diagnosis of a specimen of *Phascologale*, obtained on Herbert River, which appears to be identical with *Ph. virginiae* DE TARRAG. 1847, of which species the typical specimen, which was unsatisfactorily described from an unknown locality, has been subsequently lost: „On *Phascologale virginiae*, a rare Pouched Mouse from Northern Queensland (in: Proc. Zool. Soc. Lond. 1886, Dec. 7., p. 548—549, with a coloured plate).

The following remarks are consequently not intended to embrace any general or detailed description of the species. Most of them are given to supplement in various ways the previous descriptions. They refer entirely to the specimens before me, and must be only in so far regarded as contributary to the characteristics of the species in general. The descriptions of the rarer, or apparently new species are somewhat more detailed.

In the statements regarding the length of the skulls it must be understood that the measurement is from the furthest point of the occiput, to the base of the upper incisors, not to the points of the teeth. The length of the lower jaw is measured in the same way,

from the posterior point of its processes. The breadth is measured across the zygomatic arches (where nothing to the contrary is stated).

Finally I have to express the thanks which are due to my friend Mr. Oldfield Thomas (of the British Museum) through whose courtesy I was enabled, during my stay in London, in Oct. 1886, to examine several of the typical specimens in the British Museum, and who afforded me valuable assistance in identifying several doubtful forms, especially amongst the Muridae and the bats, freely supplying me with valuable suggestions during the progress of my work.

Christiania, February 9th, 1887.

Ordo **Carnivora.**

Fam. **Canidae.**

1. *Canis dingo* Blumenb. 1790.

Canis familiaris dingo Blumenb. Naturg. (I) p. 103 (1790).

A. Male. Herbert Vale 25th Dec. 1882 (skin with skull).
B. Coomooboolaroo Jan. 1884 (skeleton).
C. Herbert Vale, April 1883 (skin with skull).
D. Male. Coomooboolaroo, Jan. 1884 (skin with skull).

The colour in A and D is red, in C black with a white breast. The tip of the tail is white in all the specimens, or with traces of white.

The Dingo is still found in great numbers and in an apparently wild state in Central and Northern Queensland, especially on the table lands west of the coast ranges; in the scrub they are less numerous, and are seen oftener singly. Most of the individuals are red, but amongst the packs black ones are seen; crosses between these two varieties are rare.

In South Australia their numbers are greatly diminished, as the colonists destroy them by every means possible.

Of the specimens brought home the two red individuals were shot from the wild packs, whilst the black and white specimens had been kept half tame by the natives.

During his stay Dr. L. found these tame Dingos of the greatest service, as they were employed with the assistance of the natives in tracking a great number of the different mammals, which were obtained.

The skull. In the four skulls hardly any trace of variation is visible.

	Size of skull	Length of dental series
A	length 191 mm, breadth 101 mm	upper jaw 96 mm, lower jaw 96 mm
B	„ 195 „ „ 102 „	„ „ 96 „ „ „ 96 „
C	„ 199 „ „ 105 „	„ „ 98 „ „ „ 98 „
D	„ 203 „ „ 111 „	„ „ 97 „ „ „ 98 „

The dentition is normal: — $i\frac{3}{3}$ $c\frac{1}{1}$ $p\frac{4}{4}$ $m\frac{3}{3}$ (42).

In one specimen (B) the right upper p^1 is rudimentary.

Ordo **Rodentia.**

Fam. **Muridae.**

2. *Mus greyi* Gray 1841.

Mus greyi Gray, App. Grey's Journ. Disc. Austr. Vol. II, p. 410 (1841).

A. Coomooboolaroo, Dec. 1883 (skin with skull).

B. Coomooboolaroo, Dec. 1883 (skeleton).

Two specimens were obtained, which (according to Mr. Thomas) belong to this species. Both were taken in houses, where it appears to take the place of our *M. decumanus*. When compared with this species, the colour is, however, a more intense reddish brown; the upper surface of the feet is reddish-grey, and it is besides considerably smaller.

The number of rings on the tail were (in A) about 90; in the skeleton the number of caudal vertebrae is 30.

The skull. The specimens obtained appear to be full-grown, as the teeth already (in A) are rather worn, but less so in the slightly larger specimen B.

Size of skull.

A. length 34 mm, breadth across the zygomatic arches 19 mm

B. „ 35 „ „ „ „ „ „ ? „

In the structure of the skull *M. greyi* most closely resembles *M. rattus*, buth the teeth are considerably stronger. As in the last species the orbital crest is already distinct at the front margin of the orbita, and extends, a narrow elevated ridge, backwards to somewhat below the lateral angle of the os interparietale; in their hinder portion the crests are low, but everywhere distinct. In their course

they are strongly curved outwards to the sides, so that the greatest breadth between the crests (straight across the hind margin of the temporal proc. zygomaticus) is but inconsiderably less than the greatest height of the skull. Towards the back the crests again converge a little.

The os interparietale is comparatively broad (length 10 mm, breadth $4\frac{1}{2}$ mm), and with the lateral angles obtuse. The bullae osseae are large and strongly inflated; their greatest length (which in A is 8 mm, in B 8,8 mm), is about equal to the length of the orbital margin from the nasalia to the front angle of the parietale (9 mm). They are thus contained in the length of the skull 4,25 and 4,02 times.

The nasalia are somewhat depressed along the middle; they are of medium length, and extend to just above the root of the incisors. The foramina incisiva are very long and reach to the centre, or to a point just behind the centre of m^1.

The dentition in both specimens is: $i\ \frac{1}{1}\ m\ \frac{3}{3}$ (16).

The molars have the tubercles a little worn, but these appear to present exactly the same pattern, as in *M. rattus*, although they are considerably stronger and broader.

Length of dental series: upper jaw 7 mm, lower jaw 6,8 mm.

3. *Mus assimilis* Gould 1857.

Mus assimilis Gould, Proc. Zool. Soc. Lond. 1857, p. 241 (1857).

A. Coomooboolaroo, Dec. 1883 (skin with skull).

In colour *M. assimilis* on the whole closely resembles the preceding species, but it is not quite so reddish in hue; the fur appears to be softer and longer, and the back is supplied with long black interspersed hairs.

The length of the body in the single specimen is about 165 mm, the tail 115 mm. The number of rings on the tail is 128.

The skull. Length of skull 43 mm, breadth 21 mm.

The skull differs from that of the preceding species especially in its more elongated shape, and in its very small bullae osseae, as well as in the structure of the teeth.

The orbital crest is formed as in *M. greyi,* and is similarly bent outwards on the crown.

The greatest width between the crests is equal to the greatest height of the skull (just above the auditory bulla).

The os interparietale is short and broad (greatest length 8 mm, breadth 4 mm), with the lateral angles obtuse. — The bullae osseae are very small, their greatest length barely 7 mm, and is thus contained in the length of the skull 6,14 times; they are considerably shorter than the length of the orbital margin from the nasalia to the anterior angle of the parietale (12 mm).

The nasalia, which are strongly depressed along the middle, are long, and extend forwards beyond the roots of the incisors.

The foramina incisiva do not extend backwards beyond the front margin of m^1.

The dentition is: $i\frac{1}{1}\, m\frac{3}{3}$ (16).

The crowns of the molars are much worn, deeply concave, and supplied in the centre with crescent shaped or elliptical rings of enamel. — In the upper jaw m^1 has two such rings, m^2 has one, and m^3 only exhibits a slightly elevated point in the centre. In the lower jaw all the teeth have a single oval or slightly curved ring in the centre.

Length of dental series: upper jaw 7 mm, lower jaw 7 mm.

4. *Mus musculus* Lin. 1766.

Mus musculus Lin. Syst. Nat. ed. XII, p. 83 (1766).

A. Coomooboolaroo, Jan. 1884 (skin with skull).

B. Rockhampton, Nov. 1883 (preserved in spirit).

The first specimen, of which the skin and skull are before me, belongs to one of the pale varieties of *M. musculus*, the colouring of which differs considerably from the normal hue of the European species.

The entire upper surface is greatly mixed with reddish brown hairs, the feet are reddish grey, the under surface almost white. (The tail is broken at the tip.)

The identification of this specimen is due to Mr. Oldfield Thomas.

The skull (length 31 mm, breadth 11 mm) cannot be distinguished from that of an equally large specimen from Norway.

5. *Uromys macropus* (Gray) 1866.

Mus macropus Gray, in: Proc. Zool. Soc. Lond. 1866, p. 221 (1866).

Uromys macropus Peters, in: Monatsber. Acad. Wiss. Berlin, 1867, p. 343, Pl. 7 (1867).

Gymnomys macropus Gray, in: Proc. Zool. Soc. Lond. 1867, p. 595 (1867).

Hapalotis caudimaculata Krefft, in: Proc. Zool. Soc. Lond. 1867, p. 316 (1867).

A. Male. Herbert Vale, Febr. 1883 (skin with skull).

This species is said to be not uncommon in hollow trees in the plains, where they are eaten by the natives; Dr. L., however, only obtained a single specimen, a fully grown male, which, on the whole, corresponds to Peters' description and figure (1867) of a specimen from Cape York.

The length and colour of the tail probably vary —: in the present specimen the inner half of the tail is black, the outer yellowish white, and this latter colour also extends a little along the under side of the inner half. The tail in this specimen is comparatively short, as it is slightly shorter than the length of the body; whilst the reverse is the case in the somewhat smaller specimen described by Peters, in which the length of the body was 280 mm, the tail 335 mm.

Some measurements taken from the mounted specimen:

Length of body, from the end of snout to the root of tail (about)	298	mm
Length of tail	292	„
Height of ear (along the inner margin)	29	„
Distance from eye to ear	19	„
Sole of hind foot (to the end of the claw)	64	„

The tail is not entirely naked, but at the end of each scale there is a single erect hair, which, however, is so short that it can only be seen under the lens.

The skull. The length of skull is 69 mm, breadth 35 mm. Length of lower jaw 41 mm.

The dentition is normal: $i\,\frac{1}{1}\ m\,\frac{3}{3}$ (16).

The teeth in this very old specimen are much worn, and exactly resemble the figure in Mr. Peters' paper. The groove which (according to Gray) is found on the anterior side of the lower incisors, is in this specimen so indistinct, as to be almost invisible.

6. *Hydromys chrysogaster* Geoffr. 1805.

Hydromys chrysogaster Geoffr. in: Ann. Mus. d'Hist. Nat. Vol. VI, p. 90 (1805).
Hydromys leucogaster Geoffr. in: Ann. Mus. d'Hist. Nat. Vol. VI, p. 90 (1805).

A. Herbert Vale, 19. Dec. 1882 (skin with skull).

The specimen was taken by a tame dingo in a rocky district, 3 English miles south of Herbert Vale, in the neighbourhood of a swamp, but in quite a dry place. No other individuals were seen.

Some measurements taken from the mounted specimen:

Length of body (head included) about	260 mm
Length of tail	220 „
Height of ear (along the outer margin)	17 „
Sole of hind foot (to the tip of the claw)	52 „

In the colouring this individual is intermediate between the varieties *H. chrysogaster* and *leucogaster,* as these are described and figured by Gould in Mamm. Austr. Pt. V (1853). The back is black with a slight mixture of reddish yellow hairs, the sides gradually lighter, the belly light reddish grey, the throat more whitish. The dark patch on the outer side of the fore limbs is present. Only the extreme tip of the tail (45 mm) is white.

The skull. The size of the skull: length 51 mm, breadth 25 mm.

Breadth behind the zygomatic arches	25 mm
The interorbital space	6 „
Height (above the auditory bulla)	15 „

The bullae osseae are small and rather compressed from the sides. No trace of orbital or sagittal crest is to be found on the skull.

The dentition is normal: $i\frac{1}{1}\, m\frac{2}{2}$ (12). The teeth are worn, with deep concave surfaces, which form cavities, surrounded by a raised margin of enamel. In the upper jaw, m^1 has three such cavities, of which the central one is nearly square and largest, the posterior the least; m^2 has two cavities, of which the anterior, which is situated on the inner side, is quite small.

In the lower jaw, each tooth has two cavities, but those in m_1 are somewhat larger than in m_2.

Ordo **Chiroptera.**

Fam. **Pteropodidae.**

7. *Pteropus poliocephalus* Temm. 1827.

Pteropus poliocephalus Temm. Monogr. Mammalog., Tom. 1, p. 179 (1827).

A. Female, Seaforth, Mackay, 19. July 1882 (skin with skull).
B. Seaforth, Mackay, 19. July 1882 (skeleton).

Is found in great numbers at Mackay and at other places in Central Queensland. Length of Cubitus: A. 142 mm, B. 143 mm.

The skull.

Length of skull	A 61 mm, B 66 mm
Breadth across zygomatic arches	„ 29 „ „ 38 „

Sagittal crest completely wanting, although one of the specimens (B) appears to be full grown. Two low crests extend backwards from the postorbital processes, which converge slightly posteriorly, but these have already entirely disappeared at the Sutura coronalis.

The skull of A, belonging to the younger specimen, is relatively narrower across the zygomatic arches, as these run almost parallel, whilst in B they converge in front. The processus postorbitalis is also naturally shorter; the orbital crests are moreover in this specimen almost parallel.

The dentition in both is normal: $i\frac{2}{2}$ $e\frac{1}{1}$ $p\frac{3}{3}$ $m\frac{2}{3}$ (34).

The number of the teeth is complete in both specimens, and the rudimentary upper p^1 is present, although it scarcely extends beyond the gums in the living animal. The crowns of the teeth are not coloured.

In the upper jaw both the innermost molars are placed a little out of the series, compared with the premolars, so that the inner margin of m^1 does not keep in the same line as the inner margin of p^3, but points towards the centre of this tooth.

In the lower jaw there is a distinct space between the two first incisors, which is greater than in *Pt. gouldii.*

In the younger specimen the right upper canine is so deeply grooved, that the tooth is completely divided into two closely united halves.

The length of the dental series:

A. Upper jaw 30 mm, lower jaw 29 mm,
B. „ „ 31 mm, „ „ 29,5 mm.

8. *Pteropus scapulatus* Peters 1862.

Pteropus scapulatus Peters, in: Monatsber. Acad. Wiss. Berlin, 1862, p. 574 (1862).

A—C. Mackay, July 1882 (skeletons).

The 3 specimens arrived in a half dry condition, and could still be determined from external characters.

Length of cubitus: — A. 177 mm, B. 123 mm, C. 131 mm.

The skull. Length of skull: — A. 53 mm, B. 55 mm, C. 56 mm. Breadth across zygomatic arches — A. 31 mm, B. 32 mm, C. 32,5 mm.

As in the preceding species, the crown is quite smooth.

The orbital crests which are almost imperceptible, disappear entirely at the sutura coronalis. The occipital crests are also slight. The orbital process on the os zygomaticum is long and pointed, and almost completely joins the postorbital process on the os frontale.

The dentition in the two first specimens is normal and complete: — $i\ \frac{2}{2}$, $c\ \frac{1}{1}$, $p\ \frac{3}{3}$, $m\ \frac{2}{3}$ (34).

C has the following abnormal dentition: — $i\ \frac{2}{2}$, $c\ \frac{1}{1}$, $p\ \frac{2}{4}$, $m\ \frac{2}{3}$ (34).

The last specimen wants p^1 in the upper jaw, but is recompensed with a supernumerary premolar between p^1 and p^2, in construction and size exactly resembling p^1.

The canines in *Pt. scapulatus* are strong and long, while the premolars and especially the molars are rather feeble; m^2 is very small, of about the same size as i^2; m^1 is situated almost exactly in the same line, as p^3.

In the lower jaw both the central incisors are separated by a space; i^1 is barely half so large as i^2.

The length of the dental series is:

A. upper jaw 22,5 mm, lower jaw 22 mm,
B. „ „ 22,5 mm, „ „ 22,5 mm,
C. „ „ 24 mm, „ „ 23 mm.

9. *Pteropus gouldii* Peters 1867.

Pteropus gouldii Peters, in: Monatsber. Acad. Wiss. Berlin 1867, p. 703 (1867).

Pteropus funereus Gould (nec Temm.), Mamm. Austr. pt. II, p. 7 (1849).

A. (Male) Seaforth, Mackay, 21. July 1882 (skin with skull).
B. (Male) Seaforth, Mackay, 21. July 1882 (skin with skull).
C. Seaforth, Mackay, 21. July 1882 (skeleton).

Pt. gouldii is numerous in a great part of Central and North Queensland, at Rockhampton, Mackay, Herbert River, etc., and Dr. L. shot many individuals for food for his native attendants.

One specimen (B) belongs to the darker variety, in which the neck is very dark reddish brown, so that this part is not much lighter than the back.

In A, the neck is somewhat lighter, and clearly intermixed with reddish yellow; C (which arrived in a half dry condition) belonged to the ligthest variety, with the neck of a dark reddish yellow tint. Length of cubitus A 157 mm, B. 158 mm, C. 159 mm.

The Skull. Length of skull: A. 69 mm, B. 71 mm, C. 72 mm. Breadth across the zygomatic arches: A. 38 mm, B. 40 mm, C. 40 mm.

The skulls which prove, that two of the specimens are fully grown, while A is a somewhat younger individual, have all very sharp and high crests.

The orbital crests join just behind the postorbital processes, and continue as a prominent crista sagittalis to the occipital crest, which is also sharp and high.

The orbital process on the os zygomaticum is in A yet scarcely visible, but in the two larger specimens distinct, although not very long.

The dentition in all is incomplete and abnormal:

A: $i\ \frac{2}{2}$, $c\ \frac{1}{1}$, $p\ \frac{3}{3}$, $m\ \frac{3}{3}$ (32).
B: $i\ \frac{2}{2}$, $c\ \frac{1}{1}$, $p\ \frac{3}{3}$, $m\ \frac{3}{2}(\frac{1}{2})$ (29).
C: $i\ \frac{2}{2}$, $c\ \frac{1}{1}$, $p\ \frac{3}{3}(\frac{2}{3})$ m, $\frac{3}{3}$ (33).

In all specimens the (rudimentary) p^1 in the upper jaw is wanting, except in C, where it is present on the right side.

In B also the left upper m^2 is wanting, as well as m^3 in both lower jaws; furthermore in this specimen the lower m^2 is but rudimentary.

The crowns of the teeth are more or less black on the worn portion of the surface (a crust having formed on account of a peculiar sort of food?).

In the lower jaw there is a short space between the 2 central incisors.

The length of the dental series:
A. upper jaw 29 mm, lower jaw 29 mm,
B. „ „ 32 mm, „ „ 31,5 mm,
C. „ „ 32 mm, „ „ 32 mm.

10. *Macroglossus minimus* (Geoffr.) 1810.

Pteropus minimus Geoffr., in: Ann. Mus. d'Hist. Nat. Tom. XV, p. 97 (1810).

Macroglossus minimus Temm. Monogr. Mamm. Tom. II, p. 96 (1835—1841).

A. Female. Mackay, 18. July 1882 (skin with skull).

Is probably scarce, yet Dr. L. obtained two more specimens, which have not been preserved.

Length of cubitus 41 mm.

The tail is indistinct (possibly broken). The colour is a pale reddish brown, lightest underneath.

The skull. Length of skull 24,5 mm.

Breadth across the zygomatic arches 14 mm.

The orbital margin on the frontale is slightly swollen and rounded; the postorbital process is relatively small, and situated far back.

The crown is smooth without sagittal crest, and with low occipital crests. Os zygomaticum likewise smooth, and without an ascending orbital process.

The dentition is normal: $i\ \frac{2}{2}$, $c\ \frac{1}{1}$, $p\ \frac{3}{3}$, $m\ \frac{2}{3}$, (34).

The upper incisors form an even curve, and are not triangularly arranged, as in Dobsons' specimens (Cat. Chir. Brit. Mus. p. 96).

The two central incisors converge, so that their points are almost contiguous; in size they are exactly the same, as i^2.

The length of the dental series is: in the upper jaw 9,5 mm, lower jaw 10 mm.

Fam. **Vespertilionidae.**

11. *Nyctophilus timoriensis* (Geoffr.) 1806.

Vespertilio timoriensis Geoffr. in: Ann. Mus. d'Hist. Nat. tom. VIII, p. 200 (1806).

Nyctophilus timoriensis Tomes, in: Proc. Zool. Soc. Lond. 1858, p. 30 (1858).

A. Coomooboolaroo, Dec. 1883 (skin with skull).

Length of cubitus . . . . . 38 mm
Length of tail . . . . . 33 „
Length of ear (from the base of tragus) . . . . 22 „

The colour of the back is dark brown, the under surface lighter; all the hairs are black at the root.

10—11 transverse stripes on the interfemoralmembrane.

The skull. Length of skull . . . . . 16,5 mm
Breadth across the zygomatic arches . . . . . 10 „
Breadth behind the zygomatic arches . . . . . 8 „

The sagittal crest is slightly developed, but visible in its whole length to the occiput. The specimen on the whole corresponds in colouring and in the structure of the skull to TOMES' typical form, *N. timoriensis* (in: Proc. Zool. Soc. Lond. 1858, p. 30).

The dentition is complete: $i \frac{1}{3}$, $c \frac{1}{1}$, $p \frac{1}{2}$, $m \frac{3}{3}$ (30).

12. *Scotophilus greyii* (GRAY 1843) DOBSON 1875.

Scotophilus greyii GRAY, List. Mamm. Brit. Mus. 1843, p. 30 (not described).
Scotophilus greyii DOBSON, in: Proc. Zool. Soc. Lond. 1875, p. 372 (1875).

A. Winton, Nov. 1881 (skin with skull).
B. Coomooboolaroo, Jan. 1884 (skin with skull).
C. Male, Rockhampton, Dec. 1880 (spirit).
D. Female, Rockhampton, Dec. 1880 (spirit).

The colouring is a greyish chestnut brown, in one specimen a somewhat deeper greyish brown; the lower surface is greyish white.

Length of cubitus: A. 31 mm, B. 32 mm, C. 32 mm, D. 32,5 mm.
Length of tibia: A. 12,5 mm, B. 12,5 mm, C. 12,5 mm, D. 13 mm.
The skull. Length of skull A. 13,5 mm, B. 14 mm
Breadth across the zygomatic arches A. 15 „ B. 10 „

The dentition in both the above mentioned skulls is normal:
$i \frac{1}{3}$, $c \frac{1}{1}$, $p \frac{1}{2}$, $m \frac{3}{3}$ (30).

The teeth are worn in both specimens; the tips of the incisors and canines are also worn. In the two specimens, preserved in spirit, this is not the case.

13. *Vespertilio adversus* HORSF. 1824.

Vespertilio adversus HORSF. Research. Java &c. p. 8 (1824).
Vespertilio macropus GOULD, Mamm. Austral. part 7 (1855).

A. Coomooboolaroo ultimo Jan. 1884 (spirit).

This species has, according to Dobson (Cat. Chir. Brit. Mus. p. 293), previously been found at Port Essington in North Queensland.

The fur is rather short and velvety. The colour at the base dark greyish brown with ligther greyish brown tips. The lower surface is somewhat lighter; especially are those hairs which clothe the lower surface of the interfemoral membrane long and almost white.

Length of cubitus . . . . . 36,5 mm
Length of tibia . . . . . 15,5 „

The skull. Dentition complete and normal:

$$i\ \tfrac{2}{3},\ c\ \tfrac{1}{1},\ p\ \tfrac{3}{3},\ m\ \tfrac{3}{3}\ (38).$$

As already stated by Dobson, p^2 in the upper jaw is extremely small, and situated inside the series, in the angle between p^1 and p^3, and is quite invisible from without. The lower p_2 has a more normal position, although it is not in exactly the same line as the others, as its inner margin (almost imperceptible) extends beyond the inner margin of the others.

14. *Kerivoula papuensis* Dobson 1878.

Kerivoula papuensis Dobson, Cat. Chir. Brit. Mus. p. 339 (1878).

A. Male, Coomooboolaroo, ultimo Jan. 1884 (spirit).

This species was first described in 1878 by Dobson in his Cat. Chiropt. Brit. Mus. from a single specimen, obtained at Port Moresby, New Guinea.

This new specimen from North Australia agrees in all details exactly with Dobson's description. The brilliant golden hairs are also found distributed singly down the first phalanges on the 3. and 4. fingers. The number of the transverses stripes on the interfemoral membrane is about 18.

Height of ear from the base of its anterior margin . 14 mm
Height of tragus . . . . . 9 „

The ear is on both surfaces clad with scanty, pretty long hairs.

Length of cubitus . . . . . 36 mm
Length of tibia . . . . . 16,5 mm

The dentition is normal, agreeing exactly with Dobson's description: $i \frac{2}{3}$, $c \frac{1}{1}$, $p \frac{3}{3}$, $m \frac{3}{3}$ (38).

15. *Miniopterus australis* Tomes 1858.

Miniopterus australis Tomes, in: Proc. Zool. Soc. Lond. 1858, p. 125 (1858)

A. Male, Coomooboolaroo, Dec. 1883 (spirit).

A fully grown male, agreeing in every respect with the descriptions of Tomes and Dobson (Cat. Chir. Brit. Mus. p. 351).

Length of cubitus	38 mm
Length of body from the end of snout to the root of tail	45 „
Length of tail	44 „
Length of tibia	19 „
Length of ear (from the base of tragus)	9 „

The colour is above dark reddish brown, underneath greyish brown, the root of the fur darker brown. The ears are transparent, lighter reddish brown. The lower surface of the wing membrane is clothed with long hairs on the portion from the knee upwards to somewhat beyond the elbow.

The tail membrane is more thinly clad underneath, than on the upper surface, and ceases at about the knee.

The ears are short, almost quite square above, and with straight outer margin; tragus comparatively long (3,8 mm), inconsiderably broader near the tip, than in its other part, and with the tip slightly curved inwards.

The length of the 1st phalanx on the 3rd (longest) finger is 9 mm, the same on the 5th finger 8 mm. The second or terminal phalanx of the 3rd finger is very long, reaching in repose, in its flexed state, beyond the middle of the metacarpal bone. The tail is as long as the head and body.

The skull.

Length of skull	14 mm
Length of lower jaw	10 „

The skull (as in *M. schreibersii*) is distinguished by its steep, ascending forehead; the facial portion forms a projection like a beak in front of the almost globular brain case.

The dentition is complete:

$i \frac{2}{3}$, $c \frac{1}{1}$, $p \frac{2}{3}$, $m \frac{3}{3}$ (36).

The teeth are constructed almost exactly like those of *M. schreibersii* (see Dobson's description Cat. Chir. p. 349). The innermost molar, however, in the upper jaw, appears to be comparatively larger, as its inner margin lies exactly in a line with the inner margin of the other molars, whilst in a specimen before me of *M. schreibersii* (from Japan) this tooth is narrower than the others.

In the lower jaw, the incisors evenly increase in thickness inwards, so that i^1 is considerably smaller than i^2.

Fam. **Rhinolophidae.**

16. *Rhinolophus megaphyllus* Gray 1834.

Rhinolophus megaphyllus Gray, in: Proc. Zool. Soc. Lond. 1834, p. 52 (1834).

A. Coomooboolaroo, Nov. 1883 (skin with skull).

The colour is a pale greyish brown, with the tips of the hairs but slightly lighter. The lower surface is lighter than the upper.

Length of cubitus . . . . . 46 mm
Length of tibia . . . . . 20 „

The dentition is normal:

$$i\,\tfrac{1}{2},\ c\,\tfrac{1}{1},\ p\,\tfrac{2}{3},\ m\,\tfrac{3}{3}\ (32).$$

The lower p^2 is rudimentary, but not placed quite in the tooth row (as in Dobson's specimens), but on the outer side between p^1 and p^3, which almost touch each other.

Fam. **Emballonuridae.**

17. *Taphozous australis* Gould 1854.

Taphozous australis Gould, Mamm. of Australia, Pt. 6 (1854).

A. Female, Coomooboolaroo, Dec. 1883 (skin with skull).

The colour is a light greyish brown, the base of the fur whitish, but not pure white as in Dobson's specimen. The lower surface is coloured as the upper.

Length of cubitus . . . . . 70 mm
Length of tibia . . . . . 28 „
Length of tail 27 mm, of which beyond the membrane 12,5 mm.
The skull. Length of skull 24 mm, breadth 14 mm.

The end of the lower jaw extends considerably beyond the intermaxillary, so that the total length of the skull to the tip of the lower jaw is 27 mm.

The dentition is incomplete, as the incisors in this specimen are wanting in the cartilagineous intermaxillaries:

$$i\,\tfrac{1}{2},\ c\,\tfrac{1}{1},\ p\,\tfrac{2}{2},\ m\,\tfrac{3}{3}\ (28).$$

The upper p^1 is small, and has two quite low cusps; p^2 is longer than the molars.

18. *Nyctinomus australis* (Gray) 1838.

Molossus australis Gray, in: Mag. Zool. Bot. II, p. 501 (1838).

Nyctinomus australis Dobson, in: Proc. Zool. Soc. Lond. 1876, p. 728 (1876).

A. Female. Manaroo Station, Oct. 1881 (skin with skull).

The fur is short and velvety, its colour sepia brown with lighter coloured roots; the lower surface is but slightly lighter than the upper. — The fur, covering the wing membrane beneath between the humerus and femur from the sides of the body, is, notwithstanding that the individual is a female, snowy white, as in the male, without being mixed with brown.

Length of cubitus	57 mm
Length of tibia	16,5 „
Length of tail	53 „
Tail beyond the membrane	29 „

The ears are thick and leathery, quite intransparent; *N. australis* can therefore hardly be placed in that group of the species, which Dobson characterises thus: „Integument of the ears thin, translucent" (Cat. Chir. Brit. Mus. p. 421). The gular sack is indistinct, the margin of the mouth of the sack being alone developed.

The skull. Length of skull 23 mm, breadth 15,5 mm.

Dentition complete: $i\,\frac{1}{2}\ c\,\frac{1}{1}\ p\,\frac{2}{2}\ m\,\frac{3}{3}$ (30).

In the upper jaw p^1 is almost rudimentary, and is placed slightly inwards; p^2 has a long cusp, which is longer than the cusps of the molars, having about the same length, as the incisors.

In the lower jaw both canines are furnished with so broad a cingulum, that they meet in the centre. As in the upper jaw, they are very long. Of the premolars p^2 is but slightly larger than p^1, and its cusp is not higher than those of the molars.

Ordo **Sirenia.**

Fam. **Halicoridae.**

19. *Halicore dugung* (Erxl.) 1777, *var. australis* Owen 1847.

Trichechus dugung Erxl. Syst. Reg. Anim. p. 599 (1777).
Trichechus dugong Gmel. Syst. Nat. ed. XIII, p. 60 (1788).
Halicore dugong Ill. Prodr. Syst. Mamm. Av. p. 140 (1811).
Halicore australis Owen, Jukes Voy. Fly Vol. II, p. 323 (1847).

A. Young, Torilla station, Aug. 1883 (skin with skull).
B. Mature female, Torilla station, Aug. 1883 (skeleton).

Distributed along the whole coast of Queensland, from Moreton Bay near Brisbane northwards round Cape York. It is especially numerous in the shallow Gulf of Carpentaria, but is persecuted everywhere, and moves often from place to place, where it is disturbed.

The young one (A) is about $\frac{1}{3}$ the size of the fullgrown female, and is now stuffed in the Museum at Christiania. The subjoined measurements of the young are therefore only approximate.

Total length to centre of tail . . .	1490 mm
Extreme width of tail	470 „
From nostrils to front margin of eye	115 „
Length of fore limbs . . . about	230 „

Hair covering of the young. On the muzzle and along the lower lip the hairs form short, but stiff and close bristles, which are longest at the edges of the mouth. The whole body is almost entirely provided with extremely short, isolated hairs, which are partly still functional, party broken or cast off.

Traces of the latter are to be seen as small shallow pits, in the middle of which, as a rule, a short stump of hair is to be found, which, however, loosens at the slightest touch. The living hairs are firmly attached, about 6 to 7 mm in length, and slenderer than the stiff stumps in the small pits; at most of the living hairs there is no appearance of the pits, which seem to be formed only when the hair has become old.

Whether these older and stiffer hairs have been longer than those at present functional, cannot be seen, as all these older hairs appear

to have been broken. From the pits it can be seen that they were placed about 5—6 mm apart, and the covering of hair is thus very thin. They are, however, comparatively evenly distributed; also on the tail traces of hair are found, although they appear to have been more scarce there.

The skull.

	A	B
	mm	mm
Length	265	452
Breadth across zygomatic arches	160	245
Greatest breadth of intermaxillaria (across the narial aperture)	85	140
Length of zygomatic arch	136	235
Length of symphysis of intermaxillaria	107	238
Least width of upper part of parietalia	60	65
Greatest length of narial aperture	76	145
Greatest breadth of narial aperture	49	80
Length of lower jaw	182	332
Least height of lower jaw (to front edge of m^2)	52	91
Length of tooth-series on symphysis of the lower jaws	57	136

In comparison with the skull of the mature female specimen, the young one is distinguished by a proportionally shorter snout (shorter Intermaxillaria and symphysis of the lower jaws), and proportionally broader parietals and frontals. Otherwise it differs in but a slightly and unimportant degree from the mature specimen.

These differences are chiefly the following: — Whilst the condyli occipitales in the mature specimen are formed exclusively of the exoccipitalia, the hinder part of the basioccipitale in the young one also participates in forming the condyli.

The parietalia are comparatively broad in the young; the upper, flat part is even in its latter portion somewhat arched in the centre, and the margins rounded off without a trace of crests. The absolute width is in reality almost as great in the young as in the mature specimen (which is about three times as large) — see table of measurements. —

The transverse section of the parietalia, measured between the margins of the temporalia, is thus in the young one not to any great extent less, than the length of the narial aperture, whilst the same transverse section in the mature specimen does not extend to half the length of the aperture.

The Frontalia have quite low and rounded crests, and are comparatively broader behind (like the parietalia) than in the older specimen.

The intermaxillaria, the upper parts of which in the mature female are thin, so that the surface is partly perforated at the sides, are more solid in the young, and the surface in all parts is entire. Naturally in the young the intermaxillary is considerably shorter in proportion, than in the other, and this likewise applies to the lower jaw.

At the back of the tooth bearing part, the upper jaw is not completely ossified in the young, but a round opening is present on the outside.

The teeth. The dentition is:

In the young: $i\,\frac{1}{1}$, $m\,\frac{3}{3}$ (16).

In the fullgrown female: $i\,\frac{1}{1}$, $m\,\frac{3}{2}$ (10).

In the young the upper teeth are as follows:

In the intermaxillaries the two incisors which are slightly protruding beyond the alveolar margin, are pointed and not worn. Behind each of these is seen an open socket of the same size as the functional teeths, but without a true tooth; this socket continues backwards up in the jaw to the perforated portion on the outside of the intermaxillary.

The molars are 3 in number. The whole crown of the first is worn flat; m^2 has the surface worn on the anterior half of the tooth, but is less worn on the posterior one. m^3 is just rising above the alveolar margin, and has pointed tubercles. All are about the same size; the first is the smallest. In shape they are pretty much alike. Each of them is contractedin the centre, by which a anterior and posterior portion is formed: the front portion is the broadest, and has traces of being divided into two protuberances.

The lower jaw has on each side of the symphysis 4 sockets, of which the two central ones are closer together than the others. Of the theeth only i^3 is present, the other sockets are empty; but only those of i^2 are filled up with bony tissue (the other teeth have probably been lost in the preparation of the specimen).

The lower molars are three, on each side, of the same construction as those of the upper jaw. m^1 is the smallest, and considerably narrower, than the corresponding one in the upper jaw. They are worn on their back halves, but the front ones are intact. m^2 is worn on both halves,

and has therefore, together with the posterior part of m^1, probably been in contact, during the act of mastication, with m^1 in the upper jaw. m^3 in both portions has the ends of the tubercles worn, probably by contact with m^2 in the upper jaw. As regards size, the two back molars are about equal.

In the mature female the teeth are as follows:

In the upper jaw the two incisors have only been slightly developed, and are worn at the points, so that no part protrudes beyond the wide and irregular alveolar border.

Of the molars only two are in function, the posterior one considerably larger than the anterior. In front there is an empty socket filled up with bone tissue, behind which follows a molar, almost circular in section, and worn quite flat on its upper surface. The innermost molar is long, and divided into a front and back portion. The first is about the size of the preceding molar; the back one is twice as small. Both teeth are greatly worn. In the lower jaw the sockets on the symphysis are partly filled up with bone tissue, but all are still visible.

The molars are two, formed on the whole like those in the upper jaw; the first is almost circular, the next oblong and somewhat contracted, but the back part of the tooth is here but slightly smaller than the fore part.

Both are much worn. An empty socket is found both before and behind the two functional molars.

Ordo **Marsupialia.**

Fam. **Dasyuridae.**

20. *Dasyurus maculatus* (Shaw) 1800.

Viverra maculata Shaw, Gen. Zool. Vol. I, part II, p. 433 (1800).
Dasyurus maculatus Gray, List Spec. Mamm. Brit. Mus. p. 98 (1843).

A. Jun. Herbert Vale, Dec. 1882 (skin).
B. Herbert Vale, Dec. 1882 (skeleton).
C. Herbert Vale, Dec. 1882 (skeleton).
D. Herbert Vale, Dec. 1882 (incomplete skeleton with skull).
E. Herbert Vale, Dec. 1882 (incomplete skeleton with skull).
F. Male. Herbert Vale, 21. Dec. 1882.
G. Herbert Vale, Dec. 1882 (incomplete skeleton with skull).
H. Male. Herbert Vale, Dec. 1882 (skin with skull).

The Queensland specimens appear to be identical in every respect with material from South Australia. The colouring is exactly the same, as is also the formation of the skull and the teeth. The species is therefore distributed over the whole of Southern and Eastern Australia as far north as Cape York Peninsula, also in Tasmania, and is thus one of the most widely spread of all the Marsupials.

D. maculatus, which is called by the natives „Jarri", is hardly numerous in Northern Queensland, and it was with great trouble, that Mr. L. obtained the above mentioned specimens. They did not appear to be met with in the coast district. When pursued, this species is able to climb trees. It sleeps during the day time under a stone or some similar shelter. Some of the specimens obtained were captured by the trained dingoes, other were killed by strychnine. Their chief food consists of a small species of „Wallaby" (probably an *Onychogalea*). No pouch.

The length of the body in the two largest males is about 480 mm; the tail is about 420 mm, and these specimens appear to have been fully grown. Mr. L. was, however, repeatedly informed by the natives that „Jarri" could be found considerably larger, and that they even attain a size about equal to that of a Dingo.

If this statement has not been exaggerated, there seems to be a possibility that in Northern Queensland there may exist a still larger, and hitherto unknown species of *Dasyurus*, or „Marsupial tiger".

The colour of the spots is yellowish white; on the front may be found a single slighlty indicated spot, but as a rule the head is unspotted. The tail is evenly spotted, and on the upper side of the tip the hairs are bushy and elongated. The spots are largest on the sides of the body and smallest on the back.

The skull.

B.	Length	87 mm	breadth	51 mm
C.	„	90 mm	„	52 mm
D.	„	92 mm	„	50 mm
E.	„	93 mm	„	55 mm
F.	„	99 mm	„	58 mm
G.	„	99 mm	„	58 mm
H.	„	101 mm	„	59 mm

The teeth. The dentition is normal in five of the seven present skulls: —

$$i\ \tfrac{4}{3},\ c\ \tfrac{1}{1},\ p\ \tfrac{2}{2},\ m\ \tfrac{4}{4}\ (42).$$

One specimen (B) had a somewhat anomalous set of teeth; five

of the molars were resolved into small single cylindrical teeth, 2 or 3 for each molar, corresponding with the number of the alveoli. Thus in the upper jaw, instead of the right m^1, there were 3 such small teeth present; in the lower jaw the right m^2 and m^3, and the left m^1 and m^2 were resolved each into two such teeth.

Another specimen (G) has in the upper jaw the left p^1 rudimentary, but the teeth are otherwise normal.

In two of the skulls the cavity in the intermaxillary, which is filled by the lower canine, is so deep on the one side, that the jaw is completely penetrated.

The perforation of the palatine bones is incomplete, and forms no single large foramen, but several irregular ones.

In some, probably females, the zygomatic arch is less prominent than in the others.

21. *Dasyurus geoffroyi,* Gould 1840.

Dasyurus geoffroyi Gould, in: Proc. Zool. Soc. London 1840, p. 151 (1840).

A. Young male. Coomooboolaroo, January 1884 (skin with incomplete skull).

B. Male. Coomooboolaroo, January 1884 (skin with incomplete skull).

D. geoffroyi appears to be the commonest species in Northern Queensland. Like the others, it is greatly troubled with vermin, and the fur is therefore almost always more or less defective in specimens obtained in the summer.

In the specimens which have been brought home, the spots are spread over the whole body, except on the tail, which, at its root, has the same colour as that of the back, whilst the remaining $\frac{2}{3}^{rds}$ (in the young one the remaining $\frac{3}{4}^{ths}$) is black. The head has only a few spots on the forehead. The tail is somewhat bushy; the hairs in the young are specially long (length 40—45 mm). From the back of the carpus some long and stiff hairs project, which resemble vibrissae, and which are directed upwards and backwards.

The thumb of the hind foot is short, and the joining membrane extends almost out to the end of the outermost phalanx. By removing the skin, its dimensions in the two individuals could be seen to be the following: —

	A	B
Sole of the hind foot (to tip of the claw) . .	58 mm	68 mm
The outer phalanx of the thumb	2 mm	2,5 mm
The inner phalanx of the thumb	5 mm	7 mm

The skull.	A	B
Length of skull	?	80 mm
Length of lower jaw	49 mm	63 mm

Neither of the two skulls are complete. A is a young specimen; all the bones are loosely connected and partly wanting. B represents a mature individual; the bones have prominent sagittal and occipital crests.

The Nasalia are in both specimens cut off or rounded behind towards the Frontalia, whilst in *D. maculatus* (at all events in the older individuals) the suture forms a more or less pointed angle, open in front.

The teeth. The dentition is:

$$A: i\ \tfrac{4}{3},\ c\ \tfrac{1}{1},\ p\ \tfrac{2}{2},\ m\ \tfrac{4}{4}\ (42).$$

B has an supernumerary incisor behind the left i^2 in the upper jaw. In both specimens the central pair of the upper incisors is slenderer and more pointed than the others, in B also but slightly longer. (In *D. maculatus* these are all about equal). The molars are complete in both specimens, and in the young more pointed than in the mature specimen. In other respects they are formed as in *D. maculatus*.

Length of the dental series:

A upper jaw 35 mm, lower jaw 33 mm
B „ 41 mm, „ 38 mm.

22. *Dasyurus hallucatus* Gould 1842.

Dasyurus hallucatus Gould, in: Proc. Zool. Soc. London, 1842, p. 41 (1842).

A. Herbert Vale, November 1882 (skin with skull).

A skin with skull was sent home from Herbert Vale, secured in November 1882. The skin, in rather bad condition, was determined at the preliminary examination to belong to *D. hallucatus*; but subsequently by an accident it has been lost, and the following remarks, therefore, only concern the skull.

The skull. The individual was full-grown. All the teeth are developed, the molars of the upper jaw already rather worn, the sagittal and occipital crests sharp. As I have also before me a fully developed individual of *D. geoffroyi* (with a skull of the length of 80 mm) as well as a younger one, the skull of which is of about the same size as the present specimen of *D. hallucatus*, I shall point out the differences which the skulls of these species present.

Length of skull 63 mm, breadth 37 mm,

Length of lower jaw 50 mm,

Length of the dental series in the upper jaw 31 mm, in the lower jaw 28 mm.

In *D. hallucatus* the teeth are (comparatively) weaker and the dental series shorter, than in the other species.

Thus, although the young specimen of *D. geoffroyi* (A) has even a shorter lower jaw (49 mm) than the fullgrown specimen of *D. hallucatus* (50 mm), the dental series is considerably longer (in the upper jaw 35 mm, in the lower jaw 33 mm) than in the latter (31—28 mm), although the teeth in this are less closely arranged than in *D. geoffroyi*.

This great dissimilarity in the dental series of the two skulls, which are about equal in size, is due to the much coarser and stronger teeth of *D. geoffroyi*.

While thus the lower m^3, in *D. geoffroyi*, extends 6 mm beyond the margin of the jaw which in the young individual is more than the height of the lower jaw itself[1]), the corresponding tooth in *D. hallucatus* has a height of scarcely 4 mm, whilst the height of the lower jaw below the teeth is 6 mm. The incisors in the same jaw are in like manner more slender in *D. hallucatus*, than in the other species, where they attain to almost double the breadth. In the upper jaw the same difference exists, although in both species the teeth are (comparatively) shorter, and also somewhat more worn in *D. hallucatus*.

The teeth. The dentition is, as in the other species:

$$i\ \tfrac{4}{3},\ c\ \tfrac{1}{1},\ p\ \tfrac{3}{3},\ m\ \tfrac{4}{4}\ (42).$$

The upper i^1 are longer than the other, more isolated, and directed obliquely forwards, with their points somewhat converging, without, however, touching each other.

D. viverrinus (Shaw) 1800 (*D. maugaei* Geoffr. 1804) appears in the formation of its teeth to agree exactly with *D. geoffroyi*. One cranium of a very young individual which is preserved in the Museum at Christiania, has the length of the lower jaw 50 mm; the dental series in the upper jaw is 36 mm, in the lower jaw 33 mm.

It is therefore seen, that of all these species, *D. hallucatus* has the weakest teeth. And, as the fully developed skull with its high crests etc. is of the same size as the quite young skulls of *D. viverrinus* and *D. geoffroyi*, where the different bones are still most loosely connected, and only the first traces exist of the crests, it is clear, that *D. hallucatus* does not attain the size of the other species.

1) In the older specimen the corresponding tooth is also 6 mm, but the jaw has a height of 9 mm.

As the two skulls of *D. geoffroyi*, as previously mentioned, are not quite complete, I cannot institute any detailed comparison of the two species as regards the remaining parts of the skull. I shall, however, mention that the Nasalia in *D. hallucatus* are long, and almost extend beyond the front margin of the Intermaxillary. The narial aperture is therefore almost perpendicularly cut off in front, whilst in *D. geoffroyi* the sides are oblique on account of the Nasalia here not attaining the front edge of the Intermaxillary. Moreover, the Nasalia in *D. hallucatus* are proportionally broader behind, than in either *D. maculatus* or *D. geoffroyi*.

23. *Phascologale penicillata* (Shaw) 1800.

Didelphis penicillata Shaw, Gen. Zool. vol. I, part 2, p. 502 (1800).
Phascogale penicillata Temm., Monogr. Mamm. tom. I, p. 58, pl. 7 (1827).

A. Male, Coomooboolaroo, 1884 (skin with skull).

Of this species which does not appear to be numerous in Queensland, a few were seen in the neighbourhood of Rockhampton. Only one specimen was brought home, a mature male with long scrotum.

The length of the body (with head) of the stuffed specimen is about 250 mm, the tail 230 mm.

The colour above is grizzly grey, the outer part of the hair being whitish with black tip. No indication is found of a darker central stripe along the back. A small white spot above and below the eye form a broken circle around it. The ears are but thinly clothed; the inner surface has along both margins a narrow stripe of slightly longer hairs, also traces of a shorter one in the middle. The tail, which is somewhat shorter than the body, is reddish grey at the root (somewhat unlike the colour of the body), the outer $\frac{2}{3}^{rds}$ black; the black portion of the tail is formed of long brushlike hairs; the under part of the body, the scrotum and feet (with claws) are whitish.

The skull. The length of skull is 50 mm, the breadth 31 mm. The only attainable figure of the skull of *Ph. penicillata* that I know of, is to be found in Temminck's Monogr. de Mammal. tom I, pl. 7, (1827)[1]) for which an incomplete cranium has formed the model. I shall therefore add, in what respects the skull of the present spe-

1) Copied in Giebel's „Säugethiere", (Bronn's Classen und Ordnungen d. Thierreichs), Taf. XIX, Fig. 9a and 9b.

cimen differs from, or can add to TEMMINCK's figure, which probably has been of a younger individual.

The sutura coronalis (the frontal - parietal suture) makes in our specimen a sharp angle, whilst, in TEMMINCK's and in a young specimen which (by the kindness of Mr. THOMAS) I had the opportunity of examining in the British Museum last year, it forms an almost straight line.

A distinct crista sagittalis proceeds from about the middle of the frontalia, and is posteriorly joined to two elevated cristae occipitales. In TEMMINCK's drawing and in the young specimen in the British Museum, the upper portion of the skull is smooth.

The pars mastoidea forms an inflated bulla, leaning immediately against the hind margin of the auditory bulla, so that there appear to be on each side two bullae, the posterior one about $\frac{1}{3}^{rd}$ less than the anterior.

The foramina palatina are not evenly elliptical, as in the drawing of TEMMINCK, but contracted behind, and the inner margin is curved.

The teeth. The dentition is normal:

$$i\ \tfrac{4}{3},\ c\ \tfrac{1}{1},\ p\ \tfrac{3}{3},\ m\ \tfrac{4}{4}\ (46).$$

In the upper jaw the central incisors are considerably longer and thicker than the others, and touch each other at the points. The other incisors become successively smaller; i^2 is thus not inconsiderably thicker than the two outermost pairs.

24. *Phascologale flavipes* WATERH. 1837.

Phascogale flavipes WATERHOUSE, in: Proc. Zool., Soc. Lond. 1837, p. 75 (1837).

Antechinus unicolor GOULD, Mamm. Austr., part VI (1854).

A. Diamantina River, Oct. 1881 (skeleton).

B. Male, Coomooboolaroo 1884 (skin with skull).

C. Female, Lower Herbert, Aug. 1882, (skin with skull).

Only a few specimens were seen, and three procured, two of which were captured in trees.

The size of the body in the 2 stuffed specimens: —

B. Length of body (head included) about 135 mm, tail 105 mm, hind foot 21 mm.

C. Length of body (head included) about 135 mm, tail 98 mm, hind foot 22 mm.

It may possibly be open to doubt whether the genus *Antechinus* can be separated from *Phascologale* upon sufficient characters. According to KREFFT (in: Proc. Zool. Soc. Lond. 1866, p. 432), *Antechinus* has „the articulating condyle of the lower jaw more elevated than in the genus *Phascologale*", a feature, which, at all events, is not exhibited by any of the specimens examined by me. Of other external characters, the most important is, that *Phascologale* wants the pouch, whilst this „is present in *Antechinus*", a feature, which, however, seems scarcely to have been fully investigated or confirmed in all the species. Finally *Phascologale* has a bushy tail, whilst in *Antechinus* the hairs of the tail are said to be smooth and close; but the hairs at the tip of the tail are in fact (though almost imperceptibly) lengthened also in some species of *Antechinus*.

Of the two skins of *Ph. flavipes* C appears to be a typical specimen, answering pretty nearly to WATERHOUSE's description (in: Proc. Zool. Soc. Lond. 1837, p. 75). The colour of the body is above a rusty brown with longer black interspersed hairs; the sides are more purely rusty red. The feet are ochre coloured, without a trace of black. The upper part of the head is somewhat more grey than the back, caused by a mixture of black and whitish hairs. A whitish portion around the eyes (as in WATERHOUSE's original specimen) can not be observed. The lips are grey, or about the same colour as the feet. The tail is brownish red; its lower surface is more reddish, the tip gradually becoming blackish.

The specimen B corresponds in its colouring most closely to GRAY's *Antechinus leucogaster* (GOULD Mamm. Austr. Part 6, 1854), and although its colouring is thus somewhat unlike the first specimen, they otherwise generally agree, and the skulls of both specimen (and of A) are in all respects alike. The whole upper surface of the head and body, together with the tail is of a dark greyish brown, with but a slight mixture of red. The sides are somewhat more reddish, the lower part more grey. The feet are, however, more purely red, as in C The tail is somewhat darker, the whole outer half being blackish.

According to the opinion of Mr. THOMAS, these two specimens are of interest, because they represent respectively the two subspecies, into which he divides the true *Ph. flavipes*, and therefore show exactly where the ranges of the two forms meet. C is *Ph. flavipes typica*, B *Ph. flavipes leucogastra*.

The skull. A is a young specimen, in which the teeth are not yet fully developed, although the size of the skull is about that of the others. B is a mature male, C apparently a female.

Measurements.	B	C
Length of skull	30 mm	31 mm
Breadth across the zygomatic arches .	18 „	18 „
Height of skull (from the end of bulla) .	9 „	9,5 „
Interorbital space (least width between the orbitae)	6,8 „	7 „
Breadth of skull between the ear-openings	13 „	13,5 „
Length of zygomatic arch (to front margin of orbita)	14 „	14 „
Length of dental series in the upper jaw .	15,5 „	16 „
Length of dental series in the lower jaw .	13 „	13,5 „

The skull is smooth, without crests; of the occipital crests there is but a slight trace. The interorbital space is broad and flat, or very slightly concave towards the sutura frontalis.

The posterior margin of each nasale is rounded off towards the frontale. No trace of proc. postorbitales. On the lower side the pars mastoidea is swollen, as in *Ph. penicillata*, and forms a smaller bulla just behind the larger one, with which it has completely coalesced.

The foramina palatina are large, and extend to the centre of m^1

The teeth. The dentition is normal: $i\ \frac{4}{3}$, $c\ \frac{1}{1}$, $p\ \frac{3}{3}$, $m\ \frac{4}{4}$ (46).

The dentition does not differ, as already mentioned by Waterhouse (l. c. p. 75), in any respect from that of *Ph. penicillata*, as each tooth and its position appears to be exactly as in the latter species.

The central incisors in the lower jaw are, however, in none of the present specimens so different in size from the other incisors in the same jaw, as in *Ph. penicillata*. They are nevertheless a trifle broader than these, but scarcely longer.

In A, the upper p^3 is just rising above the level of the socket, while at the same time the milk tooth has not been shed, so that both are present, and about equally long. In the lower jaw there is as yet no trace of the permanent p_3, the place of which is occupied by the little milk tooth, which, like that in the upper jaw, is much worn [1]).

1) An incomplete skeleton of a quite young *Antechinus* which Dr. L. obtained at Diamantina River in 1881, I add with doubt to this species.

25. *Phascologale minutissima* (Gould) 1851.

Antechinus minutissimus Gould in: Proc. Zool. Soc. Lond. 1851, p. 284 (1851).

A. Female. Winton, 10. Oct. 1881 (skin with skull).
B. Male, Coomooboolaroo, 15. Jan. 1884 (skin with skull).

The first of these specimens, a young female, was caught by a cat which was playing with it, in the same manner as our cats play with a mouse. In its marsupium were found 9 rather large young ones.

The other specimen was caught in a trap, and was a fully developed male with large scrotum. On the whole this diminutive marsupial was difficult to find, and was but seldom seen.

The 9 young are preserved in the University Museum in Christiania.

The female (A) corresponds closely with Gould's figure in Mamm. Austral. part IV (1852).

The male is somewhat bigger, has considerably larger ears, but a somewhat shorter tail, while in the skull the inter orbital space is narrower and somewhat more arched; but nevertheless these differences do not appear greater than one might expect from the difference in sex and age.

Description. As I have seen no other description of *Ph. minutissima*, than the original and hardly exhaustive description of Gould in 1851, and a short diagnosis by O. Thomas in 1887 (Ann. Mus. Civ. Genova, ser. 2, Vol. IV, p. 510), I shall make some remarks concerning the two present individuals.

Some measurements, taken from the stuffed specimens are here given:

	A.		B.	
Length of body (head included) about	60	mm	about 78	mm
Length of tail	62	„	„ 61	„
Height of ear (along the outer margin)	7	„	„ 10	„
Length of hind foot	11	„	„ 11,5	„

The hair covering is short, and lies closely to the body; in the male somewhat longer than in the female, likewise smooth.

The skull, which is defective, has a length of 22 mm, and does not appear in any important point to differ from *Ph. flavipes*. In this specimen the milk teeth are still present on each side in the upper jaw, quite unworn, and appear in their structure to be something between a premolar and a molar; they show namely the middle cusp divided into two about equally long cusps, the one in front of the other; the permanent p^3 is not yet developed. — In the lower jaw the corresponding tooth appears to be the permanent p_3.

The colour is everywhere a mouse-grey, somewhat lighter underneath. Each hair is bluish-grey with reddish grey tip; the longest hairs have black tips beyond the lighter portion. The tail is more reddish brown, as on the upper part of the feet. The head above is like the back, and without a trace of a darker border to the eyes.

The female is more reddish grey, and whiter underneath.

The tail is short in the male, considerably shorter than the body, in the female of the length of the body, and exhibits no swelling at the root. It is covered with adpressed hairs, which are not so close, but that the rings can be slightly observed through them.

The ears are in the young female rather short, and their height, measured along the outer margin, is less than the space between them. In the fullgrown male they are larger, and their height about equal to the space between them.

They are broadly rounded off, and evenly clothed with black hairs, which are closest on the inner side, especially in the female.

The sole of the hind foot is bare along the middle of the metatarsus, but the heel is covered with hair. The thumb is of a medium length, and extends forwards to the pad at the base of the fingers. Pads are found besides at each of the claw-bearing joints.

The 9 young ones, taken out of the pouch of the female, were comparatively large, and had already visible hairs. Their length (when in a rolled up condition) is 9—10 mm.

The skull. As previously stated, the skull of the young female (without taking into account its smaller size) is somewhat less arched across the region of the forehead, and has a broader interorbital space. That this individual, although with young in its marsupium, was not fully developed, appears from the discovery that in the sutura coronalis there is a fontanelle in the shape of a square, with an acute angle anteriorly between the frontalia, and posteriorly between the parietalia. No trace of a sagittal crest is to be found in this specimen.

Some measurements of the skull:

	A.		B.	
Length of skull	17	mm	20	mm
Breadth across the zygomatic arches .	9	„	11	„
Height of skull above bulla	4,7	„	6	„
Interorbital space (least breadth between orbitae)	4	„	4	„

	A.	B
Breadth of skull between the openings of the ear	8 mm	9 mm
Length of dental series in upper jaw	7,5 „	9,5 „
Length of dental series in lower jaw .	7 „	8,5 „

The nasalia are rather broad behind, and the suture with the frontalia forms a high but rounded angle (open in front).

The frontalia are without processus orbitales; the interorbital space is flat, almost concave, and relatively broadest in the young female.

The parietalia are in the young female almost flat and smooth, in the male arched. In the latter an extremely fine sagittal crest extends backwards, and joins the somewhat more distinct occipital crest.

The bullae osseae are of medium size, and are contracted in the middle; the pars mastoidea is (as in the preceding species) inflated to a secundary bulla, which is nearly as large as the auditory bulla, and like it, is contracted in the middle.

The palatina have traces of narrow foramina between m^3 and m^2.

The teeth. The dentition is normal in both specimens:

$$i\ \tfrac{4}{3},\ c\ \tfrac{1}{1},\ p\ \tfrac{3}{3},\ m\ \tfrac{4}{4}\ (46).$$

In the upper jaw the two central incisors are somewhat longer and stronger than the others, and directed obliquely outwards; the other three incisors are equal in size.

The canine in the male is long and curved, in the female lower and not bent; it is close to the premolars.

The premolars increase in size, so that p^1 is smallest, and scarcely larger than i^4, p^3 the largest, and with the middle cusp as high as the nearest molar; in the female it is lower.

The molars are sharply pointed, especially in the young female; m^2 and m^3 are the largest.

In the lower jaw all the teeth, as in the preceding species, form an unbroken series. The central incisors are a little broader than the other.

The premolars are small, the central one the longest; p^3 is the smallest, considerably smaller than p^1.

26. *Phascologale* (*Sminthopsis*) *virgininiae* de Tarr. 1847.

Phascogale virginiae de Tarragon, in: Rev. Zool. 1847, p. 177 (1847).
Phascologale virginiae Collett, in Proc. Zool. Soc. Lond. 1886, Dec. 7th p. 548, pl. LX (1886).
Sminthopsis virginiae Thomas, in litt. April 1887 (cfr. Ann. Mus. Civ. Genova, ser. 2, vol. IV, p. 503) (1887).

In the Revue Zoologique, 1847 (p. 177), de Tarragon has published a short account of a Pouched Mouse under the name of *Phascogale virginiae*. No locality is mentioned, and, according to Mr. Oldfield Thomas, who kindly drew my attention to this but little noticed report, the typical specimen appears to have been lost. The species has not been mentioned by any subsequent author, and appears never to have been found again. For the identification of *Ph. virginiae* one is thus compelled merely to refer to the original and incomplete description.

One specimen of a *Phascologale*, brought home by Dr. L. from Queensland, which was obtained at Herbert Vale in Jan^{ry} 1883, appears, in all its chief features, to agree with *Ph. virginiae*. It is true that the original description only treats of its external characters, and no mention is made of the skull and the structure of the teeth.

As, however, in the original description nothing is to be found, in which they really differ, I have found it more suitable to class the new individual with the above species, than to give it a new name and therefore published a new preliminary diagnosis, accompanied by a coloured plate, in: Proc. Zool. Soc. London 1886 (p. 503, pl. LX).

A more complete description of this individual will be found below.

Diagnosis. (Male): Colouring: blackish above, with numerous white hairs (grizzled grey); yellowish rufous beneath.

Upper part of the head reddish grey; a black stripe from the snout to the forehead, and another less distinct on each side towards the eye; the feet reddish grey, the tail brownish grey with black tip. The hair covering smooth.

Ears large, almost naked; tail of the length of the body, clothed with scanty, close hairs.

Hind feet rather slender; thumb very short; fleshy pads at the base of the toes. Metatarsus naked along the middle.

Skull with strong sagittal and occipital crests, and distinct proc. postorbitales. Upper incisors almost equal; canine very long. First premolar the smallest, p^3 longest and very large. Upper molars with rather low cusps.

Palate with narrow foram. palatina; pars mastoidea not inflated behind the auditory bulla.

Length of body (head included) about 125 mm, tail 120 mm.

Dentition: $i \frac{4}{3}$, $c \frac{1}{1}$, $p \frac{3}{3}$, $m \frac{4}{4}$ (46).

A. Male. Herbert Vale, Jan. 1883 (skin with skull).

A single specimen, a fullgrown male with long scrotum, was dug out of the ground at Herbert Vale; thus it appeared not to be arboreal in its habits.

Description. *Ph. virginiae* appears in some respects to form a connecting link between the small *Phascologale* (*Antechinus*) and the slender-footed *Sminthopsis* Thomas 1887 (= *Podabrus* Gould 1845, nec Westw. 1840 *[Thelephoridae]*).

The feet are more slender than in *Ph. flavipes*, the thumb short, and situated remarkably far back; the soles of the feet bear distinct tuberculated callosities, and, like *Sminthopsis*, it is terrestrial in its habits; but the clothing of the metatarsus, and the covering of hair on the body and tail is almost as in *Phascologale*. The upper canine is very long.

The skull differs in various respects from the skull of *Ph. flavipes*, especially by its sharp sagittal crest, the prominent processus postorbitales, and by the want of a double auditory bulla.

Some measurements, taken of the mounted specimen, are here given:

Length of body (head included) about	125	mm
Length of tail	120	„
From end of nose to lower margin of ear . .	32	„
Length of ear, measured along the outer margin .	20,5	„
The same, measured along the inner margin . .	14,5	„
Length of hind foot to end of claw	23	„

The structure of the body comes very near that of *Ph. flavipes;* it has the same size, or about that of a half grown rat. The covering of hair is smooth, without any trace of being woolly.

The sole of the hind foot is bare along the centre of the metatarsus, whilst the back part of the heel is covered with hair. The thumb is extremely short, its free portion (exclusive of the nail) being

barely longer than the nail itself; it is situated so far back, that the end is separated as far from the root of the 2nd finger, as the length of that finger without the claw.

Fleshy pads are present at the base of each claw-bearing joint, also a row of three at the base of the fingers.

The tail is long, about the length of the body (with head), or inconsiderably shorter; it is very thinly clothed, and without trace of a crest of hair along the upper side, or brush at the tip. The hairs are short, close, and so few that the rings are visible everywhere. Only the root, for the length of half an inch, is densely clothed with hair which forms a continuance of the covering of the back, and which suddenly terminates behind, so that this portion has a somewhat swollen appearance.

The ears are comparatively large and broad; their length, measured along the outer margin, is comparatively greater than their distance from the eyes, and about equal to the length of the sole of the hind foot.

They are mostly naked, except that at the base of their outer surface; a tuft of longer hairs also covers the inner margin internally.

The colour is almost black on the back and upper part of the head as far as the front of the ears, but with a strong mixture of white mottled hairs. The fur is, especially at the root, bluish grey; but the outer third of each hair is white with black tip, while some single hairs are also quite black. In this manner the whole back obtains a characteristic grizzled grey hue, as the white portions of the hairs are sharply defined against the adjacent black tips.

At the root of the ears, and down the feet, a reddish mixture is to be seen; the ears round the base of the inner margin are specially covered with some hairs, of an intensely reddish yellow colour (partially, however, with black tips).

The snout [1]) appears to be rusty red; a broad black stripe is seen to commence on the nose and extend to the occiput, and a similar one, but shorter, and much less marked, runs from the side of the snout to the eyes.

On the feet the colour is more rufous. The upper part of the toes is faintly reddish grey; the claws of a light horn-colour. The under surface of the body, and inner sides of the feet are yellowish rufous, with a slight reddish tinge.

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1) The covering of hair is much worn here.

The covering of the tail is reddish grey, and only towards the tip do the hairs on the upper side become black, but on account of the very thin covering of hair, this colour is not very perceptible; the tip itself also is black underneath.

The skull. Compared with *Phascologale flavipes,* the skull is more strongly built, although the teeth are weaker. The crests and processes, which in *Ph. flavipes* were faint or entirely wanting, are here distinct; the skull is narrower, but higher, and the zygomatic arch longer.

Compared with *Ph. apicalis* GRAY, this latter species has larger auditory bullae, but shorter foramina incisiva; p^3 is almost rudimentary, and p^1 larger than both the other premolars together. Furthermore in *Ph. apicalis* (as in *Ph. flavipes*) the sagittal crest and postorbital processes are wanting. Likewise in *Ph. apicalis* the ears and the tail are shorter, and the feet larger than in *Ph. virginiae.*

Some measurements of the skull:

Length of skull	31,5	mm
Breadth across zygomatic arches	19	„
Heigth of skull above the end of bulla	11	„
Interorbital space (least width between orbitae)	5,5	„
Breadth of skull across ear-openings	12	„
Length of zygoma to front margin of orbita	17	„
Length of dental series in upper jaw	15	„
Length of dental series in lower jaw	13	„

The nasalia are narrow, almost imperceptibly broader behind, than in front; the suture, with the frontalia, form together a sligthly rounded angle. Their front edges extend immediately over the space between i^2 and i^3. The frontalia are comparatively narrow, with distinct processus postorbitales. The sutura coronalis forms a completely straight line in the middle, but downwards, in the orbital margin, a prominent rounded arch, the centre of which points straight towards the postorbital process. Interorbital space very narrow.

The parietalia form a strong sagittal crest, which proceeds from the postorbital processes, but already meet in front of the sutura coronalis, and joins behind with the equally high occipital crests. In their shape the parietalia are strongly arched and high, but comparatively narrow at the sides; the width of the skull, measured across the openings of the ear, is not greater than its height from the bulla to the upper margin of the sagittal crest.

The lacrymalia are particularly large; their upper portion runs in a sharp keel into a short process in the orbital margin.

The palatina are incomplete, with large and uneven foramina, which extend forwards to the centre or hinder margin of m^1.

The bulla ossea is large, but the pars mastoidea is almost flat, and shows almost no trace of being inflated behind the bulla as in the preceding species.

The zygomatic arch is broad and strongly built; its length (measured from the opening of the ear to the foremost angle of the orbita) is longer than the length of the dental series in the upper jaw.

The teeth.

The dentition, as previously mentioned, is normal.

In the upper jaw the incisors are all very slender and about equal in length. The central pair are thus comparatively short, and but a little stronger than the others, and almost vertically placed like these. Between i^1 and i^2 is a very short space.

The canine is very long and curved. Its length (from the alveolar border) is as great as the bases of m^2 and m^3 together.

The premolars, which all have two roots, are close to the canines and the molars. They are large; p^1 is the smallest, hardly larger than i^4, but with a distinct cusp in front of and behind the middle cusp; p^2 is a little larger, but in its formation is like the first. p^3 is the largest, has about the height of the molars, but is compressed with high central cusp, and the anterior cusp only slightly developed. p^3 is larger, than p^2 below.

Of the molars the three foremost have the usual triangular shape, but the cusps are comparatively slightly pointed and rather low, without, however, being rounded. Compared with the foregoing species, the molars are smaller, both lower and with lesser bases. m^3 is very narrow, with the usual short tubercle on its hind margin; it is placed more transversely in the jaw, than in the preceding species, in which it is directed more obliquely backwards.

In the lower jaw the incisors are normal; the central pair barely larger than the others.

The canine is considerably shorter than in the upper jaw, but still longer, than the incisors.

The premolars are all separated by a slight space, as well as from the canine. p_1 is the smallest, scarcely bigger than the incisors, the two others gradually larger; p_3 is the largest, and is situated

close to m^1; it has about the same length as that tooth, and is but slightly narrower than this. All have two roots and a central cusp, with a very short cusp in front and behind.

The molars are comparatively weak, rather narrow, and with somewhat more pointed cusps than in the upper jaw. m^4 is but a trifle smaller than m^3; the middle cusp is here more distinctly divided than in the other molars, into two parallel cusps, of which the inner is barely lower than the outer.

Fam. **Peramelidae.**

27. *Perameles macrura* Gould 1842.

Perameles macrura Gould, in: Proc. Zool. Soc. Lond. 1842, p. 41 (1842).

A. Gracemere, Rockhampton, Aug. 1882 (skin with skull).

B. Male. Calliungal, Rockhampton, April 1881 (skin with skull).

Both specimens were caught in gins in the gardens of the stations near Rockhampton.

It appears to be common in the grassy districts, and belongs, according to Dr. L., to the few Australian mammals which are good to eat; in taste it is said to resemble sucking pigs, as the animal is usually very fat. *P. obesula* was not observed by Dr. L.

Some measurements, taken from the largest specimen (B), are as follows:

Length of body (the head included) about . . .	470 mm
Length of tail	160 „
Length of snout (to front margin of eye) . . .	46 „
From hinder margin of eye to ear	36 „
Height of ear along its inner margin	26 „
Height of ear along its outer margin	31 „
Length of hind foot (to end of middle claw) . .	84 „

In colouring *P. macrura* is distinguished by the finer hairs on the back and sides having broad reddish-grey-yellow tips, by which these appear more or less reddish yellow, mixed with black mottled hairs. The lower surface, with the throat, is whitish.

The claws are of a light horny colour.

The ears are rather closely covered with hairs, which on the inner side are reddish-grey, on the outer side dark brownish grey; laid forwards, their tips scarcely reach to the hind margin of the eye.

The skull.

	A	B
Length of skull	77 mm	— 86 mm
Breadth	31,5 „	— 38 „
Interorbital space	11 „	— 12 „
Greatest height (above bullae)	25,5 „	— 29,5 „
From tip of snout to hind margin of frontalia	56 „	— 63 „
Length of nasalia	26,5 „	— 32 „
Length of dental series in the upper jaw	41 „	— 45 „
Length of dental series in the lower jaw	38 „	— 41 „
Length of lower jaw	51 „	— 63 „

The interorbital space is strongly contracted across the centre of the forehead, and is in A a little more, in B a little less than $\frac{1}{3}$ of the breadth of the skull across the zygomatic arches.

The frontalia form posteriorly a sagittal crest, which in B extends along the sutura sagittalis very strongly developed and high, but is lower in A (and only slightly visible in a third skull of almost the same size as A, sent from the Museum at Brisbane).

The posterior margin of the frontalia forms in the sutura coronalis an almost straight line.

The lacrymalia are comparatively small; the height is equal to the base of the two last premolars.

The zygomatic arch is distinct; its height in the middle is almost equal to the base of the 1st molar.

The bullae osseae are particularly large, elevated and bluntly pointed; the length of the base is about equal to that of the 3 last molars.

The foramina incisiva and foramina palatina are about equal in length; the latter are broadly ovate, and extend between the 2 first molars. In neither of the two specimens is there a trace of foramina in the pars palatina of the upper jaw.

The teeth.

The dentition is normal in both:

$$i\,\tfrac{5}{3},\ c\,\tfrac{1}{1},\ p\,\tfrac{3}{3},\ m\,\tfrac{4}{4}\ (48).$$

In the upper jaw the central incisors are very small, and separated by a distinct space; i^{5}, which has the form of a little premolar, has a pointed central cusp and smaller side cusps, and is separated by an inconsiderable space from the premolars. The canine teeth in the old male specimen (B) are very long and have a broad root, whilst in the female they are scarcely longer than the nearest premolar. Of

the molars the innermost is almost triangular, and terminates behind in a narrow angulated portion. m^3 in the largest of all the molars.

Comparison with *P. obesula* (Shaw). When compared with *P. obesula* [1]), the difference is chiefly as follows.

The colour in *P. obesula* is a darker greyish brown, and the light tips of the hairs are reddish grey without the yellowish red hue, as in *P. macrura*.

The claws are dark horny-coloured. The feet are brownish grey, with numerous black hairs, whilst in *P. macrura* they are light reddish grey without any black mixture.

The skull in *P. macrura* has a longer snout, than in *P. obesula*, and the interorbital space is more contracted. In the latter species the interorbital space is thus about equal to the bases of the 4 molars, in the former only of $2\frac{1}{2}$ molars.

Furthermore the foramina palatina in *P. obesula* extend forwards to (or almost to) the anterior margin of the last premolar, in *P. macrura* only to the posterior margin of this tooth. Besides this the first species has a second pair of foramina on the palatine part of the maxillary (in length about the same as the foramen incisivum, but broader), situated between the canines and the posterior margin of p^1 (or centre of p^2). This pair of foramina are wanting in *P. macrura*.

Finally the innermost upper molar in *P. macrura* is contracted at the back in a sharp angle, so that the base of the tooth is almost triangular, and its length considerably more than its breadth. In *P. obesula* this tooth is almost circular, and its length is less than its breadth.

On the whole, when the dentition of the two said species is compared, the dental series in *P. obesula* (on account of the longer snout) is proportionally longer, and the teeth coarser. In two specimens of about an equal size of both species, which I had the opportunity of examining at the British Museum in October 1886, the length of the dental series in the upper jaw was thus:

P. obesula, length of skull	73 mm
Length of dental series	37 „
P. macrura, length of skull	71 „
Length of dental series	42 „

1) Of which the University Museum possesses 3 specimens from New South Wales.

In two other specimens, belonging to the University Museum in Christiania (*P. macrura* from S. Queensland, *P. obesula* from New South Wales), the proportions were as follows:

P. obesula, length of skull	68,5	mm
Length of dental series	35	„
P. macrura, length of skull	72	„
Length of dental series	42	„

Furthermore *P. macrura* attains to a considerably larger size of body. Of *P. obesula*, one specimen had fully developed teeth, although the length of the lower jaw is but 41 mm, whilst in one of the specimens of *P. macrura*, the lower jaw of which had a length of 51 mm, the innermost upper molar was not yet developed.

Finally it is to be noticed, that while the frontalia in *P. macrura* form an almost straight line in their suture with the parietalia, in *P. obesula* (in the largest and most complete skull) the parietalia run to a point in front, so that the sutura coronalis forms a rather obtuse but deep angle, open behind.

28. *Perameles nasuta* Geoffr. 1805.

Perameles nasuta Geoffr., in: Ann. Mus. d'Hist. Nat. tom. IV, p. 62, Pl. 44 (1805).

A. Young. Herbert Vale, Dec. 1882 (incomplete skeleton).

B. Young. Herbert Vale, Dec. 1882 (skin with skull).

This species lives more in the scrub, than on the grassy plains, and is found on the sides of the mountains as high up as the scrub grows. Only two specimens, both young, were brought home.

Compared with the preceding species, the colouring is a more uniform greyish brown, almost without a reddish mixture. It is specially characterised by its long and pointed snout, and its long ears, which, both on the inner and outer sides, are almost naked and colourless. Their tips, when laid forwards, reach to the front margin of the eye. The claws are light horny colour.

Some measurements from the mounted specimen are here added:

Length of body (head included)	about 290	mm
Length of tail	„ 118	„
Length of snout (to front margin of eye)	44	„
From posterior margin of eye to ear	22	„

Height of ear, along its inner margin . . . . . 28 mm
Height of ear, along its outer margin . . . . . 32 „
Length of hind foot (to end of middle claw) . . 67 „

Both specimens are young, and in both the milk tooth is still present besides the normal 3rd premolar, while the sutures of the skull are rather open.

The skull. Size of the skull:

	A	B
Length	60 mm	— 68 mm
Breadth	24 „	— 27 „
Interorbital space	12 „	— 13,5 „
Height above bulla	16,5 „	— 18 „
From end of the snout to posterior margin of frontalia	46 „	— 55,5 „
Length of nasalia	26,5 „	— 30 „
Length of dental series in upper jaw .	35 „	— 39 „
Length of dental series in lower jaw .	33,5 „	— 36,5 „
Length of lower jaw	44 „	— 52 „

The interorbital space is proportionally wide in these young specimens, about equal to half the width of the skull across the zygomatic arches, or nearly the same as the base of m^4 in the upper jaw.

The nasalia are long, longer than the greatest breadth of the skull across the zygomatic arches.

The frontalia and parietalia are perfectly smooth, both in front and behind, almost flat, and as yet without a trace of sagittal crest.

Lacrymalia very large; their height the same as the base of the 3 premolars in the upper jaw.

The zygomatic arch is slender; its height in the centre barely exceeds the breadth of i^4.

Bulla ossea very small, almost round in shape, in length but equal to the base of the 4th and half of the 3rd molar.

Foramina incisiva, long, longer than the foramina palatina; they extend between the middle (or the back margin) of m^2 to the centre of p^3.

In the upper jaw of the youngest specimen a trace of an oblong foramen is present in the palate inside p^1, whilst this part of the palate in B is imperforate, as in *P. macrura.*

The lower jaw is very slender, and the pars articularis directed obliquely backwards, whilst in *P. macrura* and *P. obesula* the processus coronoideus is vertical.

The teeth. The dentition is normal in both specimens, but, as above mentioned, the milk teeth are present besides the permanent premolars.

$$i\ \tfrac{5}{3},\ c\ \tfrac{1}{1},\ p\ \tfrac{3}{3},\ m\ \tfrac{4}{4}\ (48).$$

In the upper jaw the central incisors are somewhat smaller than the others, and rather close; i^5 which is isolated, and has, like in the other species, the shape of a premolar, is separated from i^4 and c by an interval about double as large as its own base.

The canine is as yet not very long, in the youngest specimen barely higher than the nearest premolars; it is separated from p^1 by a space about equal to that of its own base.

The 3rd premolar is not fully developed in either specimen. The small molarshaped milk tooth which is still present posteriorly at the outer margin of p^3, is extremely small, cylindrical, smaller than i^1. In the youngest specimen, p^3 is wanting in the right upper jaw, and does not appear ever to have been present.

The last molar is flattened, triangular, its back angle being pointed, as in *P. macrura*, but is much shorter than in that species. m^3 and m^2 appear to be equal in size.

In the lower jaw the milk-tooth is present in both specimens; in the youngest specimen only the tip of the permanent p^3 is visible above the alveolar margin.

Fam. **Macropodidae.**

29. *Macropus giganteus* Zimm. 1777.

Verbua gigantea Zimmerm., Spec. Zool. Geogr. p. 526 (1777).
Macropus giganteus Shaw, Natur. Misc. I, Pl. 33 (1790).

A. Young (of C). Coomooboolaroo, 25. Jan. 1884 (skin with skull).
B. Female. Coomooboolaroo, Jan. 1884 (skeleton).
C. Female. Coomooboolaroo, 25. Jan. 1884 (skin with skull).
D. Male. Rockhampton, March 1884 (skin with skull).
E. Male? Coomooboolaroo, Jan. 1884 (skull).
F. Male. Rockhampton, Febr. 1884 (skin with skull).

M. giganteus is still common in Central Queensland, and can in some districts be met with in enormous numbers, for instance on the Peak Downs, 200 miles NW. of Rockhampton. It appears to be somewhat less numerous in Northern Queensland.

The three mature specimens, the skins of which were brought home, were two males and one female, the latter with a large young one, and correspond in all important points with specimens from South Australia.

In all the hair covering is very thin and short (they were shot during the summer months), whilst one specimen in the University Museum from New South Wales has a close, long and woolly coat of hair. The young one (A) which has not yet finally left its mothers pouch, although nearly of the size of a fox, was coloured like the mother (C). The bones of the skull were loosely connected; p^1 is, however, still present.

In all the specimens the outer surface of the ears is uniformly coloured down to the base, without exhibiting a trace of the colour which GOULD, (in: Ann. Mag. Nat. Hist., vol. X, p. 1, 1842, and Mamm. Austr. part XII, 1860) ascribes to his *M. ocydromus*, or (in: Proc. Zool. Soc. Lond. 1842, p. 10) to his *M. melanops.*

The skull. The size:

B.	Length	174	mm,	breadth	91	mm,	length	of	lower	jaw	137	mm
C.	„	178	„	„	93	„	„	„	„	„	144	„
D.	„	198	„	„	98	„	„	„	„	„	158	„
E.	„	199	„	„	96	„	„	„	„	„	159	„
F.	„	206	„	„	105	„	„	„	„	„	165	„

The two largest males (E and F) and the two largest females (B and C) all represented fully grown individuals, in which the last molar shewed traces of being worn. Nevertheless the frontal crests were different in all.

In F, the largest of the specimens, they were completely separated in the whole of their course, so that they, without being connected, adjoined the occipital crest. In the next largest male and in the somewhat younger male, D, and E, the ridges meet near the occipital crest.

In the two females (B and C) the frontal crests were separate during their entire course, until they meet close to the occipital crest.

The skull differs from the following species of *Halmaturus* by the processus zygomaticus of the os temporale being about equally broad everywhere, while in the *Halmaturi* it becomes narrower forwards, and has its greatest height at or behind the centre.

The orbital margin on the frontale converges evenly towards the back without forming a proc. postorbitalis, and is strongly rounded, as the frontale is rather inflated, and forms a thinly walled protuberance on the orbital walls.

Foramina palatina are wanting, but the palate is thin and partially supplied with small holes.

Foramina incisiva are formed by the intermaxillary alone, without their lower margin touching the maxillaria.

The condylus of the lower jaw is in all the specimens more or less concave.

The teeth. The dentition is (the young one excepted) normal; it is, however, of course never complete. In four of the specimens all the premolars, as well as one or more of the foremost molars, have been shed; in one specimen only, the immature, although very large male specimen (D), the premolar (p^2) is still present in both jaws, and its dentition is accordingly as follows:

$$i\,\tfrac{3}{1}\ p\,\tfrac{1}{1}\ m\,\tfrac{4}{4}\ (28).$$

In the oldest male (F) m^1 is wanting everywhere; in B the same tooth has been shed in the left upper, and right lower jaw, and in two specimens (C and E) m^1 is only wanting on one side of the lower jaw.

The number of the teeth is thus: — B:22; C:23; D:28; E:23; F:20.

Of the upper incisors i^2 has in the most specimens almost as broad a margin as i^1. Both have a slight groove; i^3 which is about twice as broad as i^1, has a groove somewhat in front of its centre, and one in the middle of its anterior portion.

Rudimentary sockets of the upper canines are visible, apparently lying in the intermaxillary, but a fine suture always proceeds from the hind margin of the sockets to the maxillary.

As to the premolars no trace is found of p^1, and, as above mentioned, p^2 is but present in the one specimen, the young male D. In this it is small, directed obliquely forwards, and has 2 tubercles, of which the inner one in the upper jaw is double. Its size is about equal to the central incisor.

The skull of the young one, in which the length is 105 mm, the breadth 57 mm, and length of the lower jaw 80 mm, has as yet open sutures, and the milk premolars are in use. It differs from the skull of the fully grown specimen in its deep concave interorbital space, which has everywhere an even breadth, whilst the orbital margins in the old ones converge considerably behind; the frontalia are scarcely swollen at all.

Of the upper incisors i^1 and i^2 are comparatively large, even larger than in some of the fully grown individuals; i^3 has as yet not risen above the alveolar margin.

Of the canines, nothing is to be seen except the rudimentary sockets, as in the old ones.

Of the premolars, p^1, as well as the milk premolar is fully developed, and in use. p^1 resembles somewhat a molar, is, however, smaller and has round tubercles. The milk-premolar is quite like a molar; and by removal of part of the outer alveolar wall on the one side, the germ of p^2 is seen lying over the space between p^1 and the milk premolar.

Of the molars the point of m^1 is just visible beyond the margin of the jaw, but no traces are seen of the others.

In the lower jaw the incisor has a length beyond the alveolar margin of 15 mm, and has in its unworn condition slight indications of being crenulated in its margin.

The premolar (p^1) has more the character of a premolar, than in the upper jaw, as its anterior portion is narrow and has a cutting edge, the back portion broader with two tubercles. The milk premolar is somewhat narrower than in the upper jaw; the germ of p^2 also here lies hidden under its root. The molars are developed as in the upper jaw.

30. *Halmaturus robustus* (Gould) 1840.

Macropus (*Petrogale*) *robustus* Gould, in: Proc. Zool. Soc. Lond. 1840, p. 92 (1840).

Macropus (*Halmaturus*) *robustus* Waterh., Nat. Hist. Mamm., vol. I, p. 100 (1846).

A. Female. Coomooboolaroo, Febr. 1884 (skin with skull).
B. Male. Coomooboolaroo, Febr. 1884 (skin with skull).
C. Male. Coomooboolaroo, Febr. 1884 (skin with skull).

Found only in the rocky districts, but never on the plains; in Central Queensland it is numerous in some places.

Although the largest male specimen, brought home by Dr. L., from the end of the snout to the root of the tail (measurement taken from the mounted specimen) had a length of about 1200 mm, it was apparently not fullgrown, the innermost molar having as yet not attained its full development. Both the others are young, and their innermost molar has as yet not risen above the level of the socket.

The dark colour of the male is very characteristic. In C, almost the whole body is of a slaty black, with a reddish hue on the neck and the upper part of the back; the other parts have greyish white intermingled hair. The lower surface of the body is somewhat lighter,

the tail quite black. The younger male is a little paler on the upper side, but also in this the colour of the hind legs is very dark, and the feet, the outside of the ears, and the tail are quite black.

The female (A) is of a pale slaty grey with whitish belly; the tail is light greyish brown, like the feet, and only the toes are black. The outer side of the ear is coloured like the back; at the base of the inner margin is a little reddish yellow spot.

Length of ear (measured along its inner margin): — A 112 mm, B 120 mm, C 120 mm.

Length of hind foot (from heel to tip of claw): — A 260 mm, 300 mm, C 325 mm.

Length of tail: — A 605 mm, B 730 mm, C 880 mm.

H. robustus belongs, like *H. parryi*, to the most long-eared species. The length of the ear is thus about equal to its distance from the angle of the mouth. The tail is thick, and of medium length.

Thus in the three present specimens is contained:

The ear in the length of the hind foot: — A 2,32, B 2,50, C 2,50.

The skull in the length of the hind foot: — A 1,79, B 1,82, C 1,74.

The hind foot in the length of the tail: — A 2,32, B 2,43, C 2,70.

The skull.

A. Length 145 mm, Breadth 80 mm, Length of lower jaw 110 mm
B. „ 164 „ „ 89 „ „ „ „ „ 124 „
C. „ 186 „ „ 98 „ „ „ „ „ 143 „

The frontal crests, which in both of the younger specimens run about parallel, or are but slightly converging towards the occipital crest, unite very soon in the largest male, and form a high and sharp sagittal crest. The orbital margins gradually converge backwards, without forming a trace of proc. postorbitalis; the orbital walls are smooth, without protuberance, as in *M. giganteus*. The proc. zygomaticus of the os temporale is broadest across the centre.

Foramina palatina are wanting, but some punctured openings are found on the sides of the ossa palatina.

The foramina incisiva in this, like as in the following species of *Halmaturus*, touch with their posterior margin the maxillaria, but are, however, entirely formed of the intermaxillaria. The youngest (and not fully grown) specimen had two smaller foramina in the middle of the palatal part of the maxillaria.

The condylus of the lower jaw is in all the specimens convex.

The teeth.

The dentition is normal in the fullgrown specimen (C):

$$c\ \tfrac{1}{1},\ p\ \tfrac{1}{1},\ m\ \tfrac{4}{4}\ (28).$$

In the upper jaw the incisors are very broad, especially i^3; in this tooth the central groove is situated far forwards, so that the hinder portion of the tooth is at least double as broad as the anterior. In both the younger specimens, i^2 has a decided groove in the centre, so that the cutting edge has a distinct notch.

Rudimentary sockets for the canines, as in *M. giganteus*, but these are placed far forwards, namely outside the hind portion of the foram. incisivum, or (in the oldest specimen) at its posterior margin.

In all the specimens the premolar (p^2) is present. It is of medium size; its base is about equal to that of i^3. It is much worn. In the youngest specimen (A) the socket of p^1 in the left upper jaw has not quite closed in front of the functional p^2. The molars increase greatly in size inwards.

In the lower jaw the premolar (p^2) is present in all the specimens, but is smaller than that in the upper jaw. m^1 is in the largest specimen comparatively small, and is much worn.

31. *Halmaturus parryi* (Benn.) 1834.

Macropus parryi Benn., in: Proc. Zool. Soc. Lond. 1834, p. 151 (1834).
Macropus (*Halmaturus*) *parryi* Waterh., Jard. Nat. Libr. Marsup., p. 206, Pl. 18 (1841).

A. Young. Rockhampton, March 1884 (skin with skull).
B. Female. Coomooboolaroo, 30. Jan. 1884 (skin with skull).
C. Female. Rockhampton, March 1884 (skin with skull).
D. Coomooboolaroo, March 1884 (skeleton).
E. Coomooboolaroo, March 1884 (skeleton).

In Northern Queensland *H. parryi* is known by the name of „Antelope-Kangaroo". In many places it is numerous, but only in the rocky districts, not on the plains. It is regarded as very destructive.

Only the third specimen (C), a female, is fullgrown, and has the teeth much worn, with incomplete dentition. In the mounted specimen of the young female (B) is:

Length of body (head included) . . . . about 720 mm
Length of tail . . . . . „ 694 „

Description. In the colouring all the specimens agree. Characteristic is the silvery grey colour of the body, the almost whitish tail (the outermost tip black), and the distinctly marked colouring on the ears and head.

On the outer surface of the ears, the inner half is of a dark reddish brown or brownish black colour, whilst the outer half and the

space between the ears is whitish, by which the dark patch on the base becomes very conspicuous. At the inner margin of the root of the ears is a tuft of intensely reddish yellow hairs, a colour, which is not found elsewhere in the animal[1]).

The upper part of the snout is brownish black, sharply defined on the sides, but becoming successively greyish brown on the forehead; a broad white stripe, also sharply defined, extends under the brownish black parts, from the snout to below the eyes, and under this stripe a narrower brownish black one is found. Over the black, long eyelashes (at all events in one specimen) is a white stripe or spot.

In the fore limbs, only the last joint of the fingers is blackish in C, but this colour is more extensive in the other specimens. The hind limb is quite grey, and only the tuft at the claw of the middle toe is black.

Length of ear (measured along its inner margin): — B 91 mm, C 88 mm.

Length of hind foot (from heel to tip of the claws): — B 245 mm, C 254 mm.

Length of tail: — B 694 mm, C 810 mm.

The ear is thus rather long, about as long as from the end of the snout to half way between the eye and ear; the tail is very long, about the length of the body (head included).

Thus in the two larger specimens, of which the skins were brought home, is contained:

the ear in the length of the hind foot: B 2,69, C 2,88.
the skull in the length of the hind foot: B 1,89, C 1,89.
the hind foot in the length of the tail: B 2,83, C 3,18.

The skull.

B.	Length	129	mm,	Breadth	70	mm,	Length	of	lower	jaw	93 mm
C.	„	134	„	„	72	„	„	„	„	„	100 „
D.	„	140	„	„	75	„	„	„	„	„	107 „
E.	„	140	„	„	77	„	„	„	„	„	107 „

The two largest specimens are, notwithstanding the skull is larger than in C (which is a mature female with worn teeth), however, younger, as the innermost molar is not yet fully developed, and almost without any traces of being worn; these are probably both young males; B, which is a young female, is in a similar condition.

1) This tuft of bright coloured hairs is also found at the same spot in some other *Halmaturi*.

A is a half grown young, in which but the two front molars have appeared, and p^1 is still in use.

None of the specimens have a trace of a sagittal crest. Even in the mature female the frontal crests extend backwards to the occipital crest without meeting; in the younger ones they meet just at the interparietal bone.

The orbital margins are sharp, both running at first parallel, until they form a distinct postorbital process, and there the margins begin to converge.

The foramina palatina are rather large, lying inside m^2 and m^3; and with a bony bridge behind, the height of which is as least as great as the width of the foramen itself. This bony bridge is perforated by one or more small openings on each side.

The condylus of the lower jaw is somewhat concave in its inner portion, and the fossa glenoidalis therefore a little convex.

The teeth. The dentition is normal: $i\frac{3}{1}$, $p\frac{1}{1}$, $m\frac{4}{4}$ (28), except in the fullgrown specimen (C), which in the lower jaw wants both premolars (p^2) on each side, and m^1 on the right side. This individual has thus the following dental formula: $i\frac{3}{1}$, $p\frac{1}{0}$, $m\frac{4}{4(3)}$ (25).

In the upper jaw the incisors are comparatively small. i^2 has almost no trace of groove on its outer surface; it has about the same size, as each of the about equally large lobes on i^3.

Rudimentary sockets for the canines, lying outside the hinder margin of the foramen incisivum.

The premolar (p^2) in the upper jaw is present in all the specimens, but is comparatively very small and narrow; its mass in the mature specimen is barely half as large as m^1, and it has about the same size as i^3.

The molars increase in size backwards.

In the lower jaw the molars are smaller than in the upper, which is also the case with the premolars. In the fullgrown specimen the premolars are shed in both the lower jaws.

In the full grown male, as before mentioned, several teeth are shed; thus a reduction in the number of teeth appears to take place in advancing years, as is the case in *M. giganteus*.

The young one (A), the skull of which has a length of 99 mm, is barely half grown, and is in the same condition as the young (A) of *Macropus giganteus*.

In the palate the perforations (foramina palatina) are incomplete. In the upper jaw, i^3 (as is often the case) is larger, than in most of the fullgrown individuals.

Of the premolars both p^1 and the milk premolar are in use. The first is thick and short, but with more of the appearance of a true premolar, than in the young *M. giganteus*. The milk premolars are of exactly the same size, as the first molar, although an indication of its premolar nature is visible from its first tubercle having a slightly crenulated margin. Behind the space between both these teeth the germ of p^2 is seen.

Of the molars only m^1 is developed in the upper and lower jaw.

The premolar in the lower jaw (p^1) is considerably smaller than that of the upper jaw; the embryonic p^2 lies hidden here also under the milk premolar, which is formed just as m^1.

32. *Halmaturus agilis* Gould 1841.

Halmaturus agilis Gould, in: Proc. Zool. Soc. Lond. 1841, p. 81 (1841).

A. Young of B. (skin with skull).

B. Female. Herbert Vale, Nov. 1882 (skin with skull).

The name „Wallaby", which is given to several of the *Halmaturi* in Northern Queensland, is especially applied to *H. agilis*. It is very numerous in the grassy districts by Herbert River, but is only met with in the valleys, not on the hills.

Although the specimen in the collection had a large young one in its pouch, it was barely fullgrown, as the innermost molar was not yet fully developed.

The colouring is normal. The white cross stripe across the haunches is distinct, the black of the tip of the ear and along the anterior margin of its outer surface is also sharply defined.

Some measurements taken from the mounted female (B): —

Length of body (head included) about	750 mm
Length of tail	580 „
Length of ear (measured along its inner margin) .	64 „
Length of hind foot (from heel to tip of claw) . .	237 „

The ears and tail are rather short; the tail considerably shorter, than the length of the body (head included).

Thus is contained:

the ear in the length of the hind foot	3,70.
the skull in the length of the hind foot	1,68.
the hind foot in the length of the tail	2,44.

The skull. Size of the skull of the female:

Length 141 mm, breadth 75 mm, length of lower jaw 102 mm.

The frontal crests soon meet, and form a sagittal crest. The orbital margins rapidly converge, but a distinct postorbital process is wanting. The foramina palatina are large and open; the height of the bony bridge behind them, which is irregularly perforated by small holes, is equal to the width of each foramen. The condylus of the lower jaw is but slightly convex, and the glenoidal cavity almost flat.

The teeth. The dentition normal: $i\ \frac{3}{1}$, $p\ \frac{1}{1}$, $m\ \frac{4}{4}$ (28). i^2 in the upper jaw is of medium size, and supplied with a central groove; i^3 is comparatively broad (also with a distinct central groove).

The rudimentary sockets for the canines are placed further back, than the posterior margin of the foram. incis. The premolar (p^2) is unusually strong and large, longer (but narrower) than m^1, and corresponding to the base of m^2. It is rather broad in front; its worn surface is slightly raised beyond the molars.

In the lower jaw the premolar (p^2) is also long, longer than m^1, but narrower than that in the upper jaw.

The skull of the young is only 80 mm in length and 45 mm in breadth. It has still open sutures, and none of the molars have appeared.

As in all the young, the interorbital space is relatively broad, and the incisors large. i^2 and i^3 are about the same size, and furnished with an irregular groove; i^3 is not yet visible.

No trace of the canine is to be found. The premolar (p^1) is developed and in use, and is larger than the milk premolar, the form of which is just like a molar. Above its anterior root, the germ of p^2 is indicated. In the lower jaw, p^1 is also less than in the upper jaw; the germ of p^2 has its bed under the anterior root of the milk premolar.

33. *Halmaturus dorsalis* Gray 1837.

Halmaturus dorsalis Gray, in: Charlesw. Mag. Nat. Hist., (new ser.) vol. I, p. 583 (1837).

A. Young of C. (skin with skull).

B. Male. Rockhampton, March 1884 (skin with skull).

C. Female. Rockhampton, March 1884 (skin with skull).

Excessively numerous in the scrubs about Rockhampton, and doing great damage to the colonists on the pasture lands.

Both the larger specimens are full grown; the species is easily distinguishable by the distinct black stripe on the back. The male (B) exhibited a peculiarity in its colour. On the hind portion of the back, below the termination of the back stripe, three distinct transverse bands are seen (not unlike the stripes in *Myrmecobius*). The upper band is short. and is situated close to the dorsal stripe; the others are longer. All are black, with an equally broad lighter margin underneath [1]).

Some measurements taken from the mounted male (B) give:

Length of body (head included) about ?
Length of tail . . . . . 468 mm
Length of ear (measured along its inner margin) . . . 68 „
Length of hind foot (from heel to tip of claw) . . . 187 „

The ears are of medium length, their height somewhat less than the distance from their inner margin to the angle of the mouth. The tail is comparatively long. Thus is contained in the male specimen (B):

the ear in the length of the hind foot . . . . . 2,75.
the skull in the length of the hind foot . . . . . 1,59.
the hind foot in the length of the tail . . . . . 2,50.

The skull:

B. Length 117 mm, Breadth 61 mm, Length of lower jaw 88 mm
C. „ 120 „ „ 65 „ „ „ „ „ 92 „

No sagittal crest; the frontal crests meet just at the interparietal bone, and are very low on the parietalia, or (in C) even appear as shallow grooves. The orbital margins are almost parallel in front, until a short protuberance is formed as an indication of a postorbital process.

The foramina palatina are large, and the bony bridge behind them is scarcely higher, than the diameter of the innermost molar.

The condylus of the lower jaw is slightly concave.

The teeth. The dentition is normal in both of the mature specimens:

$i \frac{3}{1}$, $p \frac{1}{1}$, $m \frac{4}{4}$ (28).

In the upper jaw the central incisor is strongly emarginated, running into an anterior sharpe and narrow lobe. i^2 is very small,

1) This instance is not without interest, as it shows, that these transverse stripes, so well known amongst several of the Marsupials, may occur occasionally and individually in genera, in which they are elsewhere unknown.

smaller than the anterior lobe of i^3, and without a trace of a central groove. i^3 is divided by a groove into two lobes of about an equal size (in C the groove is but slight).

The rudimentary socket for the canine is situated (as in *H. agilis*) further back, than the posterior margin of the foramen incisivum.

The premolar (p^2) is of medium size, rather thick and blunt. Its crown in these two specimens is almost entirely lifted up beyond the level of the first molar, and in the largest specimen it is also strongly directed ontwards. It is probable, that in both specimens it is about to be shed, as in the younger specimen it still retains a normal position.

The molars increase regularly in size inwards; m^1 is especially considerably smaller than the other molars.

In the lower jaw the premolar (p^2) is strongly directed forwards (with obliquely ascending alveolar margin), and is, as that in the upper jaw, somewhat higher than the crown of the nearest molar. Likewise in this is m^1 considerably smaller, than the other molars.

The young.

The length of the skull of the young can not be stated. The sutures are quite open; of the molars, m^1 is just making its appearance above the alveolar border; p^1 and the milk premolar are present.

In the upper jaw the margin of i^1 as yet is nearly even; i^2 is unusually large, almost twice as large, as that in the mature specimen; i^3 is not yet fully developed. There is no trace of the canine. The premolar (p^1) is in use, rather thick and long, also somewhat smaller, than the milk premolar; the germ of p^2 is found above its posterior root. None of the premolars are raised (like p^2 in the fullgrown specimens) beyond the level of the molars. In the lower jaw the premolar (p^1) and the milk premolars are rather smaller, than those in the upper jaw, and with the first germ of p^2 hidden in the jaw just under the space between the two said teeth.

34. *Onychogalea frenata* (Gould) 1840.

Macropus frenatus Gould, in: Proc. Zool. Soc. Lond. 1840, p. 92 (1840).
Onychogalea frenatus Gray, List. Spec. Mamm. Brit. Mus. p. 88 (1843).

A. Female. Coomooboolaroo, Nov. 1883 (skin and skull).

Is known in Queensland under the name of „Padmelon", and is numerous in the scrub. According to Dr. L. it has the peculiar

custom, when running, of keeping one arm hanging down as if it were broken.

The specimen, a young female, does not differ in any respect from specimens from New South Wales. In the distal quarter of the upper surface of the tail the hair is brushlike, and attain a length of from 15 to 25 mm. The colour of this brush is black; in specimens from South Australia (in the University Museum at Christiania) the hair is much shorter, and mixed with grey.

The length of the body in the mounted specimen is about 440 mm, the tail 375 mm.

The skull.

Length 84 mm, breadth 44 mm, length of lower jaw 59 mm.

The skull resembles, in the shape of the interparietal and palatine bones, the narrow snout, etc., the skull of *Petrogale,* but has larger auditory bullae and a different dentition.

The interparietal bone is large and distinct; the frontal crests are low and rounded, and reach the interparietal bone without meeting; the area between the crests is more or less concave posteriorly.

The nasalia are much narrower in front, than behind, and the snout is therefore slender and pointed.

The foramina palatina are extremely large and open, and the palatine bones in consequence very small. The openings extend forwards to the hinder margin of the 2nd premolar; their back limits cannot be determined in any of the specimens preserved in the University Museum, as there is no trace of any bony bridge behind; if such has been present, it has been as slender as a hair (as in *Petrogale penicillata*).

The bullae osseae are large as in *Lagorchestes.*

The teeth. The dentition is (as in *Hypsiprymnus*) remarkable, because although the specimen is almost fully grown (m^4 in each jaw is just rising above the alveolus), p^1 is, however, still present, and the milk premolar at the same time in use, whilst p^2 is not yet developed.

The dental formula is therefore almost complete:

$$i\,\tfrac{3}{1},\ c\,\tfrac{0}{0},\ p\,\tfrac{2}{2},\ m\,\tfrac{4}{4}\ (32).$$

In the upper jaw the two outer incisors are slender; i^3 has about the same size as i^2, and is supplied with a groove.

Rudimentary sockets for the canines. Both premolars are present (p^1 and the milk premolar), both much worn. Th first premolar is

short and broad, and has (in its worn condition) nothing in common with the typical form of a premolar. When seen from the side, it has two tubercles; the posterior one is somewhat broader than the anterior, but a lengthened cutting edge is wanting.

The milk premolar which is still in use, has completely the character of a molar, and with its worn surface closely resembles m^1.

Above the root of the tooth, the germ of p^2 can be seen lying ready to push out the milk tooth[1]).

The lower p^1 is smaller than the upper, but is still present in both jaws: the milk premolar is in use as in the upper jaw, and quite resembles m^1. The germ of p^2 lies ready to replace the milk tooth.

35. *Lagorchestes conspicillatus* Gould 1841 *var. leichardti* Gould 1853.

Lagorchestes conspicillatus Gould, in: Proc. Zool. Soc. Lond. 1841, p. 82 (1841).
Lagorchestes leichardti Gould, Mamm. Austr. pt. V (1853).

A. Minnie Downs, 27. Jan. 1882 (skin with skull).
B. Minnie Downs, Jan. 1882 (skeleton).

Numerous in the scrub about Peak Downs, and Minnie Downs, but extremely shy, and difficult to obtain.

In the coast districts it appears, according to Dr. L., to be lighter in colour or with wither tips to the hair, than in the interior. Besides the above mentioned specimens, several skins were brought home, prepared as furs. All are exactly alike in colouring, and agree with Gould's description of *L. leichardti* (Mamm. of Austr., part V), which, however, can hardly with distinct characters be separated from *L. conspicillatus*.

The region round the eye is bright rusty red; the ground colouring of the back brownish red, but the white tips to the hair are very conspicuous, and give, especially to the lower part of the back, a whitish appearance. The colour at the base of the hair is really chestnut brown; the outer third is snowy white, with a short reddish tip.

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1) Another specimen in the University Museum, also from Queensland, received from the Brisbane Museum (length 88 mm), is in a slightly more advanced state, as p^2 has just pushed out the milk tooth on the one side, and shews its tips beyond the margin of the socket, whilst on the left side the milk tooth is still in use (as also in the lower jaw).

The hair on the feet and the tail is whitish. The whitish transverse line on the haunches is but slightly prominent, the chestnut brown colour here shining strongly through.

Some measurements, taken from the mounted specimen, are as follows:

Length of body (head included)	about 480 mm
Length of tail	372 „
Length of ear (along the inner margin)	50 „
Length of the hind foot (from heel to tip of claw)	174 „

The ears are thin and semitransparent, not much smaller than those of *L. leporoides*; their height, measured along the inner margin, is about the same, as their distance from the angle of the mouth, and they are contained a little over three times in the length of the hind foot (in *L. leporoides* barely two and a half times).

The skull.

A. Length 91 mm, Breadth 53 mm, Length of the lower jaw 65 mm
B. „ 98 „ „ 57 „ „ „ „ „ 70 „

Both skulls belong to fullgrown individuals. The frontal crests in the first specimen (which probably is a male) meet a short way behind the frontalia, where there is already present a sagittal crest, with which they join; in the second and larger specimen they first meet somewhat in front of the os interparietale, and no sagittal crest is to be found there.

The frontalia are short, shorter than the nasalia, and somewhat inflated anteriorly, by which the intermediate portion is made concave.

The nasale in its posterior margin forms a slight arch or oblique line, which is lowest on the sides, highest towards the median suture.

The palate is furnished with irregular foramina. In one skull (of *L. conspicillatus*), described by Waterhouse (Nat. Hist. Mamm. I, p. 192), the length of which is 3 inches 4 lines (about 89 mm), two pair of foramina were found, the one in the palatine bone, the other in front of the palato-maxillary suture. In our two specimens from Queensland the smaller one has the two foramina on each side confluent into one, the front margin of which lies within the level of the centre of m^2; in the larger specimen, the posterior pair of foramina are irregular, as the palatine bone shews several lesser perforations, and the anterior is entirely wanting on the one side, and only traces exist on the other.

The bullae osseae are, (unlike those of the *Halmaturi*), pro-

portionally large; their length is about equal to the breadth of the palate between the innermost molars.

The teeth. The dentition in both is:

$$i\frac{3}{1},\ c\frac{1}{0},\ p\frac{1}{1},\ m\frac{4}{4}\ (30).$$

In the upper jaw the central incisors are bent strongly inwards at the end; i^3 is only a little larger than i^2, and is furnished with a groove.

The canine is small and slender. The premolar (p^2) is long, longer than the nearest molar, and shows 3—4 grooves down its exterior surface. In the lower jaw the premolar is somewhat smaller than in the upper jaw.

36. *Petrogale penicillata* (Gray) 1827.

Kangurus penicillatus Gray, in: Griff. Anim. Kingd. vol. III, pl. 49 (an almost undistinguishable figure) vol. V, p. 527 (1827).

Petrogale pencillata Gray, in: Charlesw. Mag. Nat. Hist., Nov. 1837, (new ser.) vol. I, p. 583 (1837).

A. Young (of B), Coomooboolaroo, Jan. 1882 (skin with skull).
B. Female, Coomooboolaroo, Jan. 1882 (skin with skull).
C. Coomooboolaroo, Jan. 1882 (skull).
D. Coomooboolaroo, Jan. 1882 (incomplete skeleton).
E. Male, Coomooboolaroo, Jan. 1882 (skin with skull).
F. Coomooboolaroo, Jan. 1882 (incomplete skeleton).

This species is extremely numerous at Coomooboolaroo and other places in Central Queensland, whilst other Rock-Kangaroo's were not collected by Dr. L.

B and C are young individuals, scarcely fullgrown, although about equal in size to the others, as the innermost molar (m^4) in both jaws has not yet appeared; one of them nevertheless carried a large young one in its pouch (A).

In the other specimens the back molar has just risen above the alveolar border, but only in the last is it fully developed, and has traces of being worn.

The upper part of the back and neck are of a silvery grey colour; the hinder part of the back and the loins are more reddish brown. A narrow black stripe extends backwards from the forehead, and vanishes in the neck[1]). The upper part of the head is greyish brown,

1) Gould, Mamm. Austr. pt. V (1853) describes this line as „running from the middle of the forehead nearly half way down the back", a character, which in reality scarcely belongs to this species.

more grey in the males, more red in the females; a dark stripe extends on each side of the snout to the eye. The white stripes along the sides behind the fore limbs are very distinct in each individual, as well as in the young specimen. (The drawing by WATERHOUSE, Mamm. vol. I, pl. I in no way resembles our specimens.) The lower surface, along the middle, from the chin is whitish, at the sides reddish grey.

The tail is black, with the exception of the inner quarter, which is of the same colour as the back. The ears have a black patch near their tips. The back of the fingers and toes are black.

In the young specimen, which otherwise resembles the old ones, the hair of the tail is still rather short.

The male (E) has shorter ears, and a more bushy tail than the female (B).

Some measurements of the mounted specimens give:

	B	E
Length of body (with head) . . . . about	470 mm	— 490 mm
Length of tail (without hair pencil)	420 „	— 440 „
Length of ears (measured along the inner margin)	53 „	— 47 „
Length of hind foot (from heel to tip of claw)	136 „	— 140 „

The skull.

B. Length 98 mm, Breadth 52 mm, Length of lower jaw 67 mm.
C. „ 99 „ „ 53 „ „ „ „ „ 68 „
D. „ 100 „ „ 56 „ „ „ „ „ ? „
E. „ 101 „ „ 55 „ „ „ „ „ 71 „
F. „ 101 „ „ 56 „ „ „ „ „ 72 „

A sagittal crest is wanting. The orbital margins run at first parallel, and form a short postorbital process (which, however, in some individuals is almost imperceptible).

The interparietale is comparatively narrow, but long, and extends far forwards. It has a raised central portion, the rounded end of which in front apparently curves in under, and is partially covered by the sutures between the two parietalia.

The nasalia strongly arched and narrow anteriorly, but increasing considerably in width behind. In B their combined breadth in front is 5,5 mm, behind 12,5 mm, their length is 40 mm. The forehead between the orbits is considerably concave.

The foramina palatina are very wide, and in the largest specimen (F) extend forwards to the centre of m^2, in the younger specimens still further forwards, (in the female B to about the front margin of

m^1). Their limits posteriorly are determined by a very slender bridge of bone, almost in the form of a St. Andrew's cross; likewise the suture between the palatine bones lies in a string of bone, almost as fine as a hair.

In the young (A) the palatine bones are not entirely perforated, but the foramina form a network.

The teeth. The dentition in all is normal:

$$i\,\tfrac{3}{1},\ c\,\tfrac{0}{0},\ p\,\tfrac{1}{1},\ m\,\tfrac{4}{4}\ (28).$$

In the upper jaw the edges of i^1 and i^3 have about the same width, but i^3 has a distinct groove. There are no traces of the canines, although a rudimentary socket is visible.

The premolar (p^2) is long, and has a sharp cutting edge; in the oldest individual (F) its length is about equal to that of the base of m^1; in the other younger specimens it is still larger.

In the young (A), in which the length of the skull is about 58 mm, the upper i^3 has not as yet risen above the level of the socket, and i^3 is larger in comparison to i^1, than in the mature specimens. The premolar (p^1) is large, but with a sharp edge; the milk premolar resembles a molar. Above the space between their roots is hidden the germ of p^2.

Of the molars m^1 is half grown.

In the lower jaw the premolar (p^1) is smaller and narrower than that in the upper, and considerably resembles a normal p^2 in the mature specimens. The germ of p^2 lies hidden under the converging roots of p^1 and the milk premolar.

37. *Dendrolagus lumholtzi* Coll. 1884 (Typus).

Dendrolagus lumholtzi Coll., in: Proc. Zool. Soc. Lond. 1884, p. 381, Pl. XXXII (1884).

Diagn.: Colour reddish yellowish grey: the back with interspersed black hairs. Snout and toes quite black, likewise neck and under side of the tail.

On the skull, the frontalia are broad and inflated in front, and the intermaxillaria have their greatest breadth above the middle. The length of the body (the head included) is about 650 to 700 mm (and above); the tail somewhat longer.

The dentition:

$$i\,\tfrac{3}{1},\ c\,\tfrac{1}{0},\ p\,\tfrac{1}{1},\ m\,\tfrac{4}{4}\ (30).$$

A. Half grown young. Herbert Vale, Febr. 1883 (skin with skull).
B. Young male. Herbert Vale, Febr. 1883 (skin with skull).
C. Young Female. Herbert Vale, Febr. 1883 (skin with skull).
D. Herbert Vale, Febr. 1883 (skin with skull).
E. Herbert Vale, 24. Jan. 1883 (complete skeleton, and incomplete skin).
F. Male. Herbert Vale, Febr. 1883 (skin with skull).

Of these specimens the largest and smallest (A and F) are preserved in the Christiania University Museum (both mounted), as well as the skeleton and the incomplete skin of E. The three other specimens have been given to the British Museum, Museo Civico at Genoa, and the Zool. Museum at Copenhagen.

Of the genus *Dendrolagus*, in 1884, only three species from New Guinea were known. Two of these, *D. ursinus* and *D. inustus*, were described by MÜLLER in 1839—44 (over de Zoogdieren van den Indischen Archipel, Leid. 1839—44); the 3rd, *D. dorianus*, was described by RAMSAY in Jan. 1883 from Mount Astrolabe Range, Port Moresby (in: Proc. Lin. Soc. New South Wales, vol. VIII, p. 17). Through the discovery of *D. lumholtzi*, this genus is proved to exist on the Australian continent, from whence a second species, *D. bennettianus*, has quite lately been described by DE VIS (in: Proc. Lin. Soc. New South Wales, Oct. 27. 1886) from a badly prepared specimen, obtained in the Daintree River District N. Queensland. According to „Nature" (30. Dec. 1886, no. 896, p. 215) DE VIS considers it as distinct from *D. lumholtzi*.

Natural history.

In Sept. 1882, Dr. L. on his arrival at Herbert Vale, was informed by the natives, that a tree-climbing kangaroo which they called „Boongari", existed in the scrub in the interior of N. Queensland. In order to obtain this animal, Dr. L. made an expedition into the rocky districts on the Herbert River, but only after several months' work did he succeed in obtaining the first, and subsequently five other individuals, of this species. Two of these were fullgrown, or almost so, the others younger; the smallest is scarcely half grown.

The largest but one (E) was the first he obtained. This specimen was partly destroyed by a dingo, which ate the head of the prepared skin; fortunately the skeleton had been preserved. The other skins on their arrival at Christiania were in an excellent condition, all with skulls, and parts of their skeletons.

Concerning the life history and habits of *Dendrolagus lumholtzi*, the diagnosis of which I published in: Proc. Zool. Soc. Lond. 1884, p. 387, Dr. L. in the same journal (p. 407) has given interesting accounts, which explain the circumstances under which he obtained these animals, and their haunts. In referring to this report, I shall first mention that it has its abode in the impenetrable portions of the most elevated scrub, where this is filled up with rocks; only exceptionally does it show itself on the plains.

In the Herbert River district it appears to be not uncommon, and extends probably far northwards in the hills N. and N. W. of Cardwell, to at least as far as Cooktown, but does not seem to be met with in the sea view range, S. of the said river.

It takes up its residence almost entirely in one special tree, and can jump from considerable heights; it also moves quickly on the ground. These animals are often met with at a great distance from water, and the natives believe that they can live without it altogether. They are difficult of discovery in the impenetrable scrub, and are only hunted by the natives with the assistance of trained dingoes. At several points nearer the plains Dr. L. discovered the traces, left by this species on the trunks of the trees, but the animals had been driven away or extirpated by the natives, who greatly value their flesh.

Like many other Marsupials, they are much troubled by a worm which lives inside the skin, between it and the flesh.

Some measurements of the mounted (type) specimen (F) are here given:

Length of body (head included) about	660 mm
Length of tail	690 „
Length of ear (measured along its inner margin) .	34 „
Length of hind foot (from heel to end of central claw)	160 „

The fur is very soft and long; in the vertex of the back the hair joins in form of a crest, and stands erect. Above this vertex the fur is directed forwards; on the occiput and cheeks it meets with the hairy covering of the face, which has the usual direction (is directed backwards), by which is formed an indication of a transverse crest. In the individual F, a distinct vertex is formed on the cheeks, as on the back. Also on the under side of the throat the hair is directed upwards; in the younger specimen, where the hair covering is looser and softer, this is less prominent.

The rhinarium is clothed with very short and dispersed hairs, except in a narrow margin between the nostrils, which is bare.

The tail is rather cylindrical, about the same as in *Petrogale*, and comparatively but little thickened at the root. The fur is close over all, and rather harsh, on the whole somewhat short, and only when nearest the tip the hair becomes longer, so that the tail (in the younger specimens) appears to be broader at the tip, than in the middle.

The ears are rather short, clothed with close, not elongated hairs.

Coloration.

The typical specimen (F): the upper surface reddish grey, in parts with a yellowish tinge; the back is intermingled with black hairs, the roots of which and tips are light, by which these portions obtain a greyish dusty appearance.

The portion around the vertex of the back is darkest, almost blackish; from this a broad black patch covering the whole of the neck and the back of the ears extends forwards. The rump is lighter but the dark hairs also here produce an indistinct black patch at the root of the tail.

The lower surface is lighter yellowish grey, with a stronger reddish hue on the sides. The limbs are of the colour of the back, but the hands and hind toes are black above, as well as the claws; the metatarsus is more or less mixed with black hairs.

The head: the snout, the front of the cheeks, and the forehead to behind the eyes, are black, as well as the whole of the chin and lower jaw. The occiput is reddish grey (like the ground colour of the body); the lightest colour is on the back part of the cheeks, in which no black hairs are to be found.

The tail is reddish grey, intermingled with numerous black hairs; underneath it is almost black. The anterior side of the ears is black, the posterior reddish grey.

The other specimens. In their chief features all six individuals agree in their colouring; but a few minor differences occur.

A is typically coloured. The forehead is mixed with black. The black patch above the root of the tail (indicated in the others) is in this almost invisible.

B has the back rather dark; the tail is more uniform in colour than in the preceding specimen, but still darkest underneath. The

light portion of the forehead is greatly mingled with black, but still lighter than the snout. A strong reddish grey colour behind the hands and toes.

C. The fur of the back is evenly made up of reddish grey and black hairs, without the black in any place forming distinct patches. The light portion of the forehead is in this almost black, like the snout, so that the whole upper surface of the head is black. The throat is white, hands and toes as in B; the under surface of the tail is almost black, but the end is whitish.

D. Very reddish above the black hands; the throat is white, the abdomen light. The back is everywhere evenly covered with reddish grey and black hairs; the neck is black, the under portion of the tail jet black.

E. (Incomplete; the head wanting). Typical colour. The under surface of the tail lighter than in the other specimens, but darker than the upper side; the sides of the body strongly reddish yellow.

The skull.

Some measurements of the skulls of the 2 mature individuals are here added:

	E		F	
Length	111	mm	115	mm
Breadth	66	„	66,5	„
Length of nasale	42,5	„	45	„
Breadth of nasale posteriorly	12	„	13	„
Interorbital space (the narrowest part of the forehead)	23	„	23,5	„
Length of frontale	45,5	„	46	„
Breadth of intermaxillaria above	18	„	18,5	„
Least breadth of intermaxillaria	9	„	9,5	„
Height of snout (over the centre of nasale)	25	„	25	„
Height from the margin of the jaw over the centre of frontale	37,5	„	37,5	„
Height of occiput, from the summit of condyl. occipitalis to upper margin of interparietale	24	„	25	„
Distance from posterior margin of cond. occip. to the centre of posterior margin of the palatine bones	47	„	49	„

	E	F
Length of dental series in upper jaw .	33,5 mm	33,5 mm
Breadth between the innermost molars in upper jaw	20 „	21,5 „
From the centre of posterior margin of the palatine bones to the end of intermaxillare	60 „	63 „
Length of lower jaw	76 „	80 „
Length of dental series in lower jaw .	34 „	34,5 „

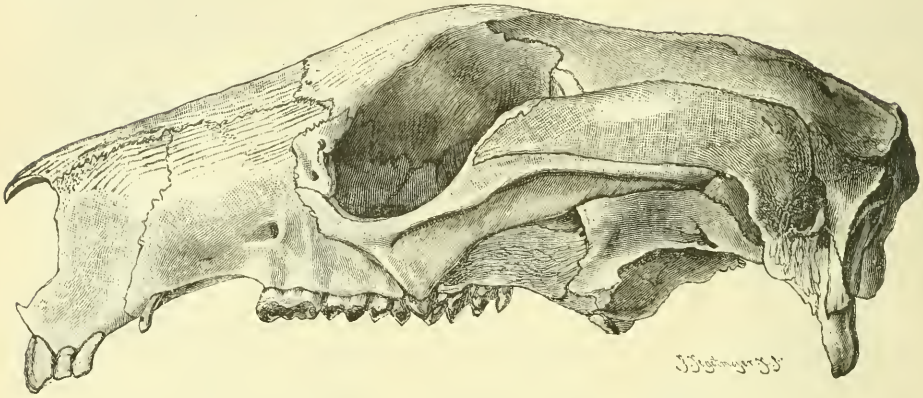

Fig. 1.

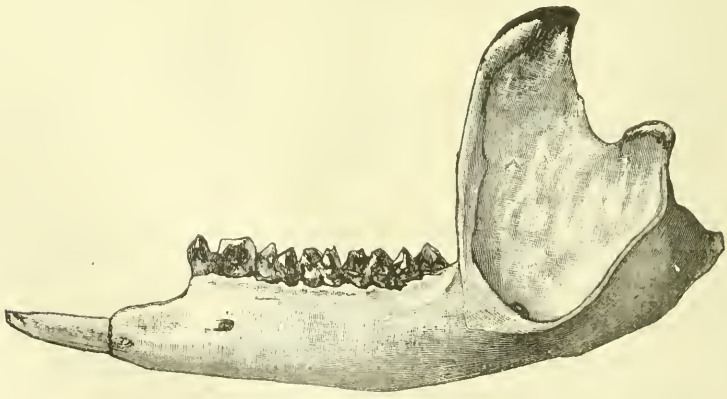

Fig. 2.

The skull of this species is especially characterized by the high and inflated frontalia, which are very broad anteriorly, and by the

intermaxillaries, which are broad above, narrow below; besides the skull is, on the whole, proportionately broader, and the nasal cavity broad and spacious, whilst the teeth, especially the inner incisors, are rather more slender, than in the other species.

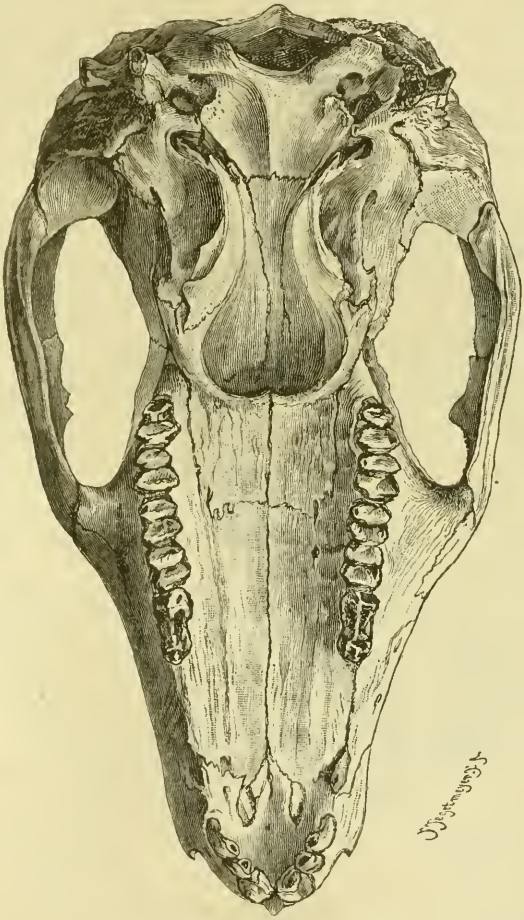

Fig. 3.

Nasalia, narrowest in the middle; behind they are considerably (double) broader than in front; they are long, and extend to over the apex of the intermaxillary.

In the sutures towards the frontale, each nasale forms a slight, but even arch.

The frontalia are in front very broad and inflated, but contract somewhat behind along the orbitae. The narrowest portion of the forehead is, however, comparatively broad, or about equal to the base of the four molars. On account of their inflation, they fall obliquely towards the nasalia. The sutura frontalis has almost no depression, and the forehead above the inflated central portion is almost flat; postorbital processes are wanting, but in their place two (slightly perceptible) ridges, directed obliquely downwards, are present.

The frontal crests are low, and converge somewhat in their course on the parietalia, without however meeting; they turn aside outside the interparietale, and join, without touching this bone, the occipital crests. The part thus enclosed by the frontal crests forms an elevated area, which is raised above the other parts of the parietalia. Somewhat to the front of the end of the interparietale, each parietale is perforated by a foramen (which I cannot discover in the other Macropodidae which have come under my notice); in the skull of a young individual (length 106 mm) it is indistinct on one side.

Interparietale, large, forming in front a blunt angle or arch, the height of which is about equal to the base of the premolar. The breadth is considerably greater than the height.

Os zygomaticum, strongly bent, so that the lower orbital margin is very deep and round.

The exterior funnelshaped ear opening is very short and incomplete, as its upper wall is completely or partially wanting. The bony mass in the other parts of the pipe is unusually porous.

The palate is entire, and has no foramina palatina.

The bullae osseae are almost imperceptible.

Maxillare, short, but broad and with arched side walls.

Intermaxillare, as the upper jaw, short and arched; the nasal cavity is consequently very spacious, and the snout broad and short. Its narrowest portion is below the centre, and is there but slightly broader than the base of the upper premolar; it becomes broader towards the nasale, being there, at the point of its greatest breadth, about equal to the base of the three inner molars. The suture with the upper jaw is perpendicular to the nasal suture, without forming any greater or less acute angle, as in the preceding Macropodidae, and meets the nasal suture just in the middle.

Foramina incisiva, short and broad, and their posterior margins touching the upper jaw.

The lower jaw which (more than the other parts of the skull) recalls that of the phalangers, is comparatively short (as is the upper jaw).

Its tooth bearing portion is three times as large, as the distance between the incisor and the premolar.

Condylus of lower jaw, rather convex, and the glenoidal cavity on the os temporale tolerably even.

In the young (A), the skull of which has a length of 83 mm, breadth 49 mm, and length of lower jaw 55 mm, the milk teeth are

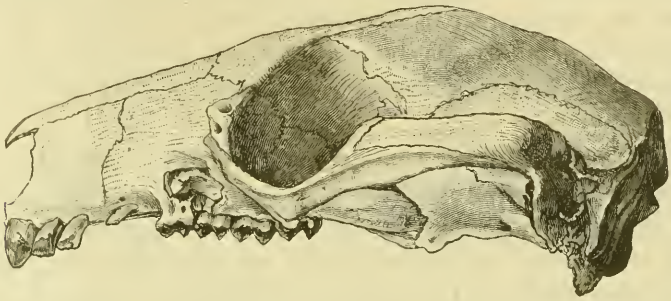

Fig. 4.

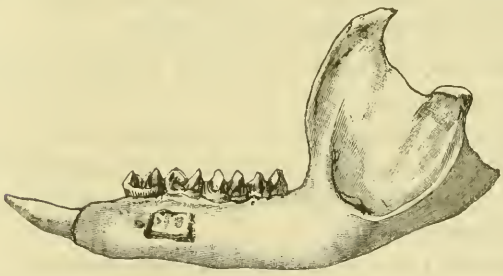

Fig. 5.

still retained. In this the frontal crests are almost indiscernible, in all parts widely separated, and no trace of an elevated central portion of the parietalia between them is present. Interparietale, very large; its height is considerably greater than that of the zygomatic arch. The frontalia are, seen from above, almost equally broad, and as yet show but a slight trace (although visible) of being inflated. The interorbital space is proportionally broader than in the older individuals.

The teeth. The dentition was in neither of the 2 mature specimens quite normal. The type specimen (F) exhibited the individual irregularity, that in the left lower jaw p^1 and the milk premolar were still present, without having been replaced by p^2, as in the other jaws; and no trace can be seen that a p^2 will ever be formed under the functional premolars.

In the other mature specimen (E) the left upper i^3 was undeveloped.

Of the incisors in the upper jaw, the central pair are twice as long, as each of the others, and considerably broader. The two outer incisors are about equal in size, and on the whole small. In younger specimens i^3 appears to have a trace of a central groove, which disappears in the older ones. The grinding surface of i^2 is almost quite triangular.

The canine is long, but slender, cylindrical and rather curved.

The premolar (p^2) is very long and large, with the usual cutting edge; its anterior portion, divided from the posterior by a shallow incision, is almost as broad as this, but somewhat less, and has a cusp in the centre. The base of the premolar is almost double as large, as the base of m^1.

Each of the molars has two transverse ridges; the inner ridge on m^4 is only half as large, as the anterior.

The whole row of teeth is almost straight, and only diverges slightly in the middle.

In the lower jaw the incisors are normal, and, in the mature individuals, extend beyond the margin of the socket about 13,5 mm. The distance between the incisor and the premolar is less than the length of the incisor.

The premolar (p^2) is as long as, but narrower than the upper one, and its anterior pointed cusp rather sharp and prominent, and the incision deeper.

The molars are constructed as in the upper jaw.

The teeth of the young. The canine had not yet quite risen above the alveolar margin; p^1 and the milk premolar are still in use; p^2, barely half developed, lies hidden in the jaw above their roots. Only the 2 first molars were developed; m^3 hidden in the jaw. The outer incisors are very broad. p^1 is short and thick, its base about the same, as the base of m^1. It has a longitudinal cutting edge, which, however, is short, and forms two pointed tubercles. The milk

premolar somewhat resembles m^1, but is a little smaller; its anterior division is rather narrower and has a trace of a (very short) longitudinal edge in front of the foremost tubercle.

The lower p^1 is narrower, and with sharper edges than the upper one. The milk premolar is likewise smaller and narrower, and has, more plainly, than in the upper jaw, the front tubercle extended to a short edge.

The skeleton of the mature specimen (E), which is mounted in the Museum of the Christiania University (together with the incomplete skeletons of the other specimens), exhibits the following number of vertebrae:

C. 7, D. 13, L. 6, S. 2, C. 30.

On the epistropheus, the processus spinosus in front is short and rounded, but contracted behind.

The processus spinosi on the lumbar vertebrae are proportionally low and rounded.

The os sacrum is comparatively long, and the two vertebrae, seen from above, are each of about a normal length; their processus spinosi are very low, and not ankylosed at their base.

The first pair of costae are remarkably strong and curved throughout their entire length, forming almost an angle, likewise short in comparison to their strong curvature.

Clavicula, strong and curved, also, when viewed from the side, bent in the form of an S.

Spina scapulae, elevated; the acromion curves itself strongly down towards the clavicula.

Pelvis, comparatively short, especially ossa ischii, the length of which from the centre of the acetabulum to the angle at their back is equal to the length of the 2 last lumbar vertebrae.

Femur, tibia and hind foot (to the end of the claw) are exactly equal in length (see measurements).

The metatarsal bones are flattened, as well as the phalanges; the 2nd and 3rd toes are comparatively long, and extend (claw not included) forwards to the 2nd phalanx of the 4th toe. The 5th toe is comparatively strong and long, and extends with the tip of its claw to the middle of the claw on the 4th toe.

Some measurements of the mounted skeleton are here given:

Length of skull	111 mm
Length of body, skull included . . . . . about	550 „
Length of tail (measured from the first tail vertebra)	780 „

Clavicula	40	mm
Scapula to end of processus coracoideus	76	„
Os ilii from centre of acetabulum	83	„
Os marsupiale	54	„
Humerus	105	„
Radius	113	„
Ulna	124	„
The hand to end of longest claw	85	„
Femur	142	„
Tibia	142	„
The foot to end of longest claw	143	„
Metatarsus digiti IV	45	„

Comparison with the other Dendrolagi.

As the Christiania University Museum does not possess skulls or portions of skeletons of the two described species from New Guinea, no thorough comparison can be made between them and *D. lumholtzi*. In the autumn of 1886, through the kindness of Mr. Oldfield Thomas, I had, however, an opportunity of seeing a skull of *D. ursinus*, preserved in the British Museum; but the following remarks concerning *D. inustus* only refer to Müller's figure in his original description of the species (in 1839—44), pl. 23 and 24 [1]).

I shall therefore point out, in what respects the structure of the skull differs in the 3 species. As yet no descriptions of the two other *Dendrolagi* are accessible to me.

D. ursinus. The nasalia are less contracted in the middle, their breadth behind is not twice as great as in front. The suture with the frontalia forms a somewhat transverse line, each nasale with a slight angle (open forwards). The apex of the nasalia does not extend to the front margin of the intermaxillary.

The frontalia are not inflated in the middle, and the forehead is almost equally broad anteriorly. Traces exist of a postorbital process.

The palatina are thin, and partially or unevenly perforated.

The intermaxillary is comparatively narrow, and almost equally broad everywhere, as it is not perceptibly broader above, than below or in the middle. This jaw has therefore the appearance of being more

1) The skulls of the two species, drawn by Müller, have each a length of about 170 mm, but have the innermost molar not yet developed, besides which p^1 and the milk premolar are still functionary.

protracted below, and the limits of the narial aperture are oblique. The suture with the upper jaw forms an even arch (convex in front), and joins the nasal suture considerably before the centre. As the intermaxillary is comparatively narrow, the maxillary is therefore longer than in *D. lumholtzi;* the snout and the narial aperture in *D. ursinus* are, however, on the whole narrower, than in the other species.

The occiput is higher in comparison to its breadth, than in *D. lumholtzi*, as the parietalia are more arched. Its hight, measured from the lower margin of the foramen magnum to the highest point of the os occipitale, is in one specimen of *D. ursinus* 29½ mm, in a but slightly larger skull of *D. lumholtzi* 25 mm.

The teeth are, on the whole, stronger, than in *D. lumholtzi;* of the incisors, i^2 and i^3 are almost as broad and long as i^1, and distinctly grooved.

D. inustus. The nasalia are barely contracted in the middle, but almost equally broad anteriorly; the suture with the frontalia forms a long angle (open in front).

The frontalia are not inflated in the middle, and rise but inconsiderably above the almost imperceptible postorbital process.

The forehead is broad, somewhat broader anteriorly than in *D. ursinus*, but not so much, as in *D. lumholtzi.*

The palate is not entirely devoid of foramina.

The intermaxillary is very narrow, above considerably narrower than below. The suture with the maxillary is almost vertical, and joins the nasal suture at about its foremost end[1]). The upper jaw is therefore considerably longer above, than in *D. lumholtzi.*

The teeth appear to be stronger, than in *D. lumholtzi*, and of the incisors, i^2 and i^3 are very broad, almost equal to i^1.

Concerning the other parts of the skeleton, if Müller's drawings are correct, the sole of the foot appears to be slightly longer in the two species from New Guinea, than in *D. lumholtzi.* The difference is, however, almost imperceptible.

38. *Bettongia penicillata* Gray 1837.

Bettongia penicillata Gray, in: Charlesw. Mag. Nat. Hist. (new ser.), vol. I, p. 584 (1837).

A. Coomooboolaroo, 16. Jan. 1884 (skin with skull).

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1) Müller's 2 drawings of the skull (pl. 23, fig. 4 and 5) do not quite agree in this respect. In the profile figure the intermaxillary is considerably narrower above, than in the other figure of the skull, seen from above.

The „Rat Kangaroo“ does not appear to be frequent in Central or Northern Queensland, and only one individual of this species was in the collection.

Colouring normal. The upper surface of tail is furnished with black hairs almost from the root, and about the whole of the outer half is entirely black; beneath it is greyish brown to the tip.

The skull. The length of the skull is 71 mm, breadth 40 mm. Waterhouse (Nat. Hist. Mamm., vol. I, pl. 6) has published several figures of the skull of this species. I shall point out one or two points in which the present Queensland skull does not agree with these drawings.

The frontalia are in front slightly, but clearly inflated (a mere indication of, what takes place in *Dendrolagus lumholtzi*), and the central portion between them is somewhat concave.

The nasalia become greatly narrowed anteriorly, where their breadth is only a little more than half that of their hinder margin.

The teeth.

Dentition: $i \frac{3}{1}$, $c \frac{1}{0}$, $p \frac{1}{1}$, $m \frac{4}{4}$ (30); the milk tooth has been shed, and p^2 is in use.

The teeth are decidedly coarser, and the dental series longer than in Waterhouse's figures. p^2, which has 9—10 fine stripes, is long, but clearly shorter than the combined bases of m^1 and m^2. m^2 is a little larger than m^1 (not the reverse, as appears from Waterhouse's description l. c. p. 218), and is considerably larger than m^3. The entire length of the row of teeth (to the front of the premolar) is 24 mm, or exactly as long, as the space between the tubercles on the two lacrymalia.

The upper incisors are besides but slightly compressed; the worn surface of i^2 is even almost round.

The palatina are perforated to the posterior margin of m^1; the bullae osseae are very large, their greatest diameter being more than the combined bases of the 3 front molars.

Fam. **Hypsiprymnodontidae.**

39. *Hypsiprymnodon moschatus* Rams. 1876.

Hypsiprymnodon moschatus Rams., in: Proc. Lin. Soc. New S. Wales, vol. I, p. 33 (1876).

Pleopus nudicaudatus Owen, in: Ann. Mag. Nat. Hist., 4. ser., vol. XX, p. 542 (1877).

A. Herbert Vale, Dec. 1882 (incomplete skeleton with skull).

B. Herbert Vale, 19. Nov. 1882 (skin with skull).

Two specimens of this species, as yet but rarely found in museums, were obtained. It appeared to be not unfrequent at the Herbert River, or in the same district, in which Prof. RAMSAY obtained his type specimens. Their haunts are in the scrub, especially in the lower parts of the hilly districts, and usually in the neighbourhood of water.

One of the individuals was enticed out of a hollow tree, in which it had taken refuge, but it also lives on the ground. Its nest, which was not uncommonly found, was round and formed of leaves; when such a nest was discovered, the natives used to run quickly to it and trample upon it, in order to capture the animals. It was called „Jopolo" by the natives.

Of the two specimens, the one was prepared as a skeleton, which, however, on its arrival at Christiania proved to be very incomplete; the other was skinned, and both are now mounted in the University Museum.

Some measurements taken from the mounted specimen are here given:

Length of body, head included	about 255 mm
Length of tail	145 „
Length of fore foot from elbow to end of claw . .	86 „
Length of hind foot from heel to end of claw . .	59 „
Height of ear (measured along its inner margin) .	24 „

It will be seen that the length of the tail is but little more than half that of the body, and is thus comparatively very short. It is apparently naked, but on closer examination, at the root of each scale a short hair is perceptible, standing straight out, shorter in length than the scale itself, and quite resembling those found on *Uromys macropus* (p 840). The scales do not arrange themselves in regular rings.

To the detailed description of this species, given by RAMSAY in: Proc. Lin. Soc. N. S. Wales 1876 (vol. I), also by OWEN in: Trans. Lin. Soc. Lond. 1878 (2. ser., vol. I, p. 573), but a few remarks may be added, concerning certain portions of its skeleton which do not appear to have been present in the earlier described specimens.

The present skeleton is, however, as above mentioned, far from complete. Thus, of the more important parts, the sternum, the clavicles, as well as the marsupial bones are wanting.

The skull.

A. Length 64 mm, breadth 34 mm, length of lower jaw 40 mm.
B. „ 65 „ „ 34 „ „ „ „ „ 40 „

The skeleton.

Some measurements taken from the skeleton (A) are here added:

Length of skull (to end of nasalia)	64 mm
Width across the zygomatic arches	34 „
Length of dental series in upper jaw	15 „
Length of lower jaw to base of incisors	40 „
Length of dental series in lower jaw	14 „
Length of scapula	35 „
Breadth of scapula	15 „
Length of humerus	39 „
Length of ulna	52 „
Length of radius	46 „
Greatest height of pelvis	52 „
Greatest breadth of pelvis (across the ends of ossa ilii)	36 „
Breadth across both tuberos. ischii	31 „
Height of symphysis of pelvis	21 „
Length of femur	62 „
Length of tibia	69 „
Length of fibula	67 „
Length of hind foot (to end of claw of the 4th toe)	61 „
Length of hallux (without claw)	12 „

The scapula[1]) in its shape agrees better with the scapula of the *Petauri*, than of the *Hypsiprymni*, as the spina (as in *Petaurista volans*) divides the scapula into two, almost equally large portions, whilst in *Aepyprymnus rufescens* the infra-spinal portion is about 3 to 4 times larger than the supra-spinal.

Also the outline of scapula is almost the same, as in *Petaurista*. Its back margin continues past the terminal point of the spina as a very rounded line, whilst in *Aepyprymnus*, at this point, the line forms an angle. The lower margin is nearly straight, and only exhibits an almost imperceptible curvature in the middle. The collum is comparatively broad, at the narrowest part 7 mm, or equal to almost half the greatest breadth of the scapula.

The processus coracoideus is, on the contrary, as in *Aepyprymnus*, short, but distinct, and rises barely 2 mm above the fossa glenoidalis. It

1) Only the left is present, and of this the front portions of the spina and the acromion are broken off.

is directed almost straight out, and is not bent downwards, as in *Petaurista.*

The under surface of the scapula is, as in most of the Marsupials, furnished with a faint groove just under the spina, and is besides, on both sides of this groove, slightly convex.

The pelvis is on the whole constructed in accordance with the pelvis in the *Hypsiprymni*, but in several points it is characteristic.

Thus the ossa ilii are proportionally longer; likewise the length of the pelvis, measured from the upper end to the upper margin of the acetabulum, is considerably longer than the distance from the last named point to the hinder margin of the os ischii (in *Aepyprymnus* the reverse is the case).

The ossa ilii are above, as in most of the Marsupials, bent somewhat outwards. The spina, which runs up its outer surface from the acetabulum, is quite sharp beneath and prominent, but above the middle it becomes almost entirely obliterated, although it can be traced right up to the upper end of the ilium. A well defined process is visible on the back of the pelvis at the point, where it is ankylosed with the proc. transversi of the 2nd sacral vertebra. On the anterior side a similar sharp process is present, where os ilii and os pubis meet.

The ossa ischii have, as in *Aepyprymnus*, their hinder angle comparatively bent outwards; while the very marked process, which in the said species arises from the lower end of the symphysis pubis, is but slightly developed in *Hypsiprymnodon,* although it is visible. Furthermore it can be noticed, that the lower margin of the os ischii forms a rather straight line, with a somewhat rounded corner at the hinder tuberosity, whilst in *Aepyprymnus* it forms a clear angle.

The foramen obturatorium is of normal construction.

The vertebrae lumbales, of which 6 are present, do not appear in any essential feature to differ from, what is found in a skeleton of *Aepyprymnus.* On the last vertebra, the proc. transversi extend evenly pointed, without ending in a transverse margin.

All the proc. spinosi are slender, but evenly thick, and not transparent. The os sacrum is formed of 3 vertebrae, as the 1st tail vertebra has ankylosed with the 2 sacral vertebrae. Both the true sacral vertebrae touch the ilium; the 1st is large and broad, and, seen from the front, rather like the corresponding one in *Aepyprymnus*; but unlike this, it is furnished with a strong proc. spinosus, which is nearly as long, as that of the last lumbar vertebra, and directed slightly downwards.

The 2nd sacral vertebra is posteriorly ankylosed to the 1st sacral vertebra and the pelvis only with the upper end of the proc. transversus; the two foramina between both vertebrae are thus comparatively wide. The 2nd sacral vertebra is well developed; it only bears a mere trace of proc. spinosi. The 3rd vertebra of the os sacrum is formed by the 1st tail vertebra, which has firmly ankylosed to the two sacral vertebrae. This also bears an almost imperceptible trace of a proc. spinosus, and in this respect differs from the other tail vertebrae; but the strong proc. transversi are, as on the nearest vertebrae of the tail, bent quite outwards, or slightly backwards, and on their obliquely cut off margin (as in these) the lower end is the longest, not, as in the 2 sacral vertebrae, the upper.

On the 1st free tail vertebra the proc. transversus is directed straight outwards, on the two following backwards; in the 4th the process is short and broad, and its end is directed forwards. The others are without transverse processes.

The haemal arches are already present on the 2nd free tail vertebra.

The exact number of vertebrae in the tail cannot be given. There are present 12 (that ankylosed with the pelvis included), and there may be wanting possibly 3 or 4, total number 15—16.

The teeth:

The dentition is complete: $i\ \frac{3}{1}$, $c\ \frac{1}{0}$, $p\ \frac{1}{1}$, $m\ \frac{4}{4}$ (30).

Both individuals are fullgrown, and p^2 is the premolar in use. In structure, the teeth do not differ from the detailed description of this species, given by Ramsay and Owen.

Fam. **Phalangistidae.**

40. *Phalangista vulpecula* (Kerr) 1792.

Didelphis vulpecula Kerr, Anim. Kingd. vol. I, p. 198 (1792).

Didelphis vulpina Shaw, Gen. Zool. vol. I, p. 53 (1800).

Phalangista vulpecula Thomas, in: Ann. Mag. Nat. Hist. (5. ser.) vol. IV, p. 397 (1879).

A. Young.

B. Herbert Vale, June 1883 (incomplete skeleton with skull).

C. Rockhampton, Aug. 1883 (skeleton).

D. Rockhampton, Aug. 1883 (skeleton).

E. Rockhampton, Aug. 1883 (skin with skull).

Occurs throughout the whole of Queensland, and is the most numerous of the Phalangers.

The skull:

Length	B. 76 mm,	C. 78 mm,	D. 78 mm,	E. 84 mm
Breadth	„ 46 „	„ 47 „	„ 48 „	„ 51 „

Of these skulls, three belong to rather young, one to a quite old individual, and exhibit a great difference in the course of the sagittal crest, without its always being dependent on the age of the individual.

In the oldest individual (E) and one of the younger ones (C) the forehead is deeply concave, and the orbital crests join the high sagittal crest just behind the orbitae; in the other specimens the space between the frontal crests is shallower, and these first unite into a sagittal crest a short way in front of the crista lambdoidea, or just between the ear-openings.

Bullae osseae, but slightly indicated in two of the specimens. In the rest they are quite distinct, although not very high. The foramina palatina are in all very broad, and limited behind by a bridge of bone, not much thicker than a hair.

The teeth: The dental formula in its typical state is: $i\ \frac{3}{1}$, $c\ \frac{1}{1}$, $p\ \frac{3}{3}$, $m\ \frac{4}{4}$ (38), the functional premolars being $\frac{p^1\ p^3}{p^1 p^2 p^3}$. The dentition is, however, not complete in any of the present specimens, as always one or another of the foremost premolars in the lower jaw is wanting. In D only p^2 is wanting, so that the number of teeth is 36 $\left(\frac{p^1\ p^3}{p^1\ p^3}\right)$; in A und B both the foremost premolars are wanting on each side below $\left(\frac{p^1\ p^3}{\cdot\ p^3}\right)$, in C these two are only wanting on one side, whilst on the other p^1 is present.

Ph. vulpecula is at once distinguished by the shape and position of the first premolar in both jaws. It is comparatively large, nearly as large as m^1, and has a considerable portion of the outer side of the neck uncovered by the alveolar margin; it is besides directed obliquely outwards, by which its position is entirely different from the row of the molars.

As has already been stated by Mr. Thomas (in: Encycl. Brit. vol. IX, p. 728), the canine in the upper jaw is placed before the intermaxillary suture (whilst its root naturally lies in the upper jaw). In one

or two of the present specimens from Queensland the suture, however, but meets the centre of the tooth, and in one the position is still more normal, as the suture (on one side) lies entirely in front of the tooth.

Finally it may be remarked that in this species the os zygomaticum in its connection with the upper jaw forms a distinct process downwardly directed, which is so well known in the *Macropodidae*, but almost imperceptible in the *Pseudochiri*.

In the young specimen (A), which was but scantily covered with hair, and in which the skull has a length of 39 mm, width 27 mm, only one tooth is fully developed (or almost so), namely the milk premolar. This resembles considerably the permanent premolar in the fullgrown individual (p^2), but has a well defined posterior cusp which is at least as long, as the anterior; furthermore the teeth have a normal position in the jaw, and are not, as in the older ones, directed obliquely outwards. Above the root of the milk premolar the germ of the permanent p^2 can be perceived, but barely half developed.

The other teeth in the young are in the point of appearing, or are not developed.

41. *Pseudochirus archeri* Coll. 1884 (Typus).

Phalangista (*Pseudochirus*) *archeri* Coll. in: Proc. Zool. Soc. Lond. 1884, p. 381, Pl. 29 and fig. 1—2, p. 382—83 (1884).

Diagnosis: Ears short. Fur very close; tail thickened at the root, the end with short adpressed hairs. The colour (male): a mixture of yellowish green and grey; back darker with two yellowish white longitudinal stripes. Under surface white. A white patch at the base of the ears. Tail yellowish grey, with whitish tip.

Nasalia very broad behind; in the suture with the frontalia they form on obtuse angle (open in front). The intermaxillary suture divides the nasal suture considerably before the middle. Auditory bullae very small. Foramina palatina wanting; foram. incisiva short.

The dental series almost unbroken. The upper c is larger than i^3. The lower i is proportionally short, with an upwards curved point; the 2 anterior premolars are wanting.

Dentition: $i\ \frac{3}{1}$, $c\ \frac{1}{1}$, $p\ \frac{3}{1}$, $m\ \frac{4}{4}$ (36).

A. Male [1]). Lower Herbert River 17th Nov. 1882 (skin with skull).

Ps. archeri does not appear to be rare in the rocky scrub at Herbert River. Besides the present individual, which was a mature male, Dr. L. obtained one more in the same locality, which in all details agreed with the first, but unfortunately no part of this was preserved.

From the accounts of this animals resorts, etc., which Dr. L. has published in: Proc. Zool. Soc. Lond. 1884 (p. 407), it appears that *Ps. archeri*, although a nocturnal animal, is also active during the day. It is preyed upon by *Dasyurus maculatus,* which is numerous in the same localities, as well as hunted by the natives. It is not shy, but runs, when pursued, very quickly from tree to tree.

The name, given it by the natives, is „Toollah".

In *Ps. archeri*, which by the construction of its toes and tail, (the latter short, haired at the tip, and with a naked under surface), belongs to the true *Pseudochiri*, the fur is unusually soft and close, almost curly, and only smooth and adpressed on the snout, toes and end of the tail. The first third of the tail is very thickly clad with woolly hairs, the apical third with short hairs. The naked line on its lower surface is of moderate length, not equal to half the length of the tail.

The ears are rather short, but slightly visible beyond the thick hair covering of the head; on their margins the hairs are short, and their inner surface is almost naked.

Some measurements, taken from the mounted specimen, are here given:

Length of the body (head included) . . . about 350 mm
Length of tail . . . . . „ 330 „ [2])
Length of ear (measured along the inner margin) 18 „

The nearest ally of *Ps. archeri* is probably *Ps. albertisii*, described by Peters and Doria in 1874 (in: Ann. Mus. Civ. Stor. Nat. Genova, vol. VI), from Hatam in New Guinea. Besides the difference in colouring between the two species, there appear also to be marked

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1) In the diagnosis in: Proc. Zool. Soc. Lond. 1884, p. 382, by a printers error ♀ is placed instead of ♂ at the figure of the skull.

2) In the diagnosis in: Proc. Zool. Soc. Lond. 1884, p. 381, the measurements of this and the following species were made from the dried skins, and therefore the estimate was probably too small.

differences in the formation of their skulls, which I shall subsequently treat of.

The colour is a peculiar mixture of yellowish green and grey; the hairs are ashy grey at the base, but towards the ends they become first white, and then, on the tips, yellow with a silken gloss.

The middle of the back is darker, almost brownish black, but here likewise the hairs have yellowish tips; two irregular stripes of silky white extend downwards to the root of the tail; a narrow black line runs from the occiput along the middle of the nape, and continues somewhat indistinct in the dark central stripe between the two whitish ones. Thus, when viewed in a favourable light, the back appears to have tree dark and two whitish longitudinal stripes.

The lower parts are white, the chin greyish white.

The snout ashy grey; a white semilunar spot under the ear, and a small pale yellowish one close above and under the eye.

The limbs are yellowish grey, the base of the hairs grey, like the back; the fore limbs whitish on the inner side. Claws pale yellow.

The tail on its first two thirds (the woolly part) is yellowish grey above and beneath; there is, however, a large patch on the upper side without the yellowish glossy tips, so that the grey grounding is only visible there (possibly worn?). The apical third (the short haired part) is whitish, but without sharply defined limits of colour.

The ears are brownish black, externally bordered with white.

The skull:

Length	65	mm
Width	39	„
Length of lower jaw	48	„
Length of dental series in upper jaw	33,5	„
Length of dental series in lower jaw	25	„
Breadth of nasale in front	2,5	„
Greatest breadth of nasale behind	6	„

In the formation of its skull it approaches *Ps. albertisii*, figured by Peters and Doria in: Ann. Mus. Genova, vol. XVI, tab. VIII, and IX; but in this latter species the two crests on the parietalia evenly converge towards the back. Moreover c^1 in the upper jaw is smaller than i^3, and closely adjoins p^1, whilst in *Ps. archeri* the reverse is the case.

Finally the upper profile of the skull differs in both species, besides the nasalia being less dilated behind in *Ps. archeri,* than in the other species.

The nasalia are narrow in front, broad behind, and their hinder margin forms a pretty deep, although rounded angle between the frontalia. Their breadth in front is less than half of their greatest breadth behind.

The interorbital space is very concave, and the profile of the skull is also somewhat depressed at the hinder margin of the orbita. The two frontal crests are very distinct, and have a strongly curved course. They first converge a little before the commencement of the parietalia, without, however, joining, then diverge, but at last again turn in and cut through the outer portion of the interparietale, whereupon they unite with the upper sharp zygomatic margin of the temporale.

The bullae osseae are almost imperceptible, but the whole of the back portion of the temporale is itself rather strongly inflated.

The palatine bones are not perforated; just in front of the suture with the maxillaria, the palate, however, presents traces of a punctual foramen.

The foramina incisiva are unusually small (length 3,5 mm), and only extend backwards to the hinder margin of the canine. Only the anterior half is formed by the intermaxillaria, the posterior by the maxillaria.

On the lower jaw no minute external opening into the inferior dental canal is visible.

Intermaxillare, comparatively evenly wide. The suture with the maxillary forms a rather wavy line, which meets the nasal suture considerably before the middle.

The teeth are comparatively strong, and form an almost uninterrupted series. Only p^1 in the upper jaw is separated from c by an extremely slight space, but pressed close to p^2. In the lower jaw all the teeth are closely set. In the upper jaw, i^2 is very broad, with double as broad a base, as i^3, which is very small, and is the smallest of all the teeth.

The canine is but slightly larger than i^3 and p^1, but is not longer than these.

Of the premolars, p^1 is small, about the same as i^3. p^2 is somewhat larger, than p^1, has two root sand two cusps; p^3 is the largest, but considerably narrower than m^1, has one large cusp in the middle, a smaller one in front, and two quite small ones behind.

The 4 molars are of normal construction, but very broad and thick. The base of m^1 is thus 4,5 mm.

In the lower jaw the incisors are peculiarly broad and short, and with their ends bent upwards (exactly, as in *Ps. albertisii*).

The lower canine is of normal construction, short and blunt, and placed close to the incisors.

There are no traces of (or place for) p^1 and p^2, but p^3 is close to c and m^1; p^3 is constructed almost in conformity with the upper p^3; it is thus nearly as long as m^1, but narrower, and has about the same cusps, as in the upper jaw.

The molars are normal, but narrower than the upper ones.

In his excellent article on the Phalangers and their system, in: Encyclop. Brit., 9th ed. vol. XVIII (1885), Mr. Oldfield Thomas has given the general characters of each of the 10 genera, which he recognizes as belonging to this family, including the true Phalangers, and the Flying-phalangers.

By the discovery of this and the following new species of *Pseudochirus* from N. Queensland, the characters of this genus, as indicated in the above mentioned review, must, however, be modified in certain points. The materials at my disposal naturally being insufficient to give a complete synopsis of its characters, I shall state only the points, in which my investigations do not quite agree with those, given in the said review.

„First upper incisor but little longer than the others, but nevertheless the longest tooth in the jaw", is a character, which may possibly apply to *Ps. caudivolvulus*, whilst in the other specimens of *Pseudochiri*, accessible to me, the first incisor is 2—3 times as long as, and broader than the rest.

The bullae osseae are in several species not larger and more inflated, than in *Phal. vulpecula*. They are largest in *Ps. caudivolvulus*, smallest in *Ps. archeri* and *lemuroides*. Moreover the palate is only entire in *Ps. archeri*, almost entire in *Ps. herbertensis*, but presents distinct foramina palatina in the other species.

Finally it may be noticed, that (with my present materials) it seems impossible to demonstrate any decided difference in the manner in which the intermaxillaria and maxillaria take part in the formation of the foramina incisiva in the two genera *Phalangista* and *Pseudochirus*; furthermore, the minute external opening into the inferior dental canal is not constant in its appearence, but may be found in some, and is wanting in other specimens of the same species. Of external characters it may be mentioned, that only in a few the ear

is large, but in others decidedly short, and shorter than in any other genus of this family.

42. ***Pseudochirus herbertensis*** (Coll.) 1884 (Typus).

Phalangista herbertensis Coll. in: Proc. Zool. Soc. Lond. 1884, p. 383, pl. 30 and fig. 3—4, (1884).

Diagn.: Ears very short, almost hidden in the fur. The end of the tail is provided with short, but slightly adpressed hairs.

The colour above, and the entire head is brownish black; beneath, in the male, snowy white with a white ring round the elbow, in the female, greyish white, without ring. Tail black with white tip.

Nasalia long, forming together a central keel; in the suture with the frontalia they form a rather deep angle (open in front). The intermaxillary suture divides the nasal suture about the middle. Auditory bullae small. Foramina palatina wanting; foram incisiva long.

The teeth comparatively dispersed. In the lower jaw p^2 is wanting; also c and p^1 are rudimentary or wanting.

Dentition: $i\ \frac{3}{1}$, $c\ \frac{1}{1}$, $p\ \frac{3}{2}$, $m\ \frac{4}{4}$ (38).

A. Male. Lower Herbert, Nov. 1882 (skin with skull and incomplete skeleton).

B. Female. Lower Herbert, 25th Decbr. 1882 (skin with skull).

The first specimen was shot during the same expedition, in which *Hypsiprymnodon* and *Dasyurus maculatus* were obtained. Several individuals were seen, amongst them at least one other male individual which appeared to be larger than the first, and presented the same snowy white lower surface and white rings on the fore-limbs. Later on, yet another individual, a female, was secured; although the colour of this is somewhat different, in all other respects, especially in the structure of the skull and teeth, it so perfectly agrees with the first, that I regard it as belonging to the same species [1]).

1) In Dec. 1886, Mr. de Vis, in: „Proc. Lin. Soc. New South Wales", has given a report „On new or rare Vertebrates from the Herbert River, Queensland". According to the short reference to this report in „Zoologischer Anzeiger" for 28th Febr. 1885, p. 127, de Vis has pointed out that „Inhabiting the mountain top scrubs of the Herbert Gorge, there are two species of *Pseudochirus*, to each of which indifferently the local blacks apply the name „Mongan", and that Mr. Collett (P. Z. S. 1884,

All specimens were met with on the heights, and the animal seems to live only in the uppermost regions of the mountains. It is called by the natives „Mongan" (cfr. LUMHOLTZ in: Proc. Zool. Soc. Lond. 1884, p. 407).

Ps. herbertensis also belongs to the true *Pseudochiri*, and has the formation of the feet and construction of the tail, characteristic of that genus.

The fur is soft as silk, but not so close and woolly, as in the preceding species. The tail is, as in the typical *Pseudochiri*, somewhat thickened at the base, and with long hairs, but at the end it is short haired; the hairs, however, are, not so smooth or adpressed, as in the other species (with the exception of *Ps. lemuroides*), but slightly wavy and somewhat erect.

The naked stripe along the under part of the tail is rather long, and occupies the outer half of the tail (or even more).

The ears are very short, and are but very slightly visible beyond the hair covering of the head. As in the other species, on their interior surface they are almost naked.

Some measurements, taken from the mounted specimen, are as follows:

	Male.	Female.
Length of body (head included) .	about 340 mm	345 mm
Length of tail	„ . 335 „	320 „
Length of ear (measured along its inner margin)	15 „	17 „

The colour is, in the male, very characteristic, but more uniform in the female.

Both sexes have of the upper surface brownish black, the lower white or whitish.

Male: The upper part of the back in dark brownish black, but, in most of the hairs, the tips are silken glossy yellowish brown with a reddish tinge. The rump is almost black, but mingled with reddish brown hairs; the root of the fur is blackish. The under surface is snowy white; this colour covers the middle of the throat, the whole

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p. 384) has described the female of *P. Mongan* as that of *Ps. herbertensis*". Dr. DE VIS' paper, on these lines going to print, has probably not yet reached Europe, and its contents concerning the 2 *Pseudochiri* are unknown to me, except as concerns the words quoted above. I can, however, in a renewed examination of the specimens, not find any difference of specific importance between them, and therefore cannot deviate from my original assumption that they both belong to the same species.

belly, and the inner portion of the feet. On the fore limbs the white colour extends round the elbows, and forms a broad white ring round the arms.

The head is brownish black, like the back, with no trace of white patches on, or about the ears. Of the tail, the inner two thirds are black; the tip is white.

The claws are lightish brown, the muzzle jet black.

The female on the whole is coloured like the male, while the belly is not white, but greyish white, and no trace of the white rings is to be seen. The back is likewise more mixed with reddish brown.

The skull:

Length	A. ?	mm	B. 69	mm
Width	„ 35	„	„ 36,5	„
Length of lower jaw	„ 45	„	„ 47	„
Length of dental series in upper jaw	„ 34	„	„ 35	„
Length of dental series in lower jaw	„ 25	„	„ 25	„
Greatest breadth of nasale behind.	„ 5	„	„ 5	„

The nasalia are rather narrow and lengthened, and, in the suture with the frontalia, they form a rather deep angle, open in front. They are placed obliquely towards each other, so that the suture between them forms a rather sharp keel.

The interorbital space is deeply concave.

The frontal crests are sharp and distinct in front, but almost entirely disappear at the back. They never meet to form a sagittal crest, but run almost parallel backwards on the parietalia.

The bullae osseae are short, slightly pointed. The palatine bones have no foramen palatinum, but some punctual foramina are seen here and on the maxillary portion of the palate between the front molars.

The foramina incisiva are long, and rather broad in front; their hinder (narrower) third is formed by the maxillaria.

The intermaxillare is pretty evenly broad, and is not elongated above to a pointed angle towards the back, as in *Ps. caudivolvulus*. The suture with the maxillare divides the nasal suture about the middle.

A minute foramen into the dental canal can be seen in the lower jaw of the male, but this is wanting in the female specimen. It does not therefore appear to be constant.

The teeth are comparatively dispersed, as the snout is rather long. Thus in the upper jaw, *c* by a space (which is at least as long, as the base of amolar) is separated from the last incisor, and is almost

equally as distant from the nearest premolar. p^1 is also isolated (in the female p^1 is almost touching p^2 on the one side). There is otherwise nothing abnormal in the dentition.

In the upper jaw, the central incisor is considerably broader and longer than the others, which are very small, and equal in size.

The canines are small, in size about equal to i^3.

Of the premolars, p^1 is also small, almost the smallest of the teeth, inconsiderably smaller than the canines; thus the 2 posterior incisors, the canine, and the 1st premolar are all about equal in size, and likewise small. p^2 is somewhat larger, has one large and one indistinct cusp; p^3 is the largest.

The molars are normal.

In the lower jaw the canines in both specimens are quite rudimentary; in the mature female it is only present on one side, and is here only visible under the lens; it has been entirely hidden in the jaw in the living individual. In the young male its socket is still to be seen, but the teeth themselves have fallen out.

Of the premolars, a rudimentary p^1 is present on one side in both specimens; and this also is not functional. p^3 is in use, narrower than the upper one, which is also the case with the molars.

This species is easily distinguishable from *Ps. caudivolvulus*, not only by its quite different colouring, but also by its extremely short ears, which are almost completely hidden in the fur, whilst in the other species they are large and prominent; their greatest breadth in *Ps. herbertensis* is about 13 mm, while the breadth on an equally large specimen of *Ps. caudivolvulus* (from S. Australia) is 26 mm. The naked rhinarium is besides greater, and the hair covering of the tail slightly wavy and prominent. The difference in the structure of the skulls is in several respects conspicuous, especially in the construction of the nasalia, of the palate, of the bullae osseae, and of the intermaxillaria.

43. *Pseudochirus caudivolvulus* (Kerr) 1792.

Didelphis caudivolvula Kerr., Anim. Kingd. vol. I, p. 196 (1792).
Pseudochirus caudivolvulus Jent., in: Notes Leyden Mus. vol. VII, p. 21 (1885).

A. Coomooboolaroo, Febr. 1884 (skin with skull).

It is not without interest, that this specimen originated from a locality lying comparatively near the spot, from which Cook, in 1770,

brought home one of the first specimens, namely Endeavour River. As is already pointed out by THOMAS (in 1879), this specimen of COOK, which so early as in 1792 was described by KERR (in his edition of the „Animal Kingdom") under the name of *Didelphis caudivolvulus*, is the type for the „Ring tailed Opossum". As other specimens of the North Australian form, the true type of the species, have hardly been mentioned in later years by zoologists, I shall add a few remarks concerning this individual.

Compared with a specimen before me of the South Australian *Phalangista cooki* DESM. 1817 (from Gawler, Adelaide, April 1874), the two individuals fully agree in all essential details, and cannot be separated as distinct species.

This specimen from S. Australia is a fully developed male with much worn teeth; in colouring it closely resembles one of the specimens of the Tasmanian *Phal. viverrina* OGILBY 1837, which has been figured by GOULD in Mamm. Austr. pt. VIII (the lowest), which also belongs to the same species (vide JENTINK, l. c.).

The specimen from Coomooboolaroo is a little smaller, and is more slender, but probably represents a rather young male.

The colour. In the colouring it mostly resembles that individual, which JENTINK in: Notes from the Leyden Mus. vol. VII, (p. 23) describes under No. 4 and No. 9, the last of which, according to JENTINK's assumption, is possibly the very specimen, obtained by COOK from Endeavour River.

The upper part is grey, without distinct patches, but the back has a slightly reddish tinge, and numerous whitish tipped hairs. The reddish hue is strongest on the nape and the uppermost portion of the back, but less prominent on the other portions.

The sides of the body are silvery grey, and have no reddish mixture.

The lower surface is white, as is also the inner covering of the feet; on the throat the white colour extends towards the ears, where there is a crescent shaped blackish spot, and above this, immediately at the base of the ear, a white spot, very recognizable in the species.

The snout is a lighter grey; the surroundings of the eyes almost reddish brown the cheeks greyish white. The posterior surface of the ears is greyish brown, above, white below.

The outer side of the feet is reddish grey, the claws light brown. The first third of the tail is grey above, like the back; beneath, red-

dish grey (like the surroundings of the vent and the outer side of the foot); its outer portions are of a dirty greyish white.

The ears are comparatively large, their length, measured along the inner margin, is 26 mm, their greatest breadth 20 mm.

The tail is thick at the root, and covered with long hairs; but on the outer two thirds the hairs are short and closely adpressed. Only the extreme tip is naked underneath.

The skull. The length of the skull is 55 mm, breadth 33 mm. The nasalia are comparatively broad in front; their suture with the frontalia forms no angle, but approaches a straight line (exactly as in the specimen from S. Australia).

The frontal crests do not (in this specimen) meet, but diverge somewhat on the parietalia. The palatine bones are thin and somewhat perforated, but the foramina are not yet regular or of equal size, as is the case in the fullgrown specimen from S. Australia. The foramina incisiva are long.

The bullae osseae are large, their form about the same as in *Petaurista volans*; likewise the external ear openings are wide.

The intermaxillaria are unusually lengthened above, and elongated backwards to a long point, which terminates quite near the frontalia, or at a distance from these which is less than the front breadth of each nasale.

The teeth. The dentition: $i\ \frac{3}{1}$, $c\ \frac{1}{1}$, $p\ \frac{3}{2}$, $m\ \frac{4}{4}$ (38).

In the upper jaw the two outer incisors are about equal in size; the edge of i^2 is distinctly notched. The canine and p^1 are both separated from each other and from the other teeth by a space, about equal to the size of a tooth. The canine is small, slightly larger than p^1, which is the least of all the teeth.

In the lower jaw, the canine is present on both sides, but very small; p^1 is also present, but is quite rudimentary.

The skull of the specimen from Gawler, S. Australia, which has a length of about 59 mm, a breadth of 34 mm, agrees in almost every detail with the N. Queensland specimen. Only the frontal crests (in this mature specimen) join to a sagittal crest, a circumstance of but little weight (cfr. p. 49). Foramina palatina, very wide, also foram. incisiva. Neither in the structure of the teeth is there any difference, setting aside the chance circumstance that c and p^1 are wanting in both lower jaw; but the socket of the latter is still perceptible.

44. *Pseudochirus (Hemibelideus) lemuroides* (Coll.) 1884 (Typus).

Phalangista (*Hemibelideus*) *lemuroides* Coll., in: Proc. Zool. Soc. Lond. 1884, p. 385, pl. 31, and fig. 5—6, (1884).

Diagn. Fur soft, rather long; ears of medium length, eyes small. The tail cylindrical, clothed with long projecting hairs to the tip.

The colour (female): above, and the whole of the head dark greyish brown; under surface a dirty yellowish grey. Tail black.

The skull broad, as in Petaurista. Nasalia rather short; in the suture with the frontalia they form a central angle, open to the back, and two small angles, open in front. The intermaxillary suture divides the nasal suture about the middle. Auditory bullae, rather small. The palate has two small round foram. palatina, and long foram. incisiva.

Os sacrum, formed of 3 vertebrae. Scapula, triangularly pointed.

In the lower jaw, *c* and the 2 front premolars are wanting.

The dentition (in both specimens):

$i\ \frac{3}{1}$, $c\ \frac{1}{0}$, $p\ \frac{3}{1}$, $m\ \frac{4}{4}$ (34).

Number of vertebrae: *C.* 7, *D.* 13, *L.* 6, *S.* 2+1, *C.* 27.

A. Half grown. Young of B (skin with skull).

B. Female. Upper Herbert River, 20th Dec. 1882 (skin with skull and incomplete skeleton).

C. Herbert River, Febr. 1884 (incomplete skeleton with skull).

The first individual obtained was a female, with a large young one (A) in its pouch; the latter, which was of the size of a mature *Petaurus sciureus*, resembled the mother exactly. Later on another individual was obtained, the skeleton alone being preserved.

Concerning this species Dr. L. has stated, in: Proc. Zool. Soc. Lond. 1884, p. 407, that its home is in the scrub, from Gowry Creek, Herbert River, and northwards, and it appears to be numerous there. It is hunted by the natives, who call it „Yabby".

In the structure of its feet it belongs to the true *Pseudochiri*, but differs from all of them in its coating of hair, this being nowhere closely adpressed, but woolly even on the snout and the back of the hands. The tail is rather cylindrical, and evenly bushy, as the hairs are long and projecting out to the very end, almost as in *Phalangista vulpecula*.

In its hair covering and in the shape of the tail, *Ps. lemuroides* forms a transition to the flying Phalangers, but wants their patagium. The shape of the skull and the teeth are almost exactly the same, as in *Petaurista volans;* the skull is, in particular, broader and shorter than in any of the other *Pseudochiri.*

In the skeleton it may be noticed, that the 1st tail vertebra has ankylosed with the 2nd sacral vertebra; the scapula also differs in form from the other *Pseudochiri.*

On account of these peculiarities, I have, in giving its diagnosis in 1884, considered it convenient to separate it as a new subgenus, *Hemibelideus.*

The fur is, as previously stated, very soft and woolly, even on the back of the hands and toes, where the hair covering is smooth in the other species. The tail is slightly thickened as the root, as in the other *Pseudochiri*, but the outer two thirds are cylindrical, and the hairs are erect and equally long to the end. Also in this species the end is naked underneath, but the naked line is short, (shorter than the length of the head).

The ears are of medium length, but appear short, as they are but little projecting above the long and soft fur; internally they are very scantily furnished with hairs (a little closer in the young one).

The eyes are strikingly small.

Some measurements of the mounted individual B are added:

Length of body (head included)	about 370 mm
Length of tail	„ 295 „
Length of ear (measured along the interior margin)	„ 20 „

The tail is considerably shorter than the body (head included); in the young one the difference is less.

Colour (female). Above, together with the head, a uniform dark greyish brown, each hair with silky shining tips, which on the shoulders are reddish brown, but on the rump more ashy grey. The root of the hair is greyish black.

Underneath it is a dirty yellowish grey, without sharply defined limits of colour, somewhat lighter on the throat, and on the inner surface of the feet.

On the forehead and cheeks some greyish hairs are found; the muzzle is brownish black. The covering of the fingers and toes is black.

The tail is black, especially on its outer half, which is jet black; underneath, its inner half is somewhat more greyish.

The colour of the young is almost exactly the same as the mother's.

The skull:

Length	B.	54	mm	C.	55	mm
Width	„	37	„	„	37	„
Length of lower jaw	„	38,5	„	„	38,5	„
Length of the dental series in upper jaw	„	28	„	„	28	„
Length of the dental series in lower jaw	„	21	„	„	22	„
Greatest length of nasale . . .	„	14	„	„	16	„

The skull is, on the whole, broad and short, so that the lower jaw is but a trifle longer than the length of the skull across the zygomatic arches.

The nasalia are comparatively short, and do not extend forwards beyond the anterior point of the intermaxillaria; behind, each nasale forms an acute angle, so that the suture with the frontalia has the shape of a zig-zag line with two angles, open in front, and one (the central) open to the back.

The interorbital space is very concave; the frontal crests converge somewhat on the parietalia, without meeting, again diverge, and at the back touch the side margins of the interparietale, without, however, entering inside the margin of this bone.

The bullae osseae are but slightly inflated. The palate is perforated by a couple of quite small and round foramina, the diameter of which is about equal to that of the central premolar; besides these, several punctual foramina are present at the hinder margin of palatinum; the bones are, on the whole, very thin. The foramina incisiva are short.

The intermaxillare is above somewhat elongated towards the back, and the suture strikes the nasal suture about the middle (as in *Ps. herbertensis*).

The lower jaw has no external foramen as an entrance to the dental canal. The teeth are, notwithstanding the short skull, not very close, for both c and i^1 in the upper jaw are a little isolated; otherwise there is nothing abnormal in the dentition.

In the upper jaw the central pair of incisors are comparatively small, but longer and thicker than the others. Of the other incisors, i^3 is the smallest and very slender; i^2 has a rather broad crown.

The canine is a little bigger than i^3 and p^1. Of the premolars p^1 is small and short, about the size of i^3. p^3 has only 2 cusps, as the hindermost is not perceptible. The molars are, as in the other *Pseudochiri*.

In the lower jaw all traces of *c* and the foremost premolars are wanting. p^3 is functional, and has 3 rather blunt cusps; the molars are normal.

In the young, the skull of which has a length of 43 mm, breadth 27 mm, there is no trace yet of frontal crests.

The interorbital space is rather flat and even in width. On the palate the two foramina palatina are already present.

The dentition in the young one is the permanent, the milk teeth having already been shed, although the innermost molar is still undeveloped, and m^3 is just protruding.

The comparatively large and unworn teeth form an almost unbroken series. Of the incisors, the central ones are still barely longer than the others. The canine is large; the premolars are like those in the upper jaw, p^2 with one, and p^3 with two cusps.

In the lower jaw the only premolar is placed close to the root of *i*, and resembles the upper p^3, but has three distinct cusps.

The skeletons of both the mature individuals are preserved, although they arrived in a somewhat incomplete condition. The vertebral column in B. is complete, in C. only as far as the 6th tail vertebra.

The os sacrum is formed of 3 almost equally large vertebrae; the 3rd which has firmly ankylosed to the 2nd sacral vertebra (also with its transverse processes), must, however, be properly considered as the 1st tail vertebra, although in form it very closely resembles the 2rd sacral vertebra; the next tail vertebra, which is here called the 1st , is more slender, and has rather narrow transverse processes.

The scapula has a characteristic triangular form, the hinder part being elongated to a an acute and rather long angle, with quite straight sides. Its hinder margin thus, besides being almost quite straight, at the same time is very obliquely inclined towards the upper margin, which has its normal deep curve in towards proc. coracoideus.

45. *Petaurista volans* (Kerr) 1792, *var. minor.*

Didelphis volans Kerr, Anim. Kingd. vol. I, p. 199 (1792) [Southern Form].
Petaurus taguanoides Desm., in: Nouv. Dict. Hist. Nat. tom. XXV, p. 400 (1818) [Southern Form].
Petaurus volans Thomas, in: Ann. Mag. Nat. Hist. (ser. 5) vol. IV, p. 397 (1879) [Southern Form].
Petaurista volans Thomas, in: Encycl. Britann. 9th ed. vol. XVIII, p. 728 (1885) [Southern Form].

A. Herbert Vale, Dec. 1882 (skin with skull).
B. Herbert Vale, Dec. 1882 (incomplete skeleton).
C. Coomooboolaroo, Jan. 1884 (skin with skull).
D. Male. Coomooboolaroo, Jan. 1884 (skin with skull).
E. Calliungal 13 June 1881 (skin with skull).

As above related, there are 4 skins with their skulls, as well as 1 incomplete skeleton of a *Petaurista* in the collection, which in all their chief features are closely allied to *P. volans* of South Australia, but differ from this in several minor points, which possibly may be of specific importance: the probability is, however, that individuals from the intermediate localities show transitional stages, and accordingly I have classed the Queensland form as a variety only.

As will be seen from a short note in „Zoologischer Anzeiger", 28th Febr. 1887, (p. 128), DE VIS has already noted a difference between the South Australian *Petaurista* and specimens from the Herbert River, but as yet, while these lines are in the press, I am unacquainted with the results of his investigations.

In order to make comparisons, I have, through the kindness of Prof. LÜTKEN, had an opportunity of examining 2 specimens of the South Australian type, belonging to the Copenhagen Museum. All the specimens from Queensland, which are pretty equal in size, and appear to have been fully grown, are very considerably smaller, the average length of the body from the end of the snout to the root of the tail being about 350 mm, the length of the tail about 340 mm, the breadth of the body (with the parachute but slightly extended) about 170 mm. The size of their skulls is given further on.

No comparative difference in the size of the ears in the specimens from South Australia and those from Queensland can be detected.

In the dentition it may be noticed that the front premolar is but rudimentary, or sometimes entirely wanting; where it is found, it is generally placed nearer to p^2 than to c. The upper canine is also very small, or almost rudimentary, but not wanting.

This species appears to be frequent in Central and Northern Queensland. It is hunted by the natives in the gum trees, in the holes of which they hide themselves during the day, and are driven out by means of a long and slender stick.

All four specimens in their colouring belong to the light variety, which has a whitish belly, a uniform greyish brown back, with greyish white tips to the hairs, and black feet. One specimen (E) is lighter than the others; the head is whitish, and the large and long-haired

ears are almost white outside; the extremity of the tail is greyish white, whilst the outer half of it in the other specimens is black. The size of the ears varies considerably in the individuals.

The skull.

A.	Length	51,5	mm,	breadth	34	mm;	Length	of	lower	jaw	36	mm
B.	„	52,5	„	„	35,5	„	„	„	„	„	36	„
C.	„	55,5	„	„	34	„	„	„	„	„	37	„
D.	„	56	„	„	36	„	„	„	„	„	38	„

The skull of this species differs but slightly from that of *Pseudochirus*.

The nasalia, are (in the specimens before me) proportionally shorter, and barely extend forwards further than to above the back margin of i^3 (as in the subgenus *Hemibelideus*; in the typical *Pseudochiri* the nasalia are longer, and extend to i^1).

The palatina are perforated by two broad and long foramina, which extend to the middle of m^2, or even (in B) to the front margin of this tooth.

The bullae osseae are of medium size (almost as in *Ps. caudivolvulus*). The external opening into the inferior dental canal is present on both sides in C and D, on the left side only in B, and is entirely wanting in A.

The teeth.

The teeth differ but very little from those of the true *Pseudochiri*. The lower canine is, however, wanting in most of the specimens; only two of them have an almost microscopic canine, which scarcely protrudes beyond the margin of the socket, and thus the species cannot be said to be entirely without this tooth. Furthermore there is as good as no trace of the two foremost premolars in the lower jaw in any of the specimens, and where they do appear, they are quite rudimentary.

Of the upper incisors, i^3 is the smallest, and has a cylindrical crown (which has no worn surface on its outer side, as in the genus *Petaurus*). The central incisors converge at their ends, without, however, touching each other.

The canine is very small, occasionally not larger than the rudimentary p^1.

Of the premolars, p^1 is rudimentary, or (in B) entirely wanting. It is rather isolated. The two back premolars are present in all; p^2 is somewhat smaller than p^3.

In the lower jaw, functional teeth, as previously mentioned, are wanting between the incisor and p^3. The canine in one or two of the specimens is present, like a minute globule on the margin of one or both jaws, and in some p^1 and p^2 likewise appear as mere grains, whilst there exist no trace of these whatever in others.

The dentition, when complete (which it is not in any of the present specimens) will therefore be:

$$i\ \tfrac{3}{1},\ c\ \tfrac{1}{1},\ p\ \tfrac{3}{3},\ m\ \tfrac{4}{4}\ (40),$$

but can (as in C and D) only be:

$$i\ \tfrac{3}{1},\ c\ \tfrac{1}{0},\ p\ \tfrac{3}{1},\ m\ \tfrac{4}{4}\ (34).$$

46. *Petaurus sciureus* (Shaw) 1794.

Didelphis sciurea Shaw, Zool. of New Holl. pl. II, p. 29 (1794).

Petaurus sciureus Desm., in: Nouv. Dict. d'Hist. Nat. tom. XXV, p. 403 (1818).

Belideus sciureus Gould, Mamm. Austr. pt. 1 (1845), et plurim. auct.

A. Scarcely half grown, Herbert Vale, Jan. 1884 (skin with skull).
B. Calliungal, May 1881 (skin with skull).
C. Male. Habana, Mackay, 6th May 1882 (skin with skull).
D. Female. Habana, Mackay, 6th May 1882 (skin with skull).
E. Male. Habana, Mackay, 6th May 1882 (skin).

This species is not uncommon in Queensland, but, like *Phal. vulpecula*, it visits the low-lands only in winter, and disappears entirely in summer. Several individuals are sometimes found living in the same hole of a tree; thus, on one occasion, when a large gum-tree was cut down in May 1882 at Mackay, Dr. L. obtained several specimens.

The colouring is typical in all the specimens of the collection. In C, a male, the lower surface of the patagium is greyish black, whilst in the other specimens it is whitish.

The young, the length of which is about 130 mm (head included), and the tail 150 mm, has the upper surface of the body covered with short hairs, whilst the under surface as well as the flank membrane (on both surfaces) is still almost quite naked, notwithstanding that the animal is as large as a medium sized rat; only on the throat and chest there are short and fine hairs to be found. The tail is clothed to the end with rather short, adpressed, greyish black hairs; the outer half is quite black.

The black stripe on the back is very distinct, and extends to the root of the tail.

The skull.

The skull is distinguishable from the skull of *Petaurista* by the broad and flat interorbital space, by the long and narrow nasalia, which extend forwards to above the apex of the intermaxillary, by the nonperforated ossa palatina; besides by the lower jaw having proc. coronoideus directed obliquely backwards, while in *Petaurista* this is more vertical.

The foramina incisiva are very short, extending barely to beyond the canine. The auditory bulla is somewhat contracted in the middle.

The teeth.

The teeth are (as in *Dactylopsila*) rather bluntly pointed, and the dentition appears to be very constant. The canines and premolars are especially complete in number, and do not appear to be deciduous.

The dental series in the lower jaw is almost uninterrupted.

The dentition is: $i\ \frac{3}{1}$, $c\ \frac{1}{1}$, $p\ \frac{3}{3}$, $m\ \frac{4}{4}$ (40).

In the upper jaw, the central incisors touch each other from the middle downwards.

In this species, as well as in the following, the obliquely worn surface of i^3 lies on the outer side of the tooth, in i^2 on the inner side (as normal).

The canine is larger than either i^2 or i^3, but, like the two foremost premolars, is greatly compressed.

Of the premolars, p^1, seen from the front, is nearly as large as p^3; it has two roots, but is greatly compressed. p^2 is considerably smaller, but not rudimentary. The molars evenly decrease in size towards the back; m^1 is largest.

In the lower jaw, the canine is blunt and flattened, and close to the incisors. Of the premolars, p^2, as a rule, has a single root, p^1 and p^3, double roots; but in one of the specimens, a trace of a division of the root also in p^2 can be seen on one side. In m_1, the foremost cusp extends beyond the other cusps of the tooth, and forms the most prominent point of the teeth in the lower jaw behind the incisors. The two back molars are smaller than the two front ones; m^4 is the smallest.

In the young, the skull of which has a length of 31 mm, breadth 18 mm, the milk premolar is in use at the same time as all the true premolars. Of the incisors, i^1 is but half developed, and i^3 just pro-

trudes beyond the margin of the jaw, whilst i^1 is almost fully grown. The true premolars, as well as the canine, are half grown; the milk-premolar, which is quite small, and has a flat crown, still remains crushed in on the outside of the advancing p^3. Of the molars, but m^1 is as yet visible beyond the margin of the jaw.

In the lower jaw, the milk premolar is likewise present, whilst p_3 is in the act of breaking through. An anomaly is visible in the left jaw, two equally large p_2 being present, the one before the other, which, however, together are not much larger than p_2 on the opposite side.

47. *Petaurus breviceps* Waterh. 1838.

Petaurus breviceps Waterh., in: Proc. Zool. Soc. Lond. 1838, p. 152 (1838).
Belidea ariel Gould, in: Proc. Zool. Soc. Lond. 1842, p. 11 (1842).
Belideus notatus Peters, in: Monatsber. Preuss. Akad. Wiss. Berlin 1859, p. 14 (1859).

A. Not fullgrown. Herbert Vale, Dec. 1882 (skin with skull).
B. Herbert Vale, Dec. 1882 (skin with skull).
C. Upper Herbert River, 24th Dec. 1882 (skin with skull).

This species occurred in N. Queensland, according to Dr. L., in somewhat less number than *B. sciureus*, although on the whole, they were not scarce.

Both the fullgrown specimens from Herbert Vale almost perfectly agree with the S. Australian *P. breviceps*, although the upper surface has a somewhat yellower tint, a character, which is just alleged to the N. Australian form *P. ariel* (which, by recent authors, is likewise recorded from New Guinea, Batjan, Halmahera, New Britain, etc.). The under surface is, however, not nearly so bright a yellow, as, according to Gould's drawing (Mamm. Austr. pl. 2), is characteristic to *P. ariel;* the specimens from Herbert Vale form, on the whole, a medium between both forms.

The young individual (A) on the other hand, corresponds most closely to Peters' *Belideus notatus* (in: Monatsber. Akad. Wiss. Berl. 1859, p. 14); it is of the same colour above, and has a broad white tip to its tail; but the light longitudinal stripe on the tail, which belongs to this form, is indistinct.

Besides, concerning the colouring of the individuals, the black stripe on the back in all of them is but slightly visible; especially so on the nape, where it is almost invisible. The tail in all of them

has a white tip, which, in one specimen, is only indicated by a few white hairs, whilst in A this portion has a length of 15 mm.

It is therefore probable, that *P. ariel*, as well as *P. notatus*, will prove to be identical with *P. breviceps*.

The skull.

In the structure of the skull and teeth of the two species, *P. sciureus* and *P. breviceps*, no decided difference can be detected from the present specimens. Both species appear to agree entirely in all details, except in size.

B. Length of skull 32,5 mm, breadth 22 mm, length of lower jaw 19 mm.

C. Length of skull 35 mm, breadth 24 mm, length of lower jaw 20 mm.

Dentition: $i \frac{3}{1}$, $c \frac{1}{1}$, $p \frac{3}{3}$, $m \frac{4}{4}$ (40).

In the young individual (A), the skull of which had a length of 31 mm, length of lower jaw 18 mm, the innermost molar, the canine and the two foremost premolars in the lower jaw had not yet appeared.

The molars are more sharply pointed than in the older specimens.

48. *Dactylopsila trivirgata* Gray 1858.

Dactylopsila trivirgata Gray, in: Proc. Zool. Soc. Lond. 1858. p. 109, pl. LXIII, fig. 1—4 (1858).

A. Herbert Vale, Febr. 1883 (skin with skull).

D. trivirgata is mentioned by Ramsay from about the same locality in 1876 (in: Ann. Mag. Nat. Hist. (4. ser.), vol. XVII, p. 331), also by Gray from Cape York (in: Proc. Zool. Soc. Lond. 1886, p. 220), and it thus inhabits (in Australia) the whole of Cape York Peninsula.

It is called „Nolloa“ by the natives, and it is supposed to feed partly on wild honey. Only one specimen was seen by Dr. L. In colour it corresponds exactly with Ramsay's description; it may, however, be noticed, that at most but a quarter of the outermost part of the tail is white.

The skull.

Length of the skull 58 mm, breadth 41 mm, length of lower jaw 38 mm.

The foramen incisivum (in the present specimen) is formed both by the intermaxillary and the maxillary. The suture strikes the foramen almost exactly in the middle.

The teeth.

It has already been shown by Mr. OLDFIELD THOMAS, in: Encycl. Brit. vol. IX (p. 729), that GRAY's description of the dentition of this species is erroneous, and that the tooth, described by that author as the upper i^4, is the canine. Our specimen leave no room for doubt on this subject, as this latter tooth lies entirely in the maxillary, and is placed behind the suture.

Besides, it is doubtlessly most natural to regard this, as a rule, low, somewhat flat-crowned and cylindrical tooth in the lower jaw, which in the Phalangers is situated next to the long incisor, as a canine, although this in most, (where it is not entirely wanting) is pressed quite close to the root of the incisor (in *Phalangista vulpecula* it is, in most individuals, more separate, and in this species its character of a canine is seen more clearly). The small teeth, present behind the canine, are therefore premolars, but not, as in GRAY's description of the present species, incisors.

These lower canines and premolars are, however, but little constant. In our specimen the canine is present on the right side, but wanting on the left; it has a broad crown, is flat, and twice as large, as the three following premolars. Of these latter, p^1 is a little larger than the rest, but all are very small, although distinctly developed. All are close, thus not resembling GRAY's type-specimen, in which they were all placed a little apart.

THOMAS (l. c. p. 729) records as a generic character, that all the premolars in the lower jaw are deciduous. In our specimen all are present, and the whole dental series uninterrupted. In the upper jaw, p^2 is unusually small, almost rudimentary, (and may be occasionally wanting).

The dentition is, according to THOMAS, $i \frac{1.2.3}{1.0.0}$, $c \frac{1}{1}$, $p \frac{1.2.3}{1.2.3}$ $m \frac{1.2.3.4}{1.2.3.4}$ (32—40).

In our specimen the dentition is:

$$i \frac{3}{1}, \; c \frac{1}{1(0)}, \; p \frac{3}{3}, \; m \frac{4}{4} \; (39).$$

49. *Acrobata pygmaea* (SHAW) 1794.

Didelphys pygmaea SHAW, Zool. New. Holl., pl. 2, p. 5 (1794).
Petaurista (*acrobata*) *pygmaea* DESM., Mammalog. pt. I, p. 270 (1820).
Acrobates pygmaeus GRAY, List. Spec. Mamm. Brit. Mus. p. 83 (1843).

A. Coomooboolaroo, Jan. 1884 (skin with skull).
B. Female. Rockhampton, Dec. 1881 (skin with skull).
C. Male. Rockhampton, Dec. 1881 (skin with skull).

A. pygmaea is common in the neighbourhood of Rockhampton, and specimens were continually seen. The two mature specimens, (B and C) arrived in spirit; the pouch of the female contained five young, having a length of about 8 mm, and were probably newly born, as the position of the eye in as yet barely indicated.

In its colouring the two old individuals entirely agree. Above, they are a strong reddish grey, and the tone is light on the whole. Below, the female is slightly yellowish, the male white.

A, the youngest individual, is darker above; it has the same greyish brown hue, as in GOULD's picture in Mamm. of Australia, (pl. II). The longer hairs on the tail in this individual are much shorter, than in the two fullgrown ones.

The skull:

The skull of *Acrobata* is characteristic on account of the capacious and arched brain case, which only exhibits faint traces of crests. The zygomatic arch is excessively slender, and most of the bones of the head are thin, and semi-transparent.

The foramina palatina extend forwards to the hindermost premolar.

Length of skull. A. 18 mm, B. 20 mm, C. 20,5 mm
Width „ 11,5 „ „ 13,5 „ „ 13,5 „

The teeth. The dentition is, in the present individuals, normal:

$$i\ \tfrac{3}{1},\ c\ \tfrac{1}{1},\ p\ \tfrac{2}{3},\ m\ \tfrac{3}{3}\ (36).$$

The construction of the teeth was first described by WATERHOUSE in: Proc. Zool. Soc. Lond. 1838, p. 152. In the upper jaw the two central incisors are comparatively short, and do not attain the length of the canine; i^2 and i^3 are low, and have flat crowns. The canine is long and curved, and is the longest tooth in the jaw. Of the premolars, which, like the molars, are sharply pointed, p^2 is a trifle longer than the rest; m^1 and m^2 are about equal in size, m^3 somewhat smaller.

In the lower jaw, which in several respects reminds one of the jaw in certain *Soricidae*, the elongated incisor is almost horizontal, and has but a slight curve upwards. The canine is flat and low, quite like p^1; together with the incisors, these three teeth form an unbroken series. The two hindermost premolars are comparatively long, have each two cusps, of which the foremost is elongated (higher

than the foremost cusp of m^1), and thus is the most prominent point in the lower jaw. The hinder cusp is low (in p^2 almost imperceptible).

In the young individual (A), the premolars alone are fully developed; of the other teeth several are not fully grown.

Fam. Phascolarctidae.

50. *Phascolarctos cinereus* (Goldf.) 1819.

Lipurus cinereus Goldf. in: Isis 1819, p. 271 (1819.
Phascolarctos cinereus Fischer, Synops. Mamm. p. 285 (1829).

A. Coomooboolaroo, Jan. 1884 (skin with skull).
B. Coomooboolaroo, Jan. 1884 (skull).
C. Female. Coomooboolaroo, Jan. 1884 (skin with skull).
D. Female. Coomooboolaroo, Jan. 1884 (skin with skull).
E. Coomooboolaroo, Jan. 1884 (skull).
F. Rockhampton, July 1883 (skin with skull).

Is still numerous in Central Queensland, but was not found at Herbert River in N. Queensland, and appeared to be entirely absent from that district.

One of the skins sent home was that of a scarcely half grown young one, in colour exactly resembling the mature specimens. Of the latter, one (D) differed slightly from the others, in the strong reddish brown mixture on the back.

The skull.

B.	Length	of	skull	110	mm,	breadth	64	mm,	Length	of	lower	jaw	83	mm
C.	„	„	„	116	„	„	69	„	„	„	„	„	90	„
D.	„	„	„	121	„	„	64	„	„	„	„	„	89	„
E.	„	„	„	129	„	„	71	„	„	„	„	„	97	„
F.	„	„	„	132	„	„	71	„	„	„	„	„	100	„

Notwithstanding the not inconsiderable difference in size, all the above mentioned skulls belonged to fullgrown individuals, and the teeth are not more worn in the largest, than in the smallest specimen; (C has the most worn teeth). The difference in size appears to be individual, and not dependent on the sex; the largest specimen (F), appears to be a female, as well as two of the smaller ones.

In the formation of the skull, also several slight differences are observable in the specimens. In B, C and D, the frontal crests extend backwards without meeting; at the back they follow the outer margin of the interparietale, until they join the occipital crest. In E, the frontal crests on the contrary are almost imperceptible, whilst a

distinct sagittal crest is present along the whole sutura sagittalis. In the largest, (F) both the frontal and sagittal crests are slight, and almost imperceptible.

The bullae osseae are moreover varying in size and shape; the zygomatic arch is in some higher than in others, or more expanded. The nasalia are (especially in B) short, broad and almost flat above, in the others more arched and long (especially in F). The processus postorbitalis is almost imperceptible in one individual (C), but very conspicuous in the others (especially in D).

In the two largest specimens, the minute foramen as entrance to the inferior dental canal, which is present in all the other specimens (as well as in the young one), is wanting.

In the young (A) the skull of which has a length of 79 mm, breadth 45 mm, the upper m^3 and m^4, as well as c, and the lower m_4, are not yet fully developed. No trace of a milk premolar above the root of the functional p can be discerned. The foramina palatina extend far forwards, and lie between the middle of m^2 and m^3. The frontalia are almost even in width, without any particularly prominent postorbital process.

The teeth. The dentition is normal in all, except in F:

$$i\ \tfrac{3}{1},\ c\ \tfrac{1}{0},\ p\ \tfrac{1}{1},\ m\ \tfrac{4}{4}\ (30).$$

F exhibits the peculiar anomaly, that on both sides in the lower jaw[1]) a supernumerary molar is present posteriorly; this m^5 is a trifle smaller than m^4, but constructed almost like it.

The dentition in this specimen is:

$$i\ \tfrac{3}{1},\ c\ \tfrac{1}{0},\ p\ \tfrac{1}{1},\ m\ \tfrac{4}{5}\ (32).$$

To the present descriptions of the teeth of this species it may be added that m_1 in the lower jaw is always distinguishable in its structure from the other molars in the same jaw. Of its 4 pyramidical cusps, the inner cusp of the foremost pair is not evenly pointed like the rest, but slightly cleft lengthwise, so that it presents two short parallel ridges instead of one point.

In one of the individuals, obtained at Coomooboolaroo in Jan. 1884, Dr. L. found a parasitic worm in considerable numbers in the intestines. Some of these were brought home, and appear, notwithstanding their rather abnormal appearance, to belong to the large family of *Taeniidae*. The body is cylindrical, extremely finely annulated, (each joint barely

1) The lower jaw in this individual was also in another respect misshapen, as the front portion was crooked and bent somewhat to the right.

0,5 mm), and only the foremost thin and elongated portion just behind the scolex is flattened, the latter has four peculiar leaf-formed suckers. In their present (contracted) condition, the largest specimens are scarcely 100 mm in length, and up to 4,5 mm in breadth.

The discovery of an intestinal worm in this phytophagous mammal is not without interest. That is belongs to a hitherto unknown species, appears to be without doubt.

Ordo **Monotremata.**

Fam. Echidnidae.

51. *Echidna aculeata* (Shaw) 1792.

Myrmecophaga aculeata Shaw, Natur. Misc. vol. III, pl. 109 (1792).
Echidna aculeata Waterh., Nat. Hist. Mamm. vol. I, p. 41 (1846).
Echidna acanthion Coll., in: Forh. Vid. Selsk. Christiania 1884, No. 13 (1884); Proc. Zool. Soc. Lond. 1885, p. 150, Pl. X. (1885). Typus.
Echidna aculeata, typica, Thomas, in: Proc. Zool. Soc. Lond. 1885, p. 338 (1885)

A. Young male, Rockhampton, July 1881 (skin with skeleton).
B. Female, Coomooboolaroo, Febr. 1884 (skin with skeleton).
C. Female, Coomooboolaroo, Febr. 1884 (skin with skeleton).
D. Coomooboolaroo, Febr. 1884 (skeleton).
E. Male, Coomooboolaroo, Febr. 1884 (skin with skeleton).
F. Male, Coomooboolaroo, Febr. 1884 (skin with skeleton).
G. Female, Coomooboolaroo, Febr. 1884 (skin with skeleton).
H. Female, Coomooboolaroo, Febr. 1884 (skin with skeleton).
I. Female, Coomooboolaroo, Marts 1884 (skin with skeleton).

Nine specimens of this species, which is commonly distributed over a considerable portion of East and N. Queensland, were in the collection; the largest (I) was a female, with fully developed mammae. In the coast ranges, covered with dense scrub near Herbert River, it was also common. It was called „Gombian" by the natives; it was tracked by the tamed dingos, and was considered a great delicacy on account of its fatness.

Of the 8 specimens, the sex of which can be determined, 3 are males, 5 females; I cannot detect any character, except the spur on the heel, by which the sexes can be distinguished externally.

For comparison with these specimens from Queensland, I had, at their arrival, only a single mounted specimen, as well as a skeleton,

reported to be from South Australia, preserved in the Christiania University Museum. The mounted specimen, a female, distinguished by its comparatively rich clothing of hair, which was visible everywhere between the spines, as well as by its very long claw on the 3rd hind toe, (which was about as long as the 2nd), I regarded as a typical specimen of *E. aculeata.* As all the new specimens from N. Queensland, on the contrary, were characterised by their entire want of hairs visible between the spines, and by the comparatively very short claw on the 3rd hind toe, I considered them as forming an intermediate link between the S. Australian *E. aculeata*, and *E. lawesi* (Rams.) 1877, from New Guinea; and in 1884, I therefore described these individuals as belonging to a new species, under the name of *E. acanthion,* in: Forh. Vid. Selsk. Christiania, 1884, No. 13; in the following year I furnished a more detailed account of it, accompanied by a coloured plate, in: Proc. Zool. Soc. Lond. 1885, p. 150.

Besides the above mentioned external characters, I thought also that in the skeleton of the presumed new species I found decided differences from what I considered as the S. Australian type. When compared with an equally large and fully developed skeleton of the said S. Australian specimen, that of *E. acanthion* was decidedly more slender, and even yet not completely ossified; all the vertebrae were narrower and weaker, the snout more distinctly turned upwards, and the brain case narrower towards the parietalia.

For further details I refer to the fuller description and figure of *E. acanthion* in the last mentioned publication.

Measurements.

	Sex.	Total length. (about).	Length of skull.	Length of snout.	Width of skull.	Snout, contained in skull.
A.	♂ jun.	365 mm	93 mm	41 mm	43 mm	2,02
B.	♀	405 „	101 „	46 „	40 „	2,19 (about)
C.	♀	410 „	103 „	47 „	42 „	2,19 (about)
D.		420 „	103 „	46 „	43 „	2,23
E.	♂	415 „	104 „	46 „	42 „	2,26
F.	♂	448 „	105 „	47 „	44 „	2,23
G.	♀	425 „	108 „	51 „	43 „	2,11
H.	♀	443 „	110 „	52 „	45 „	2,11
I.	♀	448 „	111 „	53 „	44 „	2,09

In a paper in: Proc. Zool. Soc. Lond. 1885, (p. 329) „Notes on the Characters of the different Races of *Echidna*", Mr. Oldfield Thomas, by the aid of great materials collected from the different museums in Europe, together with the collection in the British Museum, has been enabled to declare that the South Australian *E. aculeata*

is not specifically separated from the Tasmanian *E. setosa* Cuv. 1817, or from *E. acanthion* from Queensland, or from *E. lawesi* (Rams.) 1877, from New Guinea, but that all these „species" are connected to each other by intermediate forms.

„*Echidna acanthion* seems to me to be what I might call a hyper-typical form of *aculeata*, not worthy of a separate name, but exceedingly interesting as supplying the much needed intermediate link between *E. aculeata* and *E. lawesi*" (O. Thomas, l. c. p. 336).

As before mentioned, the Christiania University Museum possesses almost no material, by which this question can be decided. I am therefore unable, from personal researches, to form any exact idea concerning the correctness of Mr. Thomas' suggestion, but I can hardly doubt, that he has had good grounds for his opinion; and, in accordance with this, I find that it is best to adopt his views, and therefore I class *E. acanthion*, or the N. Australian form, as a synonym with *E. aculeata*.

In conclusion I append the following abstract of my before mentioned treatise (in: Proc. Zool. Soc. Lond. 1885, p. 157).

The fullgrown specimens from C. Queensland were caught in February and March, and thus the generative organs may be presumed to have been in a dormant state. This, however, seems not to have been the case in all; and it is probable that they produce their young at a different (earlier) season from the southern forms.

Dr. L. informs me, that, according to the statements of both the white men and the natives, this species breeds in Queensland in the winter time, as a rule in the month of May. One pair of ovaries and one pair of mammae were preserved and brought home by him. The first were taken from a fullgrown specimen (I) in the beginning of March, and are considerably developed, although not containing at the time mature eggs; the mammary glands, which were (as far as Dr. L. remembers) taken from the same individual, were on the other hand large and swollen, and contained quantities of milk, which profusely flowed out on a slight pressure. The mammary areola is visible on the belly as a flattish spot.

In a mounted full-grown male is present on each side of the belly (where the mammary areola is found in the female) a small vortex of hairs, apparently an indication of the rudimentary mammae of the males of other mammals.

The two ovaries and uteri, which were brought home, and which I shortly described in the previously mentioned paper, have afterwards

been the subject of closer anatomical examination by Dr. GULDBERG, of the University of Christiania, the result of which he has described in a paper „Beiträge zur Kenntniss der Eierstockeier bei *Echidna*" (in: Sitz.-Ber. Jenaisch. Gesellsch. Medic.-Naturwiss., Jahrg. 1885).

Fam. Ornithorhynchidae.

52. *Ornithorhynchus anatinus* (SHAW) 1779.

Platypus anatinus SHAW, Nat. Misc. vol. X, pl. 385 (1779).
Ornithorhynchus paradoxus BLUMENB., in: VOIGT's Mag. vol. II, p. 205 (1800).
Ornithorhynchus anatinus WATERH., Nat. Hist. Mamm., vol. I, p. 25 (1846).

The Ornithorhynchus is spread over a great part of Queensland. Thus it is numerous in the districts about Rockhampton, and Messrs ARCHER have constantly caught it in the neighbourhood of their stations in this district.

Dr. L. found it also on several of the small tributaries of the Herbert River, or at least as far north as 18° S. L.

A young individual which he secured here in Jan. 1883, was not preserved.