THE

MAMMALS OF AUSTRALIA.

BY

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TO

HIS ROYAL HIGHNESS

THE PRINCE CONSORT

THIS WORK

ON THE

MAMMALS OF AUSTRALIA

IS,

WITH HIS ROYAL HIGHNESS'S PERMISSION,

DEDICATED

BY HIS MOST OBLIGED AND FAITHFUL SERVANT

JOHN GOULD.

HAVING been permitted to dedicate my work on the "Birds of Australia" to Her Most Gracious Majesty Queen Victoria, I was naturally desirous of dedicating the companion-work on the Mammals of the same country to Her Majesty's most enlightened and accomplished Consort; and the required permission was readily and graciously granted me. The dispensation which has deprived Her Majesty and the Prince's adopted country of one whose untimely loss we all deplore, still leaves me the privilege of that permission, and my work will continue to have the honour of being inscribed to His Royal Highness. It is with a melancholy satisfaction that I accordingly retain that Dedication, which, should it meet my Sovereign's eye, will, I think, only recall to her that love which the whole country entertains for his cherished memory. I feel that nothing I can say respecting the admirable qualities of this most enlightened Prince can in any way add to the deservedly high reputation of one whose great learning and manifold virtues, while he was among us, did so much for Science and Art, and whose example, we trust, will influence generations yet unborn.

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PREFACE.

IN the Preface to the 'Birds of Australia,' which has now been fifteen years before the public, I stated that, "Having in the summer of 1837 brought my work on the 'Birds of Europe' to a successful termination, I was naturally desirous of turning my attention to the Ornithology of some other region; and a variety of opportune and concurring circumstances induced me to select that of Australia, the birds of which country, although invested with the highest degree of interest, had been almost entirely neglected." But if the Birds of Australia had not received that degree of attention from the scientific ornithologist which their interest demanded, I can assert, without fear of contradiction, that its highly curious and interesting Mammals had been still less investigated. It was not, however, until I arrived in the country, and found myself surrounded by objects as strange as if I had been transported to another planet, that I conceived the idea of devoting a portion of my attention to the mammalian class of its extraordinary fauna.

The native black, while conducting me through the forest or among the park-like trees of the open plains, would often point out the pricking of an Opossum's nails on the bark of a *Eucalyptus* or other tree, and indicate by his actions that in yonder hole, high up, was sleeping an Opossum, a *Phalangista*, or a Flying *Petaurus*. Even the objects brought to our bush-fires were enough to incite a desire for a more extended knowledge of Australia's Mammals; for numerous were the species of Kangaroos and Opossums that were nightly roasted and eaten by these children of nature. Perchance a half-charred log, or the heated hollow branch of a *Eucalyptus*, would send forth into the lap of one or other of the surrounding guests the *Acrobates pygmæus*, the white-footed *Hapalotis*, or

other small quadruped. Tired by a long and laborious day's walk under a burning sun, I frequently encamped for the night by the side of a river, a natural pond, or a water-hole, and before retiring to rest not unfrequently stretched my weary body on the river's bank; while thus reposing, the surface of the water was often disturbed by the little concentric circles formed by the *Ornithorhynchus*, or perhaps an *Echidna* came trotting up towards me. With such scenes as these continually around me, is it surprising that I should have entertained the idea of collecting examples of the indigenous Mammals of a country whose ornithological productions I had gone out expressly to investigate? To have attempted to acquire a knowledge of more than the Birds and Mammals would have been unwise; still I was not insensible to the interest which attaches to its insects and to its wonderful botanical productions. The *Eucalypti*, the *Banksiæ*, the *Casuarinæ*, the native Cedar- and the Fig-trees will ever stand forth prominently in my memory. While in the interior of the country, I formed the intention of publishing a monograph of the great family of Kangaroos; but soon after my return to England I determined to attempt a more extended work, under the title of the 'Mammals of Australia.'

It will always be a source of pleasure to me to remember that I was the first to describe and figure the Great Black and Red Wallaroos (*Osphranter robustus* and *O. antilopinus*), the three species of *Onychogalea*, several of the equally singular *Lagorchestes*, and many other new species of Kangaroos. Mounted examples of all these animals, whether discovered by myself or by others, are now contained in the national collection of this country; but I regret to say that their colours are very different from what they were while the animals were living, the continuous exposure to light, consequent upon their being placed in a museum, causing their evanescent colouring rapidly to fade, both here and in the collections of every other country. Those who have seen the living *Osphranter rufus* at the Zoological Gardens could scarcely for a moment suppose that the Museum specimen of the same animal had ever been dressed in such glowing tints. To see the Kangaroos in all their glory, their native country must be visited; their beauty would then be at once apparent, and their various specific distinctions easily recognizable.

The exploration of every new district has afforded ample proof of the existence of species in every department of zoology with which we were previously unacquainted. Under these circumstances, I do not consider my work to be in any way complete, or that it comprises nearly the whole of the Mammals of a country of which so much has yet to be traversed; but I bring it to a close after an interval of eighteen years since its commencement, during which constant attention has been given to the subject, as treating upon the genera and species known up to the present time. If my life be prolonged, and the blessing of health be continued to me, I propose, as in the case of the 'Birds

of Australia,' to keep the subject complete, by issuing a supplementary part, from time to time, should sufficient new materials be acquired to enable me so to do.

As with regard to my other publications, so also with this, I have to offer my best thanks to many persons for the kind and friendly assistance they have rendered me in prosecuting my labours on the 'Mammals of Australia.' I cannot, therefore, close these remarks without recording my obligations to Professor Owen, Dr. Gray, and G. R. Waterhouse, Esq., of the British Museum; to Ronald C. Gunn, Esq., of Launceston; the Rev. T. J. Ewing and Dr. Milligan of Hobart Town; to Dr. Bennett, W. S. MacLeay, Esq., Gerard Krefft, Esq., the late Dr. Ludwig Becker, W. S. Wall, Esq., the authorities of the Australian Museum, and the late Frederick Strange, of New South Wales; to Charles Coxen, Esq., of Queensland; John Macgillivray, Esq.; the late Commander J. M. R. Ince, R.N.; to His Excellency Sir George Grey, formerly Governor of South Australia, and now of New Zealand; the late John Gilbert; Professor M'Coy, of Melbourne; George French Angas, Esq., of Angaston, South Australia; W. Ogilby, Esq., formerly Secretary of the Zoological Society of London; Dr. Sclater, its present Secretary; R. F. Tomes, Esq.; M. Jules Verreaux, of Paris; Dr. W. Peters, of the Royal Museum of Berlin; and lastly, my son, Mr. Charles Gould, the Geological Surveyor of Tasmania. I believe I have here enumerated the names of all who have favoured me with specimens or with the benefit of their opinions, in reference to the subjects of the present work. To have omitted the name of one friend would be a source of much vexation to me; but if such should unfortunately have been done, I trust it will be considered the result of inadvertence, and not of intentional neglect.

To my artist, Mr. Richter, I consider (and I have no doubt my readers will concur in my opinion) that much credit is due for the manner in which he has executed the drawings, both from the dead as well as from the living examples from which they were taken. My Secretary, Mr. Prince, has also discharged the same praiseworthy services as heretofore.

It will be observed that, in mentioning the localities frequented by the various species, I have mostly employed the term Van Diemen's Land to designate the large island lying off the south coast of Australia; there is now, however, a very general desire that it should be called Tasmania—in honour of Tasman, its original discoverer; this term has, therefore, also been used, and hence has arisen the discrepancy of employing two names for one island. Even since the commencement of the work, new colonies have sprung up, or the older ones have been divided; thus the country now known as Queensland was formerly part of New South Wales, and Victoria, until lately, was known as Port Phillip.

INTRODUCTION.

In the foregoing Preface I have glanced at the principal groups of Mammals inhabiting the great country of Australia. It will now, however, be necessary to enter into greater detail respecting this division of its fauna; and I conceive that it will not be out of place if I commence with a retrospective view of the gradual discovery of countries and their zoological productions from the earliest historic times. Such a retrospect will not, I think, be deemed unnecessary, especially since my intention is to show to the general reader, rather than to the scientific naturalist, that each great division of the globe has its own peculiar forms of animal life, and that the fauna of Australia is widely different from that of every other part of the world. By a mere glance at the zoological features of the globe as at present existing, it will be perceived with what precision the animal life of each country has been adapted to its physical character; the absence of certain great families of birds and quadrupeds in some countries will also be apparent. To account for this on any scientific principle would be very difficult, when we cannot say why the Nightingale is not a summer visitant to Devonshire, or why the Grouse is not found south of Wales; why the aërial Swifts, Swallows, and Martins are numerous in Australia, and absent in New Zealand; or why Woodpeckers, which occur in nearly every other part of the globe, are not found in Australia, New Guinea, or any of the Polynesian Islands.

The ancient Egyptians appear to have been little acquainted with the natural productions of any other country than their own,—at least, we have no evidence that they were; for neither so conspicuous a bird as the Peacock, nor even the Common Fowl, are represented on their lasting monuments. Of the eastern countries Alexander's expedition doubtless greatly increased the knowledge of the Greeks, furnishing materials for the philosophic mind of Aristotle, and certainly extending the knowledge of Pliny, as is evidenced by his 'Historia Naturalis,' the only work which has come down to us of the latter great naturalist. Pliny, standing out as a bright star in zoological science at the period he lived, was doubtless tolerably acquainted with the natural productions of Eastern Europe, Arabia, North-eastern Africa, slightly with those of Persia, and still less so with those of India.

It may be fairly said, that the earliest dawn of natural history commenced with the Christian era,—Aristotle living just before, and Pliny soon after, the advent of our Saviour. This early dawn, however, was for a long period obscured by the dark ages which succeeded; for it was not until the commencement of the

17th century that Aldrovandus, Piso, Marcgrave, and Willughby wrote their works on this branch of science. At this comparatively late period, the productions of Europe were better known; Africa had been for a long time circumnavigated, and its southern fauna partially brought to light; India also in like manner furnished her quota, though sparingly, to the stock of human knowledge. What Alexander's celebrated expedition did for the naturalists Aristotle and Pliny, the discoveries of Columbus did by shedding a new light upon zoological science, and furnishing fresh food to the modern writers above mentioned. Linnæus, the greatest of all systematists, had a very extended knowledge of the natural productions of the globe, and the information this great man has left behind him in his numerous writings is considerable. Still, the southern land which we designate Australia (the mammalian products of which this work is intended to illustrate) was a sealed book to him. As regards this great country, it may be said that its most highly organized animals, if we except the Seals, are the various species of Rodents, and the equally numerous insectivorous and frugivorous Bats, both of which rank among the lowest of the *Placentals*. In America the *Marsupialia* are but feebly represented; in Africa and India none of this form exist. On the other hand, Australia is the great country of these pouched animals; they are universally distributed throughout its entire extent, from north to south, and from east to west; and they are not even absent from the neighbouring islands. Their presence in Tasmania on the south, and New Guinea on the north, testifies that these countries were formerly united to the mainland, and constituted a great natural division of the globe, characterized by a similar fauna and flora. It will be unnecessary for me to state that none of the *Quadrumana*, or Monkeys, are found in Australia; and that neither the Lion, the Tiger, the Leopard, nor any other of the *Felinæ*, roam among its forests, to disturb the harmony of its generally peaceful quadrupeds.

The great groups of the *Bovinæ*, or Oxen, the *Equinæ*, or Horses and Zebras, the stately Elephant, the huge Rhinoceros, as well as the *Cervidæ*, or Deer-kind, and the Antelopes, are totally unknown in Australia; yet the great grassy plains and other physical features of the country would appear to be well adapted for them and also for the smaller herbivorous quadrupeds, such as the Hare, the Rabbit, &c. Why there should occur so great a difference between the animals of Australia and those of the other countries of the world it is not for me to say. But I may ask, has creation been arrested in this strange land? and, if not, why are these higher types denied to it? Whatever opinion may be formed on this interesting subject, it is generally believed that no more highly organized animals than those which are now found there ever roamed over her plains or tenanted her luxuriant brushes. At the same time, the partially fossilized remains of distinct species of Kangaroos which have been discovered in her stalactitic caves, and the huge skeletons, or parts of skeletons, which have been exhumed from her alluvial beds, testify that Australia must be of remote origin. It is scarcely necessary to remark that all these remains belong to Marsupial animals; nor must it be imagined that I am oblivious of the fact that the remains of members of this group have been found in the older tertiary and secondary strata of Europe. I merely glance at these things, and leave their consideration to those who pay special attention to the sister science of geology.

Although the more highly organized animals do not inhabit, and seem never to have inhabited Australia, it is not a little interesting to observe how completely the law of representation is manifested among her mammals—how one family typifies another in the higher groups of the *Placentalia*; or, to be more explicit, to note how the *Herbivora* are represented by the Kangaroos, the *Felinæ* by the *Dasyures*, the Jerboas by the *Hapalotides*, &c. When speaking of the wonderful fossil *Diprotodon*, in his work on Palæontology,

Professor Owen states—"Australia yields evidence of an analogous correspondence between its last extinct and its present aboriginal mammalian fauna, which is the more interesting on account of the very peculiar organization of most of the native quadrupeds of that division of the globe. That the *Marsupialia* form one great natural group is now generally admitted by zoologists; the representatives in that group of many of the orders of the more exclusive Placental subclass of the Mammalia of the larger continents have also been recognized in the existing genera and species: the *Dasyures*, for example, play the parts of the *Carnivora*; the Bandicoots (*Perameles*), of the *Insectivora*; the Phalangers, of the *Quadrumana*; the Wombat, of the *Rodentia*; and the Kangaroos, in a remoter degree, of the *Ruminantia*. The first collection of mammalian fossils from the ossiferous caves of Australia brought to light the former existence on that continent of larger species of the same peculiar marsupial genera: some, as the Thylacine, and the Dasyurine subgenus represented by the *D. ursinus*, are now extinct on the Australian continent; but one species of each still exists on the adjacent island of Tasmania; the rest were extinct Wombats, Phalangers, Potoroos, and Kangaroos—some of the latter (*Macropus Atlas*, *M. Titan*) being of great stature. A single tooth, in the same collection of fossils, gave the first indication of the former existence of a type of the Marsupial group, which represented the Pachyderms of the larger continents, and which seems now to have disappeared from the face of the Australian earth,—of the great quadruped, so indicated under the name of *Diprotodon* in 1838; and successive subsequent acquisitions have established the true marsupial character and the near affinities of the genus to the Kangaroo (*Macropus*), but with an osculant relationship with the herbivorous Wombat. The entire skull of the *Diprotodon*, lately acquired by the British Museum, shows *in situ* the tooth on which the genus was founded. This skull measures 3 feet in length, and exemplifies by its size the huge dimensions of the primeval Kangaroo. Like the contemporary gigantic Sloth in South America, the *Diprotodon* of Australia, while retaining the dental formula of its living homologue, shows great and remarkable modifications of its limbs. The hind pair were much shortened and strengthened compared with those of the Kangaroo; the fore pair were lengthened, as well as strengthened. Yet, as in the case of the *Megatherium*, the ulna and radius were maintained free, and so articulated as to give the fore paw the rotatory actions. These, in *Diprotodon*, would be needed, as in the herbivorous Kangaroo, by the economy of the marsupial pouch. The dental formula of *Diprotodon* was the same as in *Macropus major*: the first of the grinding series was soon shed, but the other four two-ridged teeth were longer retained; and the front upper incisor was very large and scalpriform, as in the Wombat. The zygomatic arch sent down a process for augmenting the origin of the masseter muscle, as in the Kangaroo. The foregoing skull, with parts of the skeleton of the *Diprotodon australis*, were discovered in a lacustrine deposit, probably pleistocene, intersected by creeks, in the plains of Darling Downs, Australia.

"The same formation has yielded evidence of a somewhat smaller extinct herbivorous genus (*Nototherium*), combining, with essential affinities to *Macropus*, some of the characters of the Koala (*Phascolarctos*). The writer has recently communicated descriptions and figures of the entire skull of the *Nototherium Mitchelli* to the Geological Society of London. The genus *Phascolomys* was at the same period represented by a Wombat (*P. gigas*) of the magnitude of a Tapir. The pleistocene marsupial Carnivora presented the usual relations of size and power to the Herbivora whose undue increase they had to check."

In another work, Prof. Owen represents an almost entire skull, with part of the lower jaw, of an animal (*Thylacoleo*) rivalling the Lion in size, the marsupial character of which is demonstrated by the position of

the lacrymal foramen in front of the orbit, by the palatal vacuity, by the loose tympanic bone, by the development of the tympanic bulla in the alisphenoid, by the very small relative size of the brain, and other characters. "The carnassial tooth is 2 inches 3 lines in longitudinal extent, or nearly double the size of that in the Lion. The upper tubercular tooth resembles, in its smallness and position, that in the placental Felines. But in the lower jaw the carnassial is succeeded by two very small tubercular teeth, as in *Plagiaulax*; and there is a socket close to the symphysis of the lower jaw of *Thylacoleo*, which indicates that the canine may have terminated the dental series there, and have afforded an additional feature of resemblance to the *Plagiaulax*."

As might naturally be expected, the climate of a country which extends over more than 30 degrees of latitude is very much diversified. Cape York and Arnheim's Land are as near 11° south as possible, while Wilson's Promontory, in Victoria, reaches 39°, and the southern part of Tasmania 44½°. The parts of Australia approaching the Tropic differ very considerably from its southern portions; for, lying more to the north, the latter are under the influence of monsoons, and rains more or less regular occur in their proper seasons. Speaking generally, however, Australia may be characterized as one of the driest and most heated countries of our globe; for, although an island in the strictest sense of the word, it is so extensive that the surrounding seas have little influence upon the distant interior, which must still be regarded as a great sterile waste, destitute of mountains sufficient to attract the moisture requisite to form navigable or other rivers. In writing this in 1863, when travellers have crossed the country and so many valuable discoveries have lately been made, I am willing to admit that this great desert is here and there relieved by higher lands which will ultimately become useful to the enterprising settler, and that, in all probability, many fine and extensive oases have yet to be brought to light; but, at the same time, I believe there will always be considerable uncertainty in the seasons of the interior of this great land. In southern latitudes we know that this is the case, while in the north a wet or a dry monsoon greatly alters the face of the country, and exerts a powerful influence on animal and vegetable life. Hence it is that the scanty fauna of this part of Australia is so organized that it is able to exist without water: the various species of Rodents, such as the members of the genera *Mus* and *Hapalotis*, and the Wombats, Lagorchestes, and Bettongias, and other Kangaroos, are thus constituted; and it will be recollected that, when speaking of the Halcyons and other large Kingfishers in the 'Birds of Australia,' I stated that I believed they never partook of this element, their food consisting of lizards and insects, to which, in like manner, it was not essential. The Australian mammals must, however, be put to severe straits occasionally, not from the want, but from the superabundance of water,—a wet monsoon in the north, and the heavy rains which occasionally occur in the south, deluging the basin-like surface of the interior and rendering it untenable, and obliging them to retire to the higher ridges until the drought, which generally ensues, has restored it to its normal condition. The districts, or countries as I may call them, which constitute the other portions of Australia are very different, indeed completely opposite in character; I mean the rich lands which surround nearly the whole of the sterile centre. The mountain-ranges, of no very great elevation it is true, exert much influence upon the face of nature, constantly attracting rains, which, pouring down their sides, deposit a rich alluvial soil, favourable to the growth of gigantic trees and the most luxuriant vegetation. The forests of Palms which there occur are scarcely inferior to those of any other country, while the stately native Cedars and Fig-trees are wonders to every traveller. These giants of the forest are scarcely ever to be found in the interior; sterility is not suited to their existence; they do not occur in company with the *Banksiæ*, the *Hakeæ*, or the *Casuarinæ*, most of which are characteristics of land

wherein the settler would not choose to risk his fortune. The great physical features of Australia, then, as a whole, are the absence of high mountains and navigable rivers, its heated interior, its vast grassy plains, and its luxuriant brushes, particularly on its southern and south-eastern coasts. Over the whole of this extensive country, with its ever-varying climate, certain groups of animals are universally spread, while others, particularly the more isolated forms, are strictly confined to their own districts, each adapted for some special end and purpose,—as much as the long bill of the Humming-bird (*Docimastes ensiferus*) is evidently formed for exploring the lengthened tubular corollas of the *Brugmansiæ*, or the greatly curved bill of two species of the same family of birds (the *Eutoxeres Aquila* and *E. Condaminei*) is for insertion into the honey-cups of the *Coryanthes speciosa* and its allies,—or, to take a more striking instance, as the brush-like tongues of the numerous honey-feeding Parrakeets and Honey-eaters of Australia are constituted for obtaining the nectar from the flowers of the universally spread and equally numerous *Eucalypti* which form so prominent a feature in the flora of that country.

I will now give, as far as my knowledge of the subject will permit, an enumeration of Australian mammals, the extent of their range, &c. In doing this, I shall commence with the Monotrematous section of the *Marsupiata*, which includes the *Ornithorhynchus* and two species of *Echidna*; I shall then proceed to the genera *Myrmecobius*, *Tarsipes*, *Chœropus*, *Peragalea*, *Perameles*, *Phascolarctos*, *Phalangista*, *Cuscus*, *Petaurista*, *Belideus*, *Phascogale*, *Sarcophilus*, *Dasyurus*, *Thylacinus*, and *Phascolomys*; and these will be followed by the great family of Kangaroos, with remarks upon their structural differences and the especial object for which these appear to have been designed; next we shall come to the feebly represented Placentals, the Seals, and Rodents; and lastly, to the species of *Pteropus* and other Bats.

I have considered that, in a large illustrated work like the 'Mammals of Australia,' it would be out of place to enter into the anatomy of the objects I have represented. I have therefore omitted all details of this kind; neither have I included therein a repetition of the generic characters and Latin descriptions which have appeared in general works on Mammalogy, where they may be easily referred to. Those who wish to enter more fully into the generic characters of the Australian mammals will find all the information they can wish for in Mr. Waterhouse's valuable work, entitled 'A Natural History of the Mammalia,' a publication of such great promise and merit, that it becomes a matter of surprise and regret to all interested in this branch of science that the publisher decided upon not continuing it to its completion.

It will be observed that I have entirely omitted the Whales, Porpesses, and Dugong, my reason for so doing being that I had not sufficient opportunities for studying those animals in a state of nature, and therefore have not attempted that which I did not understand, and consequently could not have accomplished in a satisfactory manner. With regard to the Dugong, I must not omit thanking my relative, Charles Coxen, Esq., of Queensland, for his attention in sending me a skin and part of the skeleton of this animal; but even with these materials I found I could not produce an accurate representation of it in the living state. Although I do not inflict upon my readers the characters and distinctions of genera, I must not pass over unnoticed the principal features which distinguish the *Marsupiata* from the Placental Mammalia. In the first place, the former are considered to be much less highly organized than the latter: according to Professor Owen, the brain is deficient in both the corpus callosum and the septum lucidum; the cerebrum is small in proportion

to the animal, contracted in front, and its surface is smooth, or presents but few convolutions; the cerebellum is entirely exposed, and has a vermiform process large in proportion to the lateral lobes; the olfactory lobes are large. Two venæ cavæ enter the heart; "the right auricle has no trace of a fossa ovalis." In point of fact, the main characteristic of the Marsupials, as distinguished from the Placentals, is that much of the embryotic life in the former is carried on in what may be called a sort of external uterus.

On my return from Australia, the venerable Geoffroy St.-Hilaire put the following question to me, "Does the Ornithorhynchus lay eggs?" and when I answered in the negative, that fine old gentleman and eminent naturalist appeared somewhat disconcerted. Now, this oviparous notion was nearly in accordance with the true state of things—somewhat akin to what is actually the case; and I consider the most striking peculiarity of this singular animal, and indeed of all the *Marsupiata*, to be the imperfectly formed state in which their young are born. The Kangaroo at its birth is not larger than a baby's little finger, and not very unlike it in shape: in this extremely helpless state, the mother, by some means at present unknown, places this vermiform object to one of the nipples within her pouch or marsupium; by some equally unknown process, the little creature becomes attached by its imperfectly formed mouth to the nipple, and there remains dangling for days, and even weeks, during which it gradually assumes the likeness and structure of its parents; at length it drops from this lacteal attachment into the pouch, re-attaches itself when hunger prompts it so to do, and as often again tumbles off when its wants have been supplied. It is scarcely necessary to say that, after gaining sufficient strength, it leaves this natural pocket of the mother, leaps into the open air and sports about the plains or the forest, as the case may be, and returns again to its warm home, until at length the wearied mother denies it this indulgence and proceeds again to comply with the law which governs all creatures, that of reproduction. This is a very low form of animal life, indeed the lowest among the Mammalia, and exhibits the first stage beyond the development of the bird.

This description has reference not only to the Kangaroos, which mostly have but one young at a time, but is equally descriptive of the other members of this group, some of which have two, while others have three or four, and others, the *Phascogalæ* for instance, eight or nine at a birth; but in all cases, even with these large numbers, the young hang to the mammæ in the way I have described.

Independently of the low structure of the brain and the low form of reproduction of the Kangaroos, I ought to mention that two little bones have been expressly provided for the support of the marsupium; there is also a considerable difference in the dentition, as well as in the form of the lower jaw, by which this group of animals may at all times be distinguished. I have not failed to notice much disparity in size in the *Marsupiata*; they seem to be always growing; for the males get larger and still larger for years, even long after they have commenced the duty of reproduction, and hence individuals of all sizes occur, and occasionally one extraordinarily large may be met with. I have observed this to occur with all the Marsupials, but particularly among the Kangaroos. The great herds of the grey species, *Macropus major*, are frequently headed by an enormous male, or Boomer as he is called. Like the "rogue Elephants" of Ceylon, these patriarchs are often solitary, and are generally very savage.

Commencing with the most lowly organized of the Australian mammals, I may state that the *Ornithorhynchus* has a very limited range, as is shown by its not being found either in Western or Northern Aus-

tralia—the south-eastern portions of the continent and Van Diemen's Land being the localities to which it is confined.

The spiny *Echidna hystrix* has not yet been found to the northward of Moreton Bay on the east coast, and, except in New South Wales and the islands in Bass's Straits, it is very rare—so rare indeed, that I have never seen a specimen from South Australia; yet in all probability it will be found there, since Mr. Gilbert obtained an example at Swan River; this individual, however, did not come under my notice, and I am therefore unable to say if it were a true *E. hystrix*, or a western representative of that species.

The more hairy *Echidna setosa* is confined to Van Diemen's Land; but it is questionable whether it be really distinct from *E. hystrix*; the more southern position and colder climate of that island may have had the effect of giving it a warmer coat, whiter spines, and of altering its general appearance.

The single species representing the genus *Myrmecobius* (*M. fasciatus*) appears to be more plentiful in the Swan River Settlement than elsewhere; it nevertheless occurs in the Murray Scrub and other parts of South Australia, and from thence to the western coast it probably inhabits every locality suited to its habits and mode of life.

Like the *Myrmecobius*, the little honey-lapping *Tarsipes rostratus* stands quite alone—and a truly singular creature it is: to give the area over which it ranges is impossible, as we know far too little of these diminutive mammals to come to any positive conclusion on this point; at present, the neighbourhood of King George's Sound is one of the localities in which it has been seen in a state of nature.

Isolated in form and differing in the structure of its feet from every other known quadruped is the *Chæropus*, an animal which frequents the hard grounds of the interior, over which it is dispersed from New South Wales to Western Australia. The specific term of *ecaudatus*, first applied to this animal in consequence of the specimen characterized being destitute of the caudal appendage, must now sink into a synonym, that organ being as well developed in this as in any other of the smaller quadrupeds, the *Perameles* for instance, to which this singular animal is somewhat allied.

The root-feeding Dalgyte, or *Peragalea lagotis*, leads us still nearer to the genus *Perameles*: the fauna of Western Australia is greatly enriched by the addition of this beautiful species. I believe that South Australia may also lay claim to it; for I have seen a tail, said to have been obtained on the south coast, which greatly resembled that of the Swan River *Peragalea*; but it may have pertained to an allied animal with which we are not yet acquainted.

The members of the restricted genus *Perameles* are numerous in species, and universally dispersed over the whole of Australia and Van Diemen's Land; they also extend in a northerly direction to New Guinea and the adjacent islands. Of this genus there are two well-marked divisions: one distinguished by bands on their backs or crescentic markings across their rumps and by their diminutive tails, the other by a uniformity in their colouring. The species of the former division inhabit the hot stony ridges bordering the open plains; those of the latter the more humid forests, among grass and other dense vegetation. Figures of

most of these Bandicoots, as they are called, and an account of the manners, habits, and economy of each, so far as known, will be found in their proper places in the body of the work.

The Phascogales, of which there are three, namely *P. penicillata*, *P. calura*, and *P. lanigera*, are all natives of the southern portions of Australia, from east to west; they are, however, rather denizens of the interior than of the provinces near the coast, but the *P. penicillata* is alike found in both. Their dentition indicates that they are sanguinary in their disposition,—a character which is confirmed by the *P. penicillata*, small as it comparatively is, being charged with killing fowls and other birds.

It might be thought that the *Phascogalæ* would naturally lead to the *Antechini*, but there is no real affinity between the two groups. I find it most difficult to arrange the Australian mammals in anything like a serial order; but the numerous species forming the genera *Antechinus* and *Podabrus* are, perhaps, as well placed here as elsewhere. Like the *Peramelides*, the members of those genera inhabit every part of Australia and the adjacent islands: the thick-tailed species, forming the genus *Podabrus*, frequent the interior rather than the coast; the *Antechini*, on the other hand, inhabit both districts; and wherever there are trees and shrubs, one or other of them may be found; some evince a partiality for the fallen boles lying on the ground, while others run over the branches of those that are still standing.

I now approach a better-defined section of the Australian Marsupiata than any of the preceding—the nocturnal Phalangers. These are divided into several genera—*Phascolarctos*, *Petaurista*, *Belideus*, *Phalangista*, *Cuscus*, *Acrobates*, and *Dromicia*. The extraordinary Koala is only found in the brushes of New South Wales. It stands quite alone—the solitary species of its genus, and it is well worth while to turn to my figures and description of this anomalous Sloth among the Marsupials. The *Petauristæ* are strictly brush-loving animals, and are almost entirely confined to New South Wales; some one or other of the *Belidei*, on the other hand, is found in all other parts of the Australian continent (except perhaps its western portion), wherever there are *Eucalypti* of sufficient magnitude for their branches to become hollow spouts wherein these nocturnes may sleep during the day. This form also occurs among the animals of the New Guinea group of islands. The little Opossum Mouse, *Acrobates pygmæus*, is a general favourite with the colonists; and well it may be so, for in its disposition it is as amiable as its form is elegant and its fur soft and beautiful: what the Dormouse is to the English boy, this little animal is to the juveniles of Australia. I have seen it kept as a pet, and its usual retreat in the day, while it sleeps, was a pill-box; as night approaches it becomes active, and then displays much elegance in its motions. The true *Phalangistæ* comprise many species; and are found in every colony, in Port Essington on the north, Swan River on the west, New South Wales and Queensland on the east, and Victoria and Van Diemen's Land on the south. They lead to the genus *Cuscus*, a form better represented in New Guinea and its islands than in Australia, where only one species has been discovered, in the neighbourhood of Cape York. Of the two fairy-like *Dromiciæ*, which live upon the stamens of flowers and the nectar of their corollas, one is found in Van Diemen's Land, the other in Western Australia. The description of a third species of this form has just been transmitted to the Zoological Society by Mr. Krefft, who states that it was taken from an example discovered by himself in New South Wales, and proposes to call it *D. unicolor*.

An equally remarkable and distinct division or group is composed of the Dasyures, to which the extra-

ordinary *Sarcophilus ursinus* of Van Diemen's Land bears precisely the same degree of relationship that the Koala does to the Phalangers. Like the *Thylacinus*, the *Sarcophilus* is confined to Van Diemen's Land. And I would ask, why are these strange and comparatively large animals now restricted to so limited an area? for it can scarcely be supposed that they have not, at some time or other, inhabited the continent of Australia also. Had not Tasmania as well as the mainland been peopled for a long time by the human race, it might have been supposed that their extirpation from the continent had been effected by these children of nature. Whatever the cause may have been, it cannot now be ascertained, and we must be content to treat of the creatures that still exist. Of the true Dasyures, four very distinct species are dispersed over Australia from Van Diemen's Land to the shores of Torres' Straits. Tasmania is frequented by two (*Dasyurus maculatus* and *D. viverrinus*), the southern parts of the mainland by the same two species with the addition of a third (*D. Geoffroyi*), while the *D. hallucatus* inhabits the north. The animals of this genus are very viverrine both in their appearance and in their sanguinary disposition, and are probably the true representatives in Australia of that group of quadrupeds. The term 'sanguinary' is rightly applied to some of these animals, yet there is not one which a child might not conquer. The boldest of them are more troublesome than dangerous, and a robbery of the hen-roost is the utmost of the depredations their nature prompts them to commit.

I now come to the most bloodthirsty of the Australian mammals—the Wolf of the Marsupials—the *Thylacinus* of Tasmania's forest-clad country—the only member of its Order which gives trouble to the shepherd or uneasiness to the stockholder. Van Diemen's Land is the true and only home of this somewhat formidable beast, which occasionally deals out destruction among the flocks of the settler, to which it evinces a decided preference over the Brush Kangaroos, its more ancient food. To man, however, it is not an object of alarm; for the shepherd, aided by his dog, and stick in hand, does not for a moment hesitate about attacking and killing it. The large life-sized head and the reduced figures given in the body of the work well represent the *Thylacinus*, and all that is known of its habits will be found in the accompanying letter-press.

Until lately, only one species of *Phascolomys* or Wombat was clearly defined; but we now know that there are three, if not four, very distinct kinds; and in all probability others may yet be discovered, and prove that this form has a much more extended range than is at present supposed. The *P. Wombat* is still abundant in Van Diemen's Land and on some of the islands in Bass's Straits; and two or three species burrow in the plains of the southern countries of Australia generally. These huge, heavy, and short-legged animals, revelling in a state of obesity, feed most harmlessly on roots and other vegetable substances; they are the Rodents of their own Order, and the representatives of the Capybaras of South America. With this group I terminate the first volume; the next is devoted to the great family of the *Macropodidæ* or Kangaroos. This, the most important of all the Marsupial groups, both as to diversity of form and the number of species, is so widely and so universally dispersed over the Australian continent and its islands, that its members may be said to exist in every part of those countries. They are found in great abundance in the southern and comparatively cold island of Tasmania, while three species, at least, tenant that little-explored country, New Guinea, and some of the adjacent islands. Varied as the physical condition of Australia really is, forms of Kangaroos are there to be found peculiarly adapted for each of these conditions. The open grassy plains, sometimes verdant, at others parched up and sterile, offer an asylum to several of

the true *Macropi*; the hard and stony ridges and rocky crowns of the mountains are frequented by the great Osphranters; precipitous rocks are the home of the Petrogales; the mangrove-swamps and dense humid brushes are congenial to the various *Halmaturi*; in the more spiny brigaloe-scrubs the *Onychogaleæ* form their runs, and fly before the shouting of the natives when a hunt is the order of the day; among the grassy beds which here and there clothe the districts between the open plains and the mountain-ranges—the park-like districts of the country—the *Lagorchestes* sit in their "forms," like the Hare in England; and the *Bettongiæ* and *Hypsiprymni* shroud themselves from the prying eye of man and the eagle in their dome-shaped grassy nests, which are constructed on any part of the plains, the stony ridges, and occasionally in the open glades among the brushes. The species inhabiting New Guinea (the *Dendrolagus ursinus* and *D. inustus*) resort to the trees, and, monkey-like, ascend and live among the branches. Of the Filander of the same country we know little or nothing. How wonderfully are all these forms adapted to a separate and special end and purpose—an end and a purpose which cannot be seen to advantage in any but a comparatively undisturbed country like Australia—a part of the world's surface still in maiden dress, but the charms of which will ere long be ruffled and their true character no longer seen! Those charms will not long survive the intrusion of the stockholder, the farmer, and the miner, each vying with the other to obliterate that which is so pleasing to every naturalist; and fortunate do I consider the circumstances which induced me to visit the country while so much of it remained in its primitive state.

I must revert to the Kangaroos; for it will be necessary to point out the situations affected by the various genera. In the body of the work three species of true *Macropi* are figured, and others are described, but not represented. These are all inhabitants of the southern districts of Australia and Van Diemen's Land. To say that no true *Macropus*, as the genus is now restricted, will be found in Northern Australia would be somewhat unwarrantable; at the same time, I have never seen an example from thence. The genus *Osphranter*, on the other hand, the members of which, as has been before stated, are always found in rocky situations, have their representatives in the north as well as in the south, but they are not found in Van Diemen's Land. The splendid *O. rufus* is an animal of the interior, and frequents the plains more than any other species of its genus. At present, the back settlements of New South Wales, Queensland, Victoria, and South Australia are the only countries whence I have seen specimens. The Great Black Wallaroo (*O. robustus*) forms its numerous runs among the rocks, and on the summits of mountains bordering the rivers Mokai and Gwydyr. The *O. Parryi* ranges over the rocky districts of the headwaters of the Clarence and adjacent rivers, while the *O. antilopinus* is as yet only known in the Cobourg Peninsula.

The smaller *Petrogalæ* differ from all the other Kangaroos, both in the form of their feet and the structure of their brushy dangling tails. With the exception of Tasmania, these rock-lovers dwell everywhere, from north to south, and from east to west. The *P. penicillata* inhabits New South Wales; the *P. xanthopus*, South Australia; the *P. lateralis*, Western Australia; the *P. concinna* and *P. brachyotis*, the north-west coast; and the *P. inornata*, the opposite rocky shores of the east.

The true Wallabies, or *Halmaturi*, are all brush animals, and are more universally dispersed than any of the other members of the entire family. Tasmania is inhabited by two species, New South Wales by at least five, South Australia by two or three, and Western Australia by the same number; while the genus is represented on the north coast by the *H. agilis*. It will be clear, then, that the arboreal districts of the

south, with their thick and impenetrable brushes, are better adapted for the members of this genus than the hotter country of the north.

The *Onychogaleæ* are, *par excellence*, the most elegantly formed and the most beautifully marked members of the whole family, and they are, moreover, as graceful in their actions as in their colouring they are pleasing to the eye. One species, the *O. frænata*, inhabits the brigaloe-scrubs of the interior of New South Wales and Queensland, and probably South Australia. The *O. lunata* plays the same part, and affects very similar situations, in Western Australia; while the *O. unguifera*, as far as we yet know, is confined to the north-eastern part of the continent.

The *Lagorchestes* are a group of small hare-like Kangaroos, which dwell in every part of the interior of the southern portion of the mainland, from Swan River on the west to Queensland on the east; one species has, however, been found in the northern districts—the *L. Leichardti*, as it has been named, in honour of its discoverer, the late intrepid and unfortunate explorer, Dr. Leichardt. They are the greatest leapers and the swiftest runners among small animals I have ever seen; they sleep in forms, or seats, like the Common Hare (*Lepus timidus*) of Europe, and mostly affect the open grassy ridges, particularly those that are of a stony character. The beautiful *L. fasciatus* of Swan River is one of the oldest known; the *L. Leichardti* the latest yet discovered.

The *Bettongiæ*, with their singular prehensile tails, also enjoy a wide range, the various species composing the genus being found in Tasmania, New South Wales, Southern and Western Australia, but, so far as we yet know, not in the north. For a more detailed account of the localities favoured with the presence of these animals, and the manner in which their prehensile tails are employed in carrying the grass for their nest, I must refer to the history of the respective species, and particularly to the plate of *Bettongia cuniculus*.

The *Hypsiprymni* are the least and, perhaps, the most aberrant group of this extensive family. They inhabit the southern and most humid parts of the country, and are to be found everywhere, from Tasmania to the 15th degree of latitude on the continent in one direction, and from the scrubs of Swan River and King George's Sound to the dense brushes of Moreton Bay in the other; like most other Kangaroos, they are nocturnal in their habits, grub the ground for roots, and live somewhat after the manner of the *Peramelides*, with which, however, they have no relationship.

To render my history of this group of animals the more complete, I have included in the work the three species inhabiting New Guinea: two of these belong to the genus *Dendrolagus*, and, as their name implies, dwell among the branches of trees, and rarely resort to the ground: the third forms the genus *Dorcopsis*, of which a single species only is known; it has doubtless some peculiar habits, but these must be left for a future historian to describe; at present they are unknown.

The great family of the Kangaroos, of which what I have here written must only be regarded as a slight sketch, is well worthy the study of every mammalogist. It forms by far the most conspicuous feature in the history of Australian quadrupeds; and, numerous as are the species now known, I doubt not that

others will yet be discovered when the north and north-western provinces of the country have been more diligently explored.

The third and concluding volume is devoted to the Rodents, Seals, and Bats, and ends with the *Canis Dingo*. These are the only Placental animals inhabiting the land of Australia, and, contrary to what was formerly supposed, the Rodents form no inconspicuous feature among the quadrupeds of that country. They are very numerous in species, and almost multitudinous in individuals. Every traveller who has visited the interior can testify to this fact. If exploration has been his object, the numerous runs and tracks of these little animals must have been frequently presented to his notice,—every grassy bed being tenanted by its own species of *Mus*, while all the sand-hills are run over by the same or other species, interspersed with the Jerboa-like *Hapalotides*. The sluggish river-reaches and water-holes of nearly every part, from Tasmania through all the southern portions of the continent, have their muddy banks traversed by the *Hydromys*, or Beaver-Rats, as they have been very appropriately called. Even New Zealand, a country which it was formerly supposed never had a more highly organized indigenous creature than a bird, has its Bats; it will not be surprising, therefore, that the sister country of Australia should be tenanted by numerous species of these Noeturnes; not only are they individually very plentiful, but many distinct forms or genera are there found. The brushes which abound in fruit-bearing fig-trees are frequented by Vampires or *Pteropi*—a form which appears to be mainly confined to the south-eastern and northern portions of the country, for I have not yet seen any examples from Tasmania, or Southern or Western Australia. The trees in this strange country which bear either fruit or berries are very few. Even the fruit of the stately parasitic Fig is a mere apology for that which we are accustomed to see, and hence but few species of these great frugivorous Bats occur in the fauna of Australia. At the same time, the paucity of species is amply compensated by the number of individuals; these, however, are confined to the brushes which stretch along the eastern coast. In these solitary forests they teem and hang about in thousands, frequently changing their *locale* when their food becomes scarce or has been entirely cleared off. The species I more particularly allude to is the *Pteropus poliocephalus*. The Cobourg Peninsula and other parts of the north coast are also inhabited by a species which, according to Gilbert and Leichardt, is very abundant. A third and very fine one frequents Fitzroy Island, lying off the eastern coast.

The extraordinary *Molossus australis* is a native of Victoria, and is the sole species of its genus yet discovered in Australia. The *Taphozoi* appear to be rock-loving Bats, and the single species as yet discovered is from the Peninsula of Cape York. The *Scotophili*, of which there are several species, are found in all parts of the country, from Van Diemen's Land to the most northern part of the continent.

The restricted genus *Vespertilio* is more feebly represented than the last-mentioned form, since only two species are known to exist in the country; these are very generally spread over the southern coast.

Of the leaf-nosed *Rhinolophi* I have figured three species—the *R. cervinus*, from Cape York, the *R. auranitius* (a very beautiful species) from North-western Australia, and the *R. megaphyllus* from New South Wales.

The *Nyctophili*, or Long-eared Bats, are well represented; four species, at least, frequenting every part of the continent from east to west, and also the island of Tasmania.

This, I am aware, is a very imperfect *résumé* of the *Cheiroptera* inhabiting Australia; could I have rendered it more complete, I would have done so; but it must be recollected that seventh-tenths of the country are yet unexplored.

A mere glance at the globe which stands in every school-room will show how greatly the sea preponderates over the land of this planet. Like the land, the ocean is tenanted by many remarkable animals, certain groups of which exist in one hemisphere and are not found in the other; and it is not often that even the great Cetaceans occur in both. Neither do the Seals: the equatorial region separates them most completely; that is, no species is common alike to the north and the south. I do not consider that either the Australian *Cetacea* or *Phocidæ* have been well made out, and this certainly is the part of the mammalian fauna of that country of which we know the least. I have omitted the former altogether, but it will be seen that I have figured two of the latter; these constitute two genera (*Stenorhynchus* and *Arctocephalus*); they both inhabit the shores and rocky islands of the southern portion of Australia, while the Dugong (*Halicore australis*) is, as far as I am aware, a native of the east coast only.

Whether the *Canis Dingo* be really indigenous, or has at some very remote period followed Man in his migrations, is a question on which naturalists are at variance. For my own part, I am inclined to the latter theory, as being the most philosophic mode of accounting for its presence there. That Man is the latest visitant to the soil of Australia there can be little doubt; the country is far too sparsely provided with fruits and other substances necessary for his existence to favour a contrary hypothesis.

In the following list of the Australian Mammals I shall refer to the volumes in which they are contained and to the plates on which they are respectively figured, and shall, moreover, give any additional information I may have acquired respecting them, together with an account of the new species which have been described by other writers, but which, from my not having been able to see examples, I have not figured.

Order MARSUPIATA.

Section MONOTREMATA.

Genus Ornithorhynchus, *Blumenb.*

1. Ornithorhynchus anatinus . . . . . Vol. I. Pl. 1.
   Habitat. New South Wales and Tasmania. Victoria and South Australia?

Genus Echidna, *Cuv.*

2. Echidna hystrix . . . . . Vol. I. Pl. 2.
   Habitat. New South Wales, Victoria, the islands in Bass's Straits. Southern and Western Australia?

3. Echidna setosa, *Cuv.* . . . . . Vol. I. Pl. 3.
   Habitat. Van Diemen's Land.

Genus Myrmecobius, *Waterh.*

4. Myrmecobius fasciatus, *Waterh.* . . . . . Vol. I. Pl. 4.
Habitat. Western Australia, and parts of South Australia.

Genus Tarsipes, *Gerv. et Verr.*

5. Tarsipes rostratus, *Gerv. et Verr.* . . . . . Vol. I. Pl. 5.
Habitat. Western Australia.

Mr. Waterhouse is of opinion that this animal is most nearly allied to the *Dromiciæ*, yet he has not placed it near that form in his ' History of the Mammalia.'

Genus Chœropus, *Ogilby.*

6. Chœropus castanotis, *Gray* . . . . . Vol. I. Pl. 6.
Habitat. Interior of New South Wales, South and Western Australia.

Genus Peragalea, *Gray.*

7. Peragalea lagotis . . . . . Vol. I. Pl. 7.
Habitat. Western Australia.

Genus Perameles, *Geoff.*

8. Perameles fasciata, *Gray* . . . . . Vol. I. Pl. 8.
Habitat. Interior of South Australia, Victoria, and New South Wales.

9. Perameles Gunnii, *Gray*. . . . . Vol. I. Pl. 9.
Habitat. Van Diemen's Land.

10. Perameles myosurus, *Wagn.* . . . . . Vol. I. Pl. 10.
Habitat. Western Australia.

11. Perameles nasuta, *Geoff.* . . . . . Vol. I. Pl. 11.
Habitat. New South Wales.

12. Perameles macroura, *Gould.*
Perameles macroura, Gould in Proc. of Zool. Soc. part x. p. 4; Waterh. Nat. Hist. of Mamm. vol. i. p. 366.
Perameles macrurus, Gray, List of Spec. of Mamm. in Coll. Brit. Mus. p. 96.

I have not figured this animal because, although twenty-one years have passed away since my description was published, I have never seen a second example; still I have no doubt of its being a distinct species. It greatly resembles *P. obesula* and *P. nasuta,* but differs from both in its larger tail. I transcribe my original description from the ' Proceedings of the Zoological Society ' above referred to :—

" *Corpore supra nigro et flavescenti-albo penicillato, infra sordide albo, pilis rigidis obsito; cauda pilis parvulis parce tecta, longitudine dimidio corporis æquante, supra nigra, infra fuscescenti-alba; auris mediocribus.*

	unc.	lin.
" Longitudo ab apice rostri ad basin caudæ	16	3
——— *caudæ*	7	3
——— ab apice rostri ad basin auris	3	4
——— *tarsi digitorumque*	3	1
——— *auris*	1	2

" *Habitat.* Port Essington."

13. Perameles obesula, *Geoff.* . . . . . Vol. I. Pl. 12.
Habitat. South coasts of Australia and Tasmania generally.

14. Perameles Bougainvillei, *Quoy et Gaim.*

Perameles Bougainvillei, Quoy et Gaim. Zool. du Voy. de l'Uranie, p. 56, tab. 5, et Bull. des Sci. Nat. 1824, tom. i. p. 270 ; Waterh. Nat. Hist. of Mamm. vol. i. p. 385.

Habitat. Péron's Peninsula ; in Shark Bay, Western Australia.

Having never seen a specimen of this animal, I am unable to figure it, or to say if it be a good species.

Genus Phascolarctos, *De Blainv.*

15. Phascolarctos cinereus . . . . . Vol. I. Pls. 13 & 14.

Habitat. New South Wales.

Genus Phalangista, *Cuv.*

16. Phalangista fuliginosa, *Ogilby* . . . . . Vol. I. Pl. 15.

Habitat. Van Diemen's Land. Victoria?

In one of the letters from my son Charles, now engaged on a geological survey of Tasmania, the following passage having reference to this animal occurs :—

"I lay down, looking up at the moon and stars, thinking of home, and dreamily listening to the crackling of the fire, when a diabolical, chattering, grunting laugh overhead makes me start up, and discover that a Sooty Opossum is making an inspection of me, with comments, from the branch above ; his call is responded to by others, and a kind of concert commences, which is maintained at intervals throughout the night,—the smaller or Ring-tailed Opossums performing an active part in it also, and the 'More Pork' (*Podargus Cuvieri*) lending a little lugubrious assistance occasionally."

17. Phalangista vulpina, *Desm.* . . . . . Vol. I. Pl. 16.

Phalangista melanura, Wagn., Waterh. Nat. Hist. of Mamm. vol. i. p. 288.

———— *felina*, Wagn., Waterh. *ib.* p. 294.

Goö-mal, aborigines of Western Australia.

Habitat. Probably every part of Australia ; certainly all its southern portions.

18. Phalangista canina, *Ogilby* . . . . . Vol. I. Pl. 17.

Habitat. New South Wales.

19. Phalangista Cookii, *Desm.* . . . . . Vol. I. Pl. 18.

Ngö-ra, aborigines of Perth.

Ngork, aborigines of King George's Sound.

"This species," says Mr. Gilbert, "does not confine itself to the hollows of standing or growing trees, but is often found in holes in the ground, where the entrance is covered with a stump ; it is frequently hunted out of such places by the Kangaroo-dogs. It varies very much in the colour of the fur, from a very light grey to nearly a black ; in one instance I caught two, from the same hole, which exhibited the extremes of these colours."

Habitat. New South Wales.

20. Phalangista viverrina, *Ogilby* . . . . . Vol. I. Pl. 19.

Habitat. Van Diemen's Land and Western Australia.

21. Phalangista laniginosa, *Gould* . . . . . Vol. I. Pl. 20.

Habitat. New South Wales.

Genus Cuscus, *Lacép.*

22. Cuscus brevicaudatus, *Gray* . . . . . Vol. I. Pl. 21.

Habitat. The Cape York district.

Genus Petaurista, *Desm.*

23. Petaurista Taguanoïdes, *Desm.* . . . . . Vol. I. Pl. 22.
Habitat. New South Wales.

Genus Belideus, *Waterh.*

24. Belideus flaviventer . . . . . Vol. I. Pl. 23.
Habitat. New South Wales.

25. Belideus sciureus . . . . . Vol. I. Pl. 24.
Habitat. New South Wales and Victoria.

26. Belideus breviceps, *Waterh.* . . . . . Vol. I. Pl. 25.
Habitat. New South Wales and Victoria.

27. Belideus notatus, *Peters* . . . . . Vol. I. Pl. 26.
Habitat. Victoria.

28. Belideus Ariel, *Gould* . . . . . Vol. I. Pl. 27.
Habitat. Cobourg Peninsula, on the north coast of Australia.

Genus Acrobata, *Desm.*

29. Acrobata pygmæa, *Desm.* . . . . . Vol. I. Pl. 28.
Habitat. New South Wales and Victoria.

By some oversight the name of this species has been spelt on the plate and in the text *Acrobates pygmæus*.

Genus Dromicia, *Gray.*

30. Dromicia gliriformis . . . . . Vol. I. Pl. 29.
Habitat. Van Diemen's Land.

31. Dromicia concinna, *Gould* . . . . . Vol. I. Pl. 30.
Dromicia Neillii, Waterh. Nat. Hist. of Mamm. vol. i. p. 315?
Habitat. Western Australia.

32. Dromicia unicolor, *Krefft.*
Dromicia unicolor, Krefft in Proc. Zool. Soc. Jan. 22, 1863.

"Fur of a uniform mouse-colour, lighter on the sides and beneath, with a blackish patch in front of the eye.

"All the hairs are slate-grey at the base, tipped with yellowish at the back and sides, and with grey beneath; longer black hairs, tipped with white, are interspersed, except on the under side of the body. Bristles black to within one-third of the tip, which is white; a few long bristly black hairs in front and behind the eye. Tail somewhat longer than the body, prehensile, thin, showing every joint; slightly enlarged at the base, and gradually tapering; covered with a mixture of light-coloured and black hairs; apical portion about $\frac{1}{2}''$ from the tip, wide beneath.

	inches.
"Length from tip to tip	$6\frac{1}{4}$
Tail	$3\frac{1}{4}$
Face to base of ear	$\frac{7}{8}$
Ear	$\frac{1}{2}$
Arm and hands	$\frac{7}{8}$
Tarsi and toes	$\frac{5}{8}$

"This beautiful little creature was captured near St. Leonard's North Shore, Sydney, feeding upon the blossoms of the Banksias, and lived a few days in captivity. In its habits it is nocturnal. The tongue of this *Dromicia*

is well adapted for sucking the honey from the blossoms of the *Banksiæ* and *Eucalypti*, being furnished with a slight brush at the tip. This species differs from the *D. concinna* of Western Australia in being of a uniform dark colour, without the white belly, and having the base of the tail slightly enlarged; it is about the same size as *D. concinna*."

Habitat. New South Wales.

Genus Phascogale, *Temm.*

33. Phascogale penicillata . . . . . Vol. I. Pl. 31.
Bäl-lard, aborigines of King George's Sound.
Habitat. New South Wales, Victoria, South Australia, and Swan River.

34. Phascogale calura, *Gould* . . . . . Vol. I. Pl. 32.
King-goor, aborigines of Williams River.
Habitat. Interior of New South Wales and the colony of Victoria.

35. Phascogale lanigera, *Gould* . . . . . Vol. I. Pl. 33.
Habitat. Interior of New South Wales.

Genus Antechinus, *MacLeay*.

36. Antechinus Swainsoni . . . . . Vol. I. Pl. 34.
Habitat. Van Diemen's Land.

37. Antechinus leucopus, *Gray* . . . . . Vol. I. Pl. 35.
Habitat. Van Diemen's Land?

38. Antechinus ferruginifrons, *Gould* . . . . . Vol. I. Pl. 36.
Habitat. New South Wales.

39. Antechinus unicolor, *Gould*. . . . . Vol. I. Pl. 37.
Habitat. New South Wales.

40. Antechinus leucogaster, *Gray* . . . . . Vol. I. Pl. 38.
Habitat. Western Australia.

41. Antechinus apicalis . . . . . Vol. I. Pl. 39.
Habitat. Western and Southern Australia.

Mr. George French Angas having sent me a skin of this animal from South Australia, I am enabled to state that its range extends from Western Australia to that colony.

42. Antechinus flavipes . . . . . Vol. I. Pl. 40.
Antechinus Stuartii, MacLeay in Ann. & Mag. Nat. Hist. vol. viii. p. 242; Waterh. Nat. Hist. of Mamm. vol. i. p. 416.
Mr. Waterhouse is of opinion that the animal described as *A. Stuartii* will prove to be identical with *A. flavipes*.
Dasyurus minimus, Geoff. Ann. du Mus. tom. iii. p. 362?; Schreb. Säugeth. suppl. tab. 152 B. e?
Phascogale minima, Temm. Mon. de Mamm. tom. i. p. 59?
——— *affinis*, Grey, App. to Grey's Journ. of Two Exp. of Disc. in Australia, vol. ii. p. 406.
——— (*Antechinus*) *minima*, Waterh. Nat. Hist. of Mamm. vol. i. p. 419.
——— *affinis*, Waterh. *ib.* p. 421.
See Mr. Waterhouse's remarks on the animals indicated in the last five synonyms, Nat. Hist. of Mamm. vol. i. pp. 419, 421.
Habitat. New South Wales; and Victoria?

43. Antechinus fuliginosus, *Gould* . . . . . Vol. I. Pl. 41.
Habitat. Western Australia.

58. Phascolomys lasiorhinus, *Gould* . . . . . Vol. I. Pls. 59 & 60.
Habitat. Victoria and South Australia.

59. Phascolomys niger, *Gould.*
Habitat. South Australia?

Family MACROPODIDÆ.

Genus Macropus, *Shaw.*

60. Macropus major, *Shaw* . . . . . Vol. II. Pls. 1 & 2.
Habitat. New South Wales, Victoria, and Van Diemen's Land.

61. Macropus ocydromus, *Gould* . . . . . Vol. II. Pls. 3 & 4.

Speaking of this animal, Mr. Gilbert states that, "if a female with a tolerably large one in the pouch be pursued, she will often by a sudden jerk throw the little creature out; but whether this be done for her own protection, or for the purpose of misleading the dogs, is a disputed point. I am induced to think the former is the case, for I have observed that the dogs pass on without noticing the young one, which generally crouches in a tuft of grass, or hides itself among the scrub, without attempting to run or make its escape; if the mother evades pursuit, she doubtless returns and picks it up.

"Those inhabiting the forests are invariably much darker, and, if anything, have a thicker coat than those of the plains. The young are at first of a very light fawn-colour, but get darker until two years old, from which age they again become lighter, till in the old males they become very light grey. In summer their coat becomes light and hairy, while in winter it is of a more woolly character. It is a very common occurrence to find them with white marks or spots of white about the head, more particularly a white spot on the forehead between the eyes. A very curious one came under my notice, having the whole of the throat, cheeks, and upper part of the head spotted with yellowish white; and albinoes have been frequently seen by the hunters."

Habitat. Western Australia.

62. Macropus fuliginosus . . . . . Vol. II. Pl. 5.
Habitat. South Australia.

63. Macropus melanops, *Gould.*

It will be seen that I have placed this name among the synonyms of *M. major*; but since my remarks on that species were written, I have seen other examples so closely accordant with the animal described by me under the above name in the 10th part of the 'Proceedings of the Zoological Society,' that I think there is a probability it will prove to be distinct, and therefore, for the present, I restore the animal to the rank of a species.

Habitat. Southern and Western Australia.

Genus Osphranter, *Gould.*

Generic characters.

Muffle broad and naked; *muzzle* broad and rather short; ears moderate, rounded at the apex; fore limbs comparatively long and stout, and the toes and claws very strong; hind limbs short and muscular; middle toe very large; lateral toes but little developed; two small inner toes, united in one common integument as in other Kangaroos, and terminating in a line with the small outer toe, or nearly so; under surface of the feet very rough, being covered with small horny tubercles.

The above characters, especially the great expansion of the muzzle, the comparatively small development of the lateral toes of the hind feet, and the greater size of the middle toe, should, in my opinion, be regarded as generic or subgeneric rather than specific; and it was for these reasons that I proposed the new sectional title of *Osphranter*. See Proceedings of Zool. Soc. part ix. p. 80.

64. Osphranter rufus, *Gould* . . . . . Vol. II. Pls. 6 & 7.
Macropus (*Osphranter*) *pictus*, Gould in Proc. Zool. Soc. part xxviii. p. 373.
Habitat. New South Wales, Victoria, and South Australia.

65. Osphranter Antilopinus, *Gould* . . . . . Vol. II. Pls. 8 & 9.
Habitat. Cobourg Peninsula, Northern Australia.

66. Osphranter Isabellinus, *Gould.*
Osphranter? Isabellinus, Gould in Proc. Zool. Soc. part ix. p. 81.
General colour bright fulvous or sandy red; fur rather short, and soft to the touch; hairs uniform in tint to the base; throat and under parts of the body white, faintly tinted with yellowish in parts; fur of the belly long and very soft; the white or whitish colouring of the under parts and the uniform fulvous colouring of the upper surface and sides of the body not blending gradually; tail similar in colour to the upper surface, but rather paler and uniform; hair of the fore feet and toes brown in front, yellowish on the sides.

The above description was taken from an imperfect skin procured at Barrow Island, on the north-west coast of Australia, and transmitted to me by Captain Stokes of H.M.S. "Beagle," which, in my opinion, pertains to a species of which no other example has yet been sent to Europe. Under this impression I have bestowed upon it the above specific appellation.

Habitat. Barrow Island, north-west coast of Australia.

67. Osphranter robustus, *Gould* . . . . . Vol. II. Pls. 10 & 11.
Habitat. Mountain-ranges of the interior of New South Wales.

68. Osphranter? Parryi . . . . . Vol. II. Pls. 12 & 13.
Habitat. Rocky mountains of the east coast of Australia from Port Stephens to Wide Bay.

Genus Halmaturus, *F. Cuv.*

69. Halmaturus ruficollis . . . . . Vol. II. Pls. 14 & 15.
Habitat. New South Wales.

70. Halmaturus Bennettii . . . . . Vol. II. Pls. 16 & 17.
Habitat. Van Diemen's Land.

71. Halmaturus Greyi, *Gray* . . . . . Vol. II. Pls. 18 & 19.
Habitat. South Australia.

72. Halmaturus manicatus, *Gould* . . . . . Vol. II. Pls. 20 & 21.
Habitat. Western Australia.

73. Halmaturus Ualabatus . . . . . Vol. II. Pls. 22 & 23.
Habitat. New South Wales.

74. Halmaturus agilis, *Gould* . . . . . Vol. II. Pls. 24 & 25.
Habitat. Northern Australia.

75. Halmaturus dorsalis, *Gray* . . . . . Vol. II. Pls. 26 & 27.
Habitat. Interior of New South Wales.

76. Halmaturus Parma, *Gould* . . . . . Vol. II. Pl. 28.
Habitat. Brushes of New South Wales.

77. Halmaturus Derbianus, *Gray* . . . . . Vol. II. Pls. 29 & 30.
Thylogale Eugenii, Gray, Mag. Nat. Hist. vol. i. new ser. 1843, p. 583.
Habitat. South Australia.

78. Halmaturus Houtmanni, *Gould.*
Halmaturus Houtmanni, Gould in Proc. Zool. Soc. part xii. p. 31.
"Of the whole of the islands forming Houtmann's Abrolhos," says Mr. Gilbert, "I found only two to be

inhabited by this species, viz. East and West Wallaby Islands. On both of these they are so numerous, and have been so little disturbed, that they will allow of a very near approach, and may in consequence be obtained in almost any number. The male weighs, on an average, about 12 lbs.; but several old bucks I obtained exceeded this, the heaviest weighing 15 lbs. A mature female weighs about 8 lbs. They appear to have no regular season for breeding, for *all* the females had young ones in the pouch, of very small size and quite naked; and none were seen or killed less than a year old, at which age their weight is about 5 lbs.

"The *Halmaturus Houtmanni* inhabits the dense scrub growing on almost every part of the two islands above mentioned; and its runs cross and recross almost every inch of them—even the sandy beaches close to the water's edge, and among the thick scrub and Mutton-bird holes; in these runs there are little sheltered spots, beneath which they lie during the heat of the midday sun, feeding for the most part during the night. On the approach of man it does not bound off at full speed as other Kangaroos do, but very leisurely takes two or three leaps, and then remaining stationary in an erect position, looks around with evident surprise, and is then easily shot. In fact, from having been so little disturbed, it will allow itself to be run down and caught. I was enabled to catch two in this way. Four or five of my men being on shore, I directed them to surround a bush into which I saw one of these Wallabies run, when the animal, seeing itself approached on all sides, becamc so bewildered that, instead of attempting to escape, it thrust its head into the thick scrub and allowed us to catch it by thc tail.

"One I have alive has a habit of frequently crouching down like a Hare, with its tail brought forward between and before its fore feet."

Adult Male. Face dark grizzled grey, stained with rufous on the forehead; external surface of the ear and the space between the ears dark blackish grey; sides of the neck, shoulders, fore arms, flanks, and hind legs rufous, palest on the flanks; a line of obscure blackish brown passes down the back of the neck and spreads into the dark grizzled brown of the back; throat and chest buffy white; under surface of the body grey; tail grizzled grey, deepening into black on the upper side and the extremity. Fur somewhat short, coarse, and adpressed; the base bluish grey, succeeded by rufous, then white, and the extreme tip black.

Adult Female. Similar in colour to the male, but of a more uniform tint, in consequence of the rufous colouring of the shoulders and flanks being paler, and the grizzled appearance of the back not so bright.

Young. Dark grizzled grey approaching to black, particularly along the back.

	Adult Male. ft.	in.	Female. ft.	in.
Length from the nose to the tip of the tail	3	6	3	4
——— of tail	1	$2\frac{1}{4}$	1	2
——— of tarsus and toes, including thc nail	0	$5\frac{3}{4}$	0	$5\frac{3}{8}$
——— of arm and hand, including the nails	0	6	0	4
——— of face from the tip of the nose to the base of the ear	0	$4\frac{1}{4}$	0	4
——— of ear	0	$2\frac{1}{4}$	0	$2\frac{1}{8}$

Notwithstanding Mr. Waterhouse's opinion that this animal is merely a variety of *H. Derbianus*, and what I have said in my account of that species tending to confirm his view of the subject, I have thought it best to append a copy of my original description taken from the examples sent home by Gilbert. Future research will determine whether it be identical with the *H. Derbianus* or distinct.

Habitat. Houtmann's Abrolhos, Western Australia.

79. Halmaturus Dama, *Gould.*

Halmaturus Dama, Gould in Proc. Zool. Soc. part xii. p. 32.

Dama, aborigines of Moore's River.

Mr. Gilbert states that this animal "is an inhabitant of the dense thickets of the interior, and is so exceedingly numerous that their tracks from thence to their feeding-grounds resemble well-worn footpaths. Its general habits and manners resemble those of the *Halmaturus Houtmanni*. Mr. Johnson Drummond informs me that it makes no nest, but merely squats in a clump of grass like a Hare; that it feeds in the night on the hills; and it is very difficult to procure specimens, as the places it frequents are so dense as to render shooting it almost impossible, nor can a dog even chase it. The only chance of obtaining it is by the aid of the natives, a number of whom

walking or, rather, pushing their way through and beating the bush as they go abreast, and loudly shouting '*wow, wow, wow,*' drive the *Damas* before them, when, by waiting in a clear space, you get the chance of a shot."

General colour of the fur grizzled brown, becoming of a reddish tint on the back of the neck, arms, and rump; face grey, washed with rufous on the forehead; outside of the ears and the space between them blackish grey; hinder legs light brown; tail grizzled grey; under surface of the body pale grey.

	ft.	in.
Length from the nose to the extremity of the tail	2	11
—— of tail	1	$2\frac{1}{2}$
—— of tarsus and toes, including the nail	0	$5\frac{3}{4}$
—— of arm and hand, including the nails	0	$4\frac{1}{4}$
—— of face from the tip of the nose to the base of the ear	0	4
—— of ear	0	$2\frac{1}{2}$

This animal is closely allied to, and of nearly the same size as *H. Thetidis*, but has much larger ears, and a much more dense and lengthened fur, the base of which is bluish grey, to which succeeds reddish brown, then silvery white, the extreme tips being black.

The above is the description of a female; the male will doubtless prove to be of larger size.

Habitat. Houtmann's Abrolhos and Western Australia.

80. Halmaturus gracilis, *Gould.*

Macropus gracilis, Gould in Proc. Zool. Soc. part xii. p. 103.

Face and all the upper surface of the body grizzled grey and dark brown, the grizzled appearance being produced by each hair being greyish white near the tip; sides of the neck and outer side of the limbs washed with reddish brown; margin of the anterior edge and the base of the posterior edge of the ear buffy white; line from the angle of the mouth dark brown; line along the side of the face, chin, and throat buffy white; under surface buffy grey; tail clothed with short grizzled hairs similar to those of the upper surface of the body, and with a line of black on the upper side at the apex for about one-third of its length; fur somewhat soft to the touch, grey at the base, then brown, to which succeeds white, the points of the hairs being black; there are also numerous long black hairs dispersed over the surface of the body; feet grizzled grey and rufous.

	ft.	in.
Length from the tip of the nose to the tip of the tail	2	6
—— of tail	1	1
—— of tarsi and toes, including the nail	0	5
—— of arm and hand, including the nails	0	$3\frac{1}{4}$
—— of the face from the tip of the nose to the base of the ear	0	$3\frac{1}{2}$
—— of the ear	0	$2\frac{1}{4}$

This is a very elegantly-formed little animal. In size it is somewhat smaller than *H. Derbianus*, and has much slighter fore arms.

Gilbert, who had a good knowledge of the Kangaroos, believed this animal to be quite distinct from every other species; and, from a careful examination of the single specimen he sent me, I entertain the same opinion; but I have not figured it because the example alluded to is the only one I have seen.

Habitat. The scrubs of the interior of Western Australia.

81. Halmaturus Thetidis, *F. Cuv. et Geoff.* . . . . . Vol. II. Pls. 31 & 32.

Habitat. Brushes of New South Wales.

82. Halmaturus stigmaticus, *Gould* . . . . . Vol. II. Pls. 33 & 34.

Habitat. North-east coast of Australia.

83. Halmaturus Billardieri . . . . . Vol. II. Pls. 35 & 36.

Habitat. Van Diemen's Land.

101. Lagorchestes Leichardti . . . . . Vol. II. Pl. 60.

Habitat. The country bordering the Gulf of Carpentaria.

Mr. Blyth has described a species of this form under the name of *Lagorchestes gymnotus*, which he states is nearly allied to *L. conspicillatus*, and in all probability it is referable to one of the family figured in this work; but as the specimen is in the Museum of the Asiatic Society of Calcutta, it is impossible for me to determine this point. See "Report of Curator, Zoological Department, for May 1858," in Journ. Asiat. Soc. Bengal.

Genus Bettongia, *Gray*.

102. Bettongia penicillata, *Gray* . . . . . Vol. II. Pl. 61.

Kangurus Gaimardi, Desm. Mamm. Supp. p. 542, sp. 842, 1822?
Hypsiprymnus Whitei, Quoy et Gaim. Voy. de l'Uranie, Zool. p. 62, pl. 10, 1824?
Kangurus lepturus, Quoy et Gaim. Bull. des Sci. Nat. Jan. 1824, tom. i. p. 271?
Hypsiprymnus Phillippi, Ogilb. in Proc. Zool. Soc. 1838, p. 62?
———— *formosus*, Ogilb. *ib.* p. 62?
———— *minor* (Potoroo), Cuv. Règ. Anim. p. 185?
———— *Hunteri*, Skull in Roy. Coll. of Surg. of Engl.?

Habitat. New South Wales.

103. Bettongia Ogilbyi, *Gould* . . . . . Vol. II. Pl. 62.

Wäl-ya, aborigines of Perth and the mountain districts.
Woile, aborigines of King George's Sound.

Habitat. Western Australia.

104. Bettongia cuniculus . . . . . Vol. II. Pl. 63.

Habitat. Van Diemen's Land.

105. Bettongia Graii, *Gould* . . . . . Vol. II. Pl. 64.

Habitat. Southern and Western Australia.

106. Bettongia rufescens, *Gray* . . . . . Vol. II. Pl. 65.

Habitat. New South Wales.

107. Bettongia campestris, *Gould* . . . . . Vol. II. Pl. 66.

Habitat. South Australia.

Genus Hypsiprymnus, *Ill.*

108. Hypsiprymnus murinus . . . . . Vol. II. Pl. 67.

Habitat. New South Wales.

109. Hypsiprymnus apicalis, *Gould* . . . . . Vol. II. Pl. 68.

Habitat. Van Diemen's Land.

110. Hypsiprymnus Gilberti, *Gould* . . . . . Vol. II. Pl. 69.

Habitat. Western Australia.

111. Hypsiprymnus platyops, *Gould* . . . . . Vol. II. Pl. 70.

Habitat. Western Australia.

Order RODENTIA.

Genus Hapalotis, *Licht.*

112. Hapalotis albipes, *Licht.* . . . . . Vol. III. Pl. 1.
Habitat. New South Wales, Victoria, and South Australia

113. Hapalotis apicalis, *Gould* . . . . . Vol. III. Pl. 2.
Habitat. South Australia; and Van Diemen's Land?

114. Hapalotis hemileucura, *Gray* . . . . . Vol. III. Pl. 3.
Habitat. Interior of the North-eastern portions of Australia.

115. Hapalotis hirsutus, *Gould* . . . . . Vol. III. Pl. 4.
Habitat. Port Essington.

116. Hapalotis penicillata, *Gould* . . . . . Vol. III. Pl. 5.
Habitat. Northern Australia.

117. Hapalotis conditor, *Gould* . . . . . Vol. III. Pl. 6.
Habitat. Interior of New South Wales and Victoria.

118. Hapalotis murinus, *Gould* . . . . . Vol. III. Pl. 7.
Habitat. Interior of New South Wales and South Australia.

119. Hapalotis longicaudata, *Gould* . . . . . Vol. III. Pl. 8.
Habitat. Interior of Western Australia.

120. Hapalotis Mitchellii . . . . . Vol. III. Pl. 9.
Habitat. Western and Southern Australia.

121. Hapalotis cervinus, *Gould* . . . . . Vol. III. Pl. 10.
Habitat. The interior of South Australia.

I think it likely that the animal I have figured as *H. Mitchellii* may not be the *Dipus Mitchellii* of Ogilby, but that the true *H. Mitchellii* and my *H. cervinus* may be identical. If this should ultimately prove to be the case, *H. Gouldii* of Gray will be the correct designation of the animal I have called *H. Mitchellii*, to which the terms *H. macrotis* and *H. Richardsoni* of Gray, on the specimens in the British Museum, will also probably be referable.

122. Hapalotis arboricola, *MacLeay.*

This is another of the Australian mammals of which I have not had an opportunity of examining specimens.

Two coloured sketches, accompanied by the following notes, were kindly transmitted to me by Mr. Gerard Krefft:—

"The only example of this rarity which has yet been obtained has been presented to the Australian Museum by W. S. MacLeay, Esq. It was caught at Elizabeth Bay, where it inhabits the lofty *Eucalypti*, and builds a nest among the branches, with leaves and twigs, like that of a bird."

"Fur rather harsh to the touch, and of a slate-grey next the skin,—the longer hairs, or outer coat, being mingled ochreous and black; sides greyish, with an admixture of ochreous yellow, which becomes darker towards the back, and has the black hairs much longer than on any other part; outer surface of the ears clothed with very short white hairs; throat and abdomen white; tail thinly clothed with dark-brown hairs; toes of the hind and fore feet covered with short white hairs."

Genus Mus, *Linn.*

123. Mus fuscipes, *Waterh.* . . . . . Vol. III. Pl. 11.
Habitat. The southern portions of Australia generally.

Genus Hydromys, *Geoff.*

140. Hydromys Lutrilla, *MacLeay*.

I have never seen an example of the animal thus named by Mr. MacLeay, and of which two coloured sketches, one by Mr. G. French Angas, and the other by Mr. Gerard Krefft, were kindly sent to me by the latter gentleman; and without an inspection and comparison of it with the other species of *Hydromys*, it is quite impossible for me to say if it be really a species or not.

The following notes, by Mr. Krefft, accompanied the sketches:—

"The *Hydromys Lutrilla* was discovered by W. S. MacLeay, Esq., on the edge of the water in front of his beautiful seat, Elizabeth Bay. It is the only specimen yet seen, and Mr. MacLeay has presented it to the Australian Museum.

"Fur remarkably soft, and of a vinous or brownish grey next the skin, covered with dark brown and some sandy-coloured hairs on the flanks, and buffy hairs on the sides of the neck; throat and abdomen white; fore legs somewhat paler than the other parts of the body, with the exception of a brown patch on the upper surface of the feet, toes clothed with light-brown hairs; nails white; tarsi sepia-brown; whiskers black and white intermixed, the upper and longer hairs being the dark-coloured ones; tail about 7 inches long, five of which are covered with dark-brown coarse hair without any white at the tip.

	inches.
"Length from tip to tip	17
—— of tail	7
—— of face to base of ear	2
—— of tarsi and toes	2 "

Habitat. New South Wales.

Family CHEIROPTERA.

Genus Pteropus, *Briss.*

141. Pteropus poliocephalus, *Temm.* . . . . . Vol. III. Pl. 28.
Habitat. Brushes of New South Wales.

142. Pteropus conspicillatus, *Gould* . . . . . Vol. III. Pl. 29.
Habitat. Fitzroy Island, off the eastern coast of Australia.

143. Pteropus funereus, *Temm.* . . . . . Vol. III. Pl. 30.
Habitat. The northern portions of Australia.

144. Pteropus scapulatus, *Peters.*
Pteropus scapulatus, Peters in Ann. and Mag. Nat. Hist. 3rd Series, vol. ii. p. 231.

A description of this species has been published by Dr. W. Peters of Berlin, in the number of the 'Annals and Magazine of Natural History' for March 1863. As this description did not appear until after these pages were in type, I have had no opportunity of examining the specimen described, and must therefore content myself with transcribing Dr. Peters's remarks respecting it:—

"The present species nearly approaches *Pteropus medius* in size, and is very easily distinguished from all other species by two humeral spots" of ochreous-yellow, "and also by the golden-yellow colour of the abundant woolly hair on the ventral side of the wing-membranes, which appears near the lumbar region, on the humeral membrane, and near the fore arm almost to its end."

Habitat. Cape York, Northern Australia.

Genus Molossus, *Geoff.*

145. Molossus Australis, *Gray* . . . . . Vol. III. Pl. 31.
Habitat. Victoria.

Genus Taphozous, *Geoff.*

146. Taphozous Australis, *Gould* . . . . . Vol. III. Pl. 32.
Habitat. Northern coasts of Australia.

Genus Rhinolophus, *Geoff.*

Genus Nyctophilus, *Leach.*

Genus Scotophilus, *Leach.*

Genus Vespertilio, *Linn.*

163. Vespertilio Tasmaniensis . . . . . Vol. III. Pl. 48.
Habitat. Tasmania.

Family PHOCIDÆ, *Gray.*

Genus Arctocephalus, *F. Cuv.*

164. Arctocephalus lobatus . . . . . Vol. III. Pl. 49.
Habitat. Southern coasts of New South Wales and Tasmania.

Genus Stenorhynchus, *F. Cuv.*

165. Stenorhynchus leptonyx . . . . . Vol. III. Pl. 50.
Habitat. The coasts of Tasmania and the southern portions of Australia generally.

Family CANIDÆ.

Genus Canis, *Linn.*

166. Canis Dingo, *Blumenb.* . . . . . Vol. III. Pls. 51 & 52.
Dwer-da, aborigines of Western Australia.
Habitat. Australia generally.

Although I have omitted the Whales and Dugong, I cannot, in justice to Mr. Wm. Sheridan Wall, omit to call attention to his 'History and Description of the Skeleton of a New Sperm-Whale lately set up in the Australian Museum; together with some account of a new genus of Sperm-Whales called *Euphysetes,*' published by W. R. Piddington, Sydney, 1851. In like manner, I cannot leave unpublished the following interesting letter respecting the Dugong, which has been forwarded to me by my brother-in-law, Charles Coxen, Esq., of Brisbane, Queensland:—

"The Dugong (*Halicore australis*, Owen) occurs in considerable numbers in Moreton Bay, but, I am led to believe, is not found further south. To the north it is plentiful in all the bays, such as Wide Bay, Port Curtis, Keppel Bay, &c., and along the east and north coasts, in every situation suitable to its habits. In size it varies from six to nine feet in length, the latter being the size of a large 'bull'; the weight also varies from 600 to 1000 lbs.; the girth at the largest part, just behind the flippers, is about six-eighths of the length; near the root of the tail it is very taper and small. The head is very peculiar: the eyes and ears are small; the nostrils small and oblique; the fleshy upper lip, which depends some three or four inches from the jaw, is peculiarly truncate in form, and covered with short stout bristles; the lower lip is globular, pendulous, and attached by a small neck to the jaw. The name given to the Dugong by the aborigines is *Young-un.* The flesh is greedily eaten and much sought for by them; and when they have been successful in procuring one or two, which occasionally happens, they gorge themselves in a most unseemly manner, and grease themselves all over with the fat and oil until they glisten in the sun like a roll of butter in the dog-days.

"The female, or 'cow,' exhibits much tenderness in the care of her offspring, and when injured utters a low, plaintive, snuffling sound, which appears to be understood by the calf.

"In the spring or calving-time they frequent the smaller bays and inlets of Moreton Bay, and are found feeding, in the more tranquil spots, on the *Algæ* and other marine vegetable productions growing on the shoals near the mainland and the islands. During the winter months they are more frequently met with at sea, or outside the large bays. Their feeding-grounds vary from four to ten feet at high water.

"Harpooning is at present the only mode of procuring the Dugong. The aborigines are very expert in the use of the instrument, and the quickness of their sight renders them superior to Europeans for such service; but the loss of time, and consequent expense, owing to the unsettled habits of the natives, and at times the ruffled state of the water, have prevented its capture being entered upon as a business. A few years ago a party com-

menced setting nets on the shoals frequented by the Dugong, and for a time they answered the purpose; but the men engaged got careless, the nets were torn and destroyed by sharks and porpesses, and the affair fell to the ground.

"The oil, owing to its medicinal qualities, is in considerable demand, and very many persons have derived considerable benefit from its use; it is preferred to cod-liver oil, as being less disagreeable to the palate and more easily retained in the stomach. It is white and almost tasteless, and is occasionally used for frying fish. The quantity varies, according to the condition of the animal, from three to ten gallons. The meat is very good, is in flavour between beef and pork, and when salted is much like bacon.

"The head, back, sides, and tail are dark broccoli-brown; the belly and under part of the flippers light broccoli-brown, according to Werner's Nomenclature of Colours."

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LIST OF PLATES.

VOL. I.

ORNITHORHYNCHUS ANATINUS.

J.Gould and H.C.Richter, del. et lith.

Hullmandel & Walton, Imp.

ORNITHORHYNCHUS ANATINUS.

Ornithorhynchus.

Platypus Anatinus, Shaw, Nat. Misc., vol. x. pl. 385.—Ib. Gen. Zool., vol. i. part i. p. 229. pls. 66 & 67.—Gray. List of Mamm. in Coll. Brit. Mus., p. 191.

Ornithorhynchus paradoxus, Blumenbach in Voigt's Magaz., tom. ii. p. 305. pl. 41.—Home in Phil. Trans. 1800, p. 432, and 1802, p. 67.—Cuv. Règn. Anim. Edit. 1829, tom. i. p. 235.—Meckel, Ornith. paradoxi desc. anatom., Lips. 1826, fol.—Owen in Trans. Zool. Soc., vol. i. p. 221.—Bennett in Trans. Zool. Soc., vol. i. p. 229.

———— *fuscus* et *rufus*, Peron, Voy. de Découv., tom. i. pl. 34. figs. 1 & 2.—Leach, Zool. Misc., vol. ii. p. 136. pl. 3.—Desm. Mamm., part ii. p. 380.

———— *brevirostris*, Ogilby in Proc. of Comm. of Sci. and Corr. of Zool. Soc., part i. p. 150.

———— *crispus* et *lævis*, MacGill. in Mem. of the Wernerian Soc. 1832, p. 127.

———— *Anatinus*, Waterh. Nat. Hist. of Mamm., vol. i. p. 25.

On commencing a history of the *Ornithorhynchus*, the mind naturally reverts to the period of its first discovery; a period so recent, that the animal was unknown to Linnæus and the older authors. It was in 1799 that a description of this singular quadruped first appeared in the "Naturalists' Miscellany" of Dr. Shaw; about this time also, the *Koala*, *Wombat*, *Kangaroo*, *Emu*, *Menura*, *Cereopsis*, and *Black Swan* were made known. These important discoveries gave an extraordinary impulse to the study of natural history, and set the whole scientific community wondering at the paradoxical creations of the distant country known by the name of Australia. Unquestionably the most singular and anomalous of all these animals was the *Ornithorhynchus*, with the habits and economy of which, as well as the mode of its reproduction, we are even now, after an interval of fifty-five years, but imperfectly acquainted. It is true that Professor Owen has given an elaborate paper on its anatomy and physiology in the "Transactions of the Zoological Society of London," and that the same work contains Mr. Bennett's interesting account of his observations of the animal in a state of nature and in captivity; still I am persuaded that much more remains to be ascertained and made known respecting this extraordinary type among quadrupeds. Although the ornithology of Australia almost exclusively engrossed my attention during my interesting visit to that country, I did not fail to notice the mammals which crossed my path and by which I was always surrounded. The *Ornithorhynchus* especially attracted my attention, as I frequently met with it both while ascending the rivers in Van Diemen's Land and while encamped beside the quiet pools of New South Wales. I endeavoured to determine the centre of its area and to trace the extent of its range, but was not entirely successful, nor have they yet been accurately ascertained: Van Diemen's Land, and the south-eastern part of the continent from Moreton Bay to Port Philip, are the only portions of that great country whence I have received specimens, or where I have heard of it existing. In New South Wales it is common in the streams and rivers flowing from the mountain ranges to the sea, as well as in those descending towards the interior. It is equally numerous in all the tributaries which feed the great rivers Darling and Murray; and if it be not now plentiful in the Hawkesbury, Hunter, &c., the diminution in its numbers is solely due to the wholesale destruction dealt out to it by the settlers, which, if not restrained, will ere long lead to the utter extirpation of this harmless and inoffensive animal, a circumstance which would be much to be regretted; it is in fact often killed from mere wantonness, or at most for no more useful purpose than to make slippers of its skin. Some zoologists have entertained the opinion that there are more than one species of this form, and that the animal inhabiting Van Diemen's Land, with stiff wiry hairs, particularly on the tail, where they, moreover, nearly cross each other at right angles, is specifically different from that found on the continent, which is generally of a smaller size, and of which the hairy covering is more sleek and glossy; I believe, however, that no tangible specific differences will be found, and that the variations in question are due to localization alone; much variety is also found in the colouring of the under surface, but as this occurs both in island and continental specimens, it cannot be regarded as a matter of importance.

In many of its habits and actions, and in much of its economy, the *Ornithorhynchus* assimilates very closely to the Common Water Vole of this country (*Arvicola amphibius*, Desm.); frequenting as it does similar situations, climbing stumps of trees and snags which lie prostrate in the beds of rivers, and burrowing in the bank side in an upward direction, a retreat to which it resorts during the day or on the approach of danger. If it be not strictly nocturnal, it is in the early morning and evening and in lowery weather only that it is to be seen during the daytime. It swims with great ease, and frequents alike the rushy banks of the great rivers near the sea, and the silent, tranquil pools of the interior. Its mode of swimming is very singular and not always alike; sometimes the body of the animal, beaver-like, is partly raised above the surface, while at others, particularly in the still pools, every part is submerged except the upper surfaee of the bill and nostrils, and these being but sufficiently elevated above the water to enable the animal to breathe,

it is only by the little rings which this operation creates upon the glassy surface that its presence can be detected. I have frequently come suddenly upon it while ascending the reedy sides of the Derwent in a boat, when it instantly dived, with an audible splash, caused apparently by the hasty flap of its broad tail. I could say much more respecting the habits of this curious quadruped. In the volume of the "Transactions of the Zoological Society" above referred to, Mr. Bennett states that:—

"The *Ornithorhynchus* is known to the colonists by the name of *Water-Mole*, from some resemblance which it is supposed to bear to the common European Mole, *Talpa Europæa*, Linn.: by the native tribes at Bathurst and Goulburn Plains, and in the Yas, Murrumbidgee, and Tumat countries, I found it designated by the name of *Mullangong* or *Tambreet*; but the latter is more in use among them than the former. It is very abundant in the river Yas, particularly in the tranquil parts of the stream called 'ponds,' the surface of which is covered with various aquatic plants. On perceiving it, the spectator must remain perfectly stationary, as the slightest noise or movement would cause its instant disappearance, so acute is it in sight or hearing, or perhaps both; and it seldom reappears when it has been frightened. By remaining perfectly quiet when the animal is 'up,' the spectator is enabled to obtain an excellent view of its movements; it seldom, however, remains longer than one or two minutes, playing and paddling on the surface, soon diving again and reappearing a short distance above or below, generally according to the direction in which it dives, which it does head foremost.

"The various contradictory accounts that have been given, on the authority of the aborigines, as to the animal laying eggs and hatching them, induced me to take some pains to find out the cause of error, and being perfectly satisfied, from an internal examination of a female, that *ova* were produced in the *uteri*, I could the more readily determine the accuracy or inaccuracy of the accounts which I might receive from the natives.

"The Yas natives at first asserted that the animal lays eggs, but shortly afterwards contradicted themselves. In the Tumat country the answers were readily and satisfactorily given—'No egg tumble down; piekaniuny make tumble down'—which accorded with my own observations.

"On the 7th of October, I accompanied an aborigine, called Daraga, to the banks of the Yas, to see the burrow of an *Ornithorhynchus*, from which, he told me, the young had been taken last summer. I asked him, 'What for you dig up *Mullangong*?' 'Murry budgeree patta' (Very good to eat), was his reply. On arriving at the spot, situated on a steep bank close to the river, about which long grass and various other herbaceous plants abounded, my guide, putting aside the long grass, displayed the entrance to the burrow, distant rather more than a foot from the water's edge. In digging up this retreat the natives had not laid it entirely open, but had delved holes at certain distances, and introduced a stick to ascertain its direction previously to again digging down upon it. By this method they were enabled to explore the whole extent with less labour than by laying it open from end to end. The termination of the burrow was broader than any other part, nearly oval in form, and strewed at the bottom with dry river weeds, &c., a quantity of which still remained. The whole of the interior was smooth, extending about twenty feet in a serpentine direction up the bank. It had one entrance near the water's edge, and another under the water, communicating with the interior by an opening just within the upper entrance. It is no doubt by the latter that the animal seeks refuge when it is seen to dive and not to rise again to the surface.

"On examining the cheek-pouches or the stomachs of these animals, I always observed the food to consist of river insects, very small shell-fish, &c., comminuted and mingled with mud or gravel: this latter might be required to aid digestion, as I never observed the food unmingled with it. The natives say that they also feed on river weeds; but I never found remains of that description of food in their pouches. Mr. George MacLeay informed me that he had shot some, in a part of the Wollondilly River, having river weeds in their pouches; but he observed that in that part of the river aquatic insects were very scarce. The young are suckled at first, and afterwards fed with insects, &c., mingled with mud.

"Having captured one alive, I placed it in a cask, with grass, mud, water, and everything necessary to make it comfortable. It ran round its place of confinement, scratching and making great efforts to get out; but finding them useless, became quite tranquil, contracted itself into a small compass, and soon fell asleep. At night it became very restless, and diligently sought to escape, going round the cask with the fore paws raised against the sides and the webs thrown back, and scratching violently with the claws of the fore feet, as if to burrow its way out. In the morning I found it fast asleep, with the tail turned inwards, the head and beak under the breast, and the body contracted into a very small compass; subsequently, however, I observed it sleeping with the tail turned inwards, the body contracted, and the beak protruded. When disturbed from its sleep, it uttered a noise something like the growl of a puppy, but in a softer and more harmonious key. Although quiet for the greater part of the day, it constantly made efforts to escape, and uttered a growling noise during the night."

Shortly after this, Mr. Bennett started for Sydney, taking with him his interesting captive. "*En route*," he availed himself of the vicinity of some ponds, inhabited by these animals, to give it a little recreation; "and accordingly tied a long cord to its leg and roused it from its sleep; when placed on the bank it soon found its way to the water, and travelled up the stream, apparently delighting in those places which most abounded with aquatic weeds. Although it dived in deep water, it appeared to prefer keeping close

to the bank, occasionally thrusting its beak (with a motion similar to that of a *Duck* when it feeds) among the mud, and at the roots of the weeds lining the margin of the ponds, which we may readily suppose to be the resort of insects. After it had wandered some distance, it crawled up the bank, and lying down on the grass, enjoyed the luxury of scratching itself and rolling about. In this process of cleaning itself, the hind claws were alone brought into use; first the claws of one hind leg, then those of the other. The body being so capable of contraction was readily brought within reach of the hind feet, and the head also was brought so close as to have its share in the cleaning process. The animal remained for upwards of an hour thus engaged, after which it had a more sleek and glossy appearance. It permitted me to smooth it gently over the back, but disliked being handled.

"On the 28th of December I visited a very beautiful part of the Wollondilly River, which has the native name of Koroa, and explored a burrow, the termination of which was thirty-five feet from the entrance. Extensive as this may appear, burrows have been found of even fifty feet in length. On arriving at the termination a growling was distinctly heard, which upon further search was found to proceed from two full-furred young ones, a male and a female, coiled up asleep, and which growled exceedingly at being exposed to the light of day. They measured ten inches from the extremity of the beak to that of the tail; had a most beautifully sleek and delicate appearance, and seemed never to have left the burrow. When awakened and placed on the ground, they moved about, but did not make such wild attempts to escape as the old ones do when caught. Shortly afterwards a female was captured, which was no doubt the mother; she was in a ragged and wretchedly poor condition; her fur was rubbed in several places and she seemed in a very weak state. The eyes of the natives glistened and their mouths watered when they saw the fine condition of the young *mullangongs*, and they frequently and earnestly exclaimed, 'Cobbong fat' (large, or very fat), and 'Murry budgeree patta' (very good to eat). They said they were more than eight moons old; if so, they must have been the young of the previous season.

"The young animals sleep in various postures; sometimes in an extended position, and often rolled up like a hedgehog. One lies curled up like a dog, keeping its beak warm with the flattened tail brought over it; while another lies stretched on its back, the head resting by way of pillow upon the body of the old one, lying on its side, the delicate beak and smooth clean fur of the young contrasting with the rough and dirtier appearance of the mother. The favourite posture appears to be that of lying rolled up like a ball: this is effected by the fore paws being placed under the beak, with the head and mandibles bent down towards the tail, the hind paws crossed over the mandibles, and the tail turned up, thus completing the rotundity of the figure.

"Although furnished with a good thick coat of fur, they seemed particular about being kept warm. They would allow me to smooth the fur, but if their mandibles were touched they darted away immediately, those parts appearing to be remarkably sensitive. I could permit the young to run about as they pleased, but the old one was so restless, and damaged the walls of the room so much by attempts at burrowing, that I was obliged to keep her close prisoner. The little animals appeared often to dream of swimming, as I have frequently seen their fore paws in movement as if in that act. If placed on the ground in the daytime, they sought some dark corner for repose; but when put in a dark corner or in a box, they huddled themselves up as soon as they became reconciled to the place, and went to sleep. They would sleep on a table, sofa, or indeed in any place; but, if permitted, would always resort to that to which they had been accustomed. Still, although for days together they would sleep in the place made up for them, yet on a sudden they would repose behind a box or in some dark corner in preference.

"When running they are exceedingly animated, their little eyes glisten, and the orifices of the ears contract and dilate with rapidity; if then taken into the hands for examination, they struggle violently to escape, and their loose integuments render it difficult to retain them. Their eyes being placed high in the head, they do not see objects well in a straight line, and consequently run against everything in their perambulations, spreading confusion among all light and readily overturnable articles. Occasionally they elevate the head, as if to observe objects above or around them. Sometimes I have been able to enter into play with them by scratching and tickling them with my finger; they seemed to enjoy it exceedingly, opening their mandibles, biting playfully at the finger, and moving about like puppies indulged with similar treatment. Besides combing their fur to clean or dry it when wet, I have also seen them peck it with the beak, as a *Duck* would clean its feathers, by both which processes their coats acquire a clean and glossy appearance.

"I was often surprised to find them on the summit of a book-case or some other elevated piece of furniture, and equally at a loss to imagine how they came there, until I at length discovered that it was effected by the animal placing its back against the wall and its feet against the book-case, and by means of the strong cutaneous muscles of the back and the claws of the feet, contriving to reach the top very expeditiously."

The number of young produced at one time has not been satisfactorily ascertained; it has been stated that they are from two to four in number, but I believe that they rarely exceed two. When first born they are naked, and the beak does not resemble that of the adult, but is short, broad and thick, and fitted to embrace the mammary areola concealed by the hairs of the mother; "the tongue too," says Professor Owen, "which in the adult is lodged far back in the mouth, advances in the young animal close to the

end of the lower mandibles; and its disproportionate breadth is plainly indicative of the importance of the organ to the young animal, both in receiving and swallowing its food; the thin fold of integument also, which surrounds the base of the mandibles, and extends the angle of the mouth from the base of the lower jaw to equal the breadth of the base of the upper one, must increase the facility for receiving the milk ejected from the mammary areola of the mother." "While sucking," says M. Verreaux, "the young continually rub or triturate the mother's belly with the fore feet, and occasionally with the hinder ones. At the end of fifteen to twenty days the new born are covered with a silky hair, and are able to swim." M. Verreaux also describes another mode by which the young obtain the lacteal fluid:—"Having a considerable number of adults and young at my disposition, I saw the latter accompany their mothers, with which they played, especially when they were too far from the bank to take their nourishment. I observed that when they wished to procure it, they profited by the moment when the mother was amongst the aquatic plants near the land, where there is no current. The female having her back exposed, by the exercise of a strong pressure the milk floats to a little distance, and the young may suck it up with facility; and thus they do, turning about so as to lose as little as possible. I cannot, perhaps, better compare the appearance of the greasy milk, under these circumstances, than to the iridescent colours produced by the solar rays upon stagnant water. I have witnessed this fact repeatedly, both daily and nightly. I have also remarked that the young, when fatigued, climbed upon the back of the mother, who brought it to land, where it caressed her.

"The body of this singular animal is covered with a fine, long and thick hair, underneath which is a finer, short, very soft fur, resembling the two distinct kinds of fur found in the *Seal* and *Otter*; on the abdomen, breast and throat, the fur and hair are of a much finer quality and of a more silky nature than on the other parts of the body; while on the upper surface of the tail the hair is longer and coarser. The general colour of the upper surface is a light black; the under short fur is greyish; the whole of the under surface is ferruginous; immediately below the inner angle of the eye is a small spot of a light or pale yellow; the legs are short, pentadactyle and webbed; on the fore feet (which seem to have the greatest muscular power, and are in principal use for burrowing and swimming) the webs extend a short distance beyond the claws, are loose, and fall back when the animal burrows; the claws are strong, blunt, and well adapted for burrowing; the hind feet are short, narrow, turned backwards, and when the animal is at rest, have, like those of the *Seal*, some resemblance to a fin; their action is backwards and outwards; the nails are all curved backwards, and are longer and sharper than those of the fore feet; the web does not extend further than the base of the claws. The head is rather flat, from which project two flat lips or mandibles, resembling the beak of a *Shoveller Duck*, the lower of which is shorter and narrower than the upper, and has its internal edges channeled with numerous *striæ*, resembling in some degree those seen in the bill of a *Duck*. The colour of the superior mandible is of a dull dirty greyish-black, covered with innumerable minute dots; the under part of the upper mandible is of a pale pink or flesh-colour, as is the internal or upper surface of the lower mandible, the under surface of which is either perfectly white or mottled,—in young specimens usually the former, in old ones the latter; at the base of both mandibles is a transverse loose fold or flap of integument, always similar in colour to the skin covering the mandibles, that is, dull greyish-black above, and white or mottled below. In the upper mandible this is continued to the eyes, and may perhaps afford protection to those organs when the animal is burrowing or seeking food in the mud; the upper fold or flap is continuous with another portion arising from the lower mandible also at its base; the eyes are very small, but brilliant, and of a light brown.

"In young specimens, the under surface of the tail, as well as the hind and fore legs near the feet, are covered by fine hair of a beautiful silvery-white appearance; this is lost, however, in the adult, in which the under surface of the tail is almost entirely destitute of hair. Whether this proceeds from its trailing along the ground, I know not; but the prevailing opinion among the colonists, for which, however, I could not discover any foundation, is that it is occasioned by the animal using the tail as a trowel in the construction of its dwelling.

"The only external difference in the sexes is the presence in the male of a spur, situated on the internal part of the leg, some distance above the claws; this spur, which is moveable and turned backwards and inwards, was considered to be poisonous, but some experiments" (instituted by Mr. Bennett) "prove that it is innocuous: it is entirely wanting in the females.

"The size of the *Ornithorhynchus* varies, but the males are usually found to be slightly larger than the opposite sex; the average length is from 18 to 20 inches."

In conclusion, I must not omit to call attention to the very valuable details respecting the anatomy of this animal, given by Professor Owen and Mr. Bennett, in the "Transactions of the Zoological Society" above referred to. There will also be found in the "Revue Zoologique" for 1848 some very interesting particulars respecting the reproduction and other points in the economy of this animal, by M. Jules Verreaux, acquired by personal observation in Van Diemen's Land. Professor Owen's remarks on M. Verreaux's observations, published in the "Annals and Magazine of Natural History" for 1848, may also be consulted with advantage.

The Plate represents the two sexes about three-fourths of the natural size.

ECHIDNA HYSTRIX, *Cuv.*

Gould & Richter, del. et lith.

ECHIDNA HYSTRIX, *Cuv.*

Spiny Echidna.

Myrmecophaga aculeata, Shaw, Nat. Misc., vol. iii. pl. 109.
Aculeated Ant-eater, Shaw, Gen. Zool., vol. i. pt. 1. p. 175.
Ornithorhynchus Hystrix, Home, Phil. Trans. 1802, p. 348.
Echidna Hystrix, Cuv. Règ. Anim.—Leach, Zool. Misc., vol. ii. t. 90.—List of Mamm. in Brit. Mus., p. 192.
Tachyglossus aculeatus, (Illiger) Schreb. Saugth., t. lxiii. B.
Echidna longiaculeata, Tiedem. Zool., tom. i. p. 592.
——— *Australiensis*, Lesson.
——— *aculeata*, Waterh. Nat. Hist. Mamm., vol. i. p. 41.
Dun-ung-ĕr-de, Aborigines of the Toodyay and Guildford Districts of Western Australia.
Nyoong-arn, Aborigines of the York district.

The sandy and sterile districts which so frequently occur over the whole of the southern portions of the Australian continent constitute the native habitat of the *Echidna Hystrix*, but although so very generally dispersed, it is nowhere abundant; I have also met with it in the islands in Bass's Straits, and Mr. Gilbert obtained a single example in Western Australia, which had been taken on a farm situate on the upper part of the eastern branch of the river Avon; he subsequently learnt from the natives that it had been seen in the Toodyay district and in the vicinity of Guildford. No instance of its occurring to the northward of the colonies has yet been recorded, and in all probability, like the Ornithorhynchus, it is strictly confined to the southern part of the country.

As I had but little opportunity of acquiring a knowledge of the habits of this animal in a state of nature, and my friend George Bennett, Esq., has been more fortunate in this respect, I cannot perhaps do better than transcribe the account published by him in his 'Wanderings in New South Wales, &c.'

"Among other extraordinary animals furnished to the naturalist in this interesting country is the *Echidna*, or 'native Porcupine,' the Nickobejan and Jannocumbine of the natives. It inhabits mountain ranges, burrowing with extraordinary facility, and producing its young in December.

"At Goulburn Plains the natives brought me a young living specimen of this animal which they had just caught upon the ranges: they called it Jannocumbine, and fed it upon ants and ants' eggs. It was often taken to an ant-hill to provide itself with food: from being so young it had an unsteady walk, and was covered with short sharp spines projecting above the fur. On expressing a fear to the natives of not being able to keep it alive, they replied that 'it would not now die, as it had prickles on;' meaning, I suppose, that it could feed and provide for itself, not requiring the fostering care of its parents. On asking whether it was a male or female, they examined the hind feet for the spurs, and, seeing them, declared it to be a male. It sleeps during the day, running about and feeding at night. Its movements are tardy, the principal exertions being made when burrowing. When touched upon the under surface, or uncovered parts of its body, or when attacked by dogs, it rolls, like the hedgehog, into a spherical form, the prickly coat forming a good defence against the canine race, who have a decided aversion to have their noses pricked. When attacked, it has been known to burrow to a great depth in a surprising short period of time.

"The Echidna is eaten by the natives, who declare it to be 'very good, and, like pig, very fat.' Europeans who have eaten of them confirm this opinion, and observe that they taste similar to a sucking-pig. This animal, when scratching, or rather cleaning itself, uses only the hind claws, lying in different positions, so as to enable it to reach the part of the body to be operated upon. The power of erecting the spines and rolling itself into a spherical form makes an excellent defence against many of its enemies.

"I consider that there are two species of this genus existing: first, *E. Hystrix*, or Spiny Echidna, which is found on the mountain ridges in the colony of New South Wales; and the second, *E. setosa*, or Bristly Echidna, which is found more common in Van Diemen's Land. The first species attains a large size; it is stated in our works of natural history as being the size of a hedgehog; my young specimen was fully that. At 'Newington,' the residence of John Blaxland, Esq., I had an opportunity of seeing a specimen full fourteen inches long and of proportionate circumference; it fed upon milk and eggs, the eggs boiled hard and chopped up small, with rice; its motion was heavy and slow; it was of a perfectly harmless disposition. When disturbed from its place of retreat it would feed during the day, but was difficult to remove from the cask in which it was placed, on account of its firmly fixing itself at the bottom; it feeds by thrusting out the tongue, to which organ the food is attached, and then withdrawing it. Mine moved about, and drank milk at night, taking little other food. After keeping it for nearly seven months, I found it one morning dead."

In a state of nature the food consists of ants, of which a never-failing supply can at all times be procured,

since this tribe of insects is probably more numerous in Australia than in any other part of the world; they are procured by means of its protractile, lengthened, slender and flexible tongue, which is constantly kept lubricated with a viscous matter, to which the ants adhere. "To supply this secretion," says Mr. Waterhouse in the work above quoted, "the Echidna is provided with two enormous submaxillary glands, which extend from behind the ear to the fore-part of the chest. There are no teeth to the jaws, but the palatal portion of the mouth is armed with several rows of strong horny spines, the points of which are directed backwards; and on the upper surface of the tongue are numerous small horny warts, between which and the palatal spines the prey of the animal is, no doubt, crushed before passing into the stomach." Lieut. Breton states that "occasionally the tongue is curved laterally, and the food as it were swept into the mouth."

The muzzle is covered with a naked purplish black skin; the eyes are small and black; the rather short and stout body is covered with a thick skin, particularly on the back, where it has to support the strong spines; these are of a dirty white colour, more or less broadly tipped with black, sharply pointed, and about one inch and three-quarters in length; they commence on the back part of the head, and extend over the whole upper surface of the body; their points are directed backwards, and on the back inwards, so that they cross each other in the mesial line; near the root of the tail they form a large tuft, radiating from two approximating centres, and hide the small rudimentary tail; the head, with the exception of the hinder half of the upper surface, and the lower half of the sides of the body, as well as the whole of the under surface and limbs, are covered with coarse brownish black hairs; the legs are short and strong; the fore feet short and broad, and armed with large, solid and nearly straight nails, that of the middle toe being about an inch in length and a quarter of an inch in width; the shortest, that of the inner toe, is four or five lines in length; all are rounded at the extremity; the hind feet are narrower and less powerful than the others, and have the inner toe very short, apparently slightly opposable, and with a short and broad nail rounded at the extremity; the toe next the inner one is the longest, and is armed with an enormous claw, measuring sometimes an inch and a half in length; it is curved and nearly cylindrical, but concave beneath; the claws of the other toes are progressively shorter. The hind foot, when in its natural position, rests on its inner side, and perhaps in a great measure upon the thumb or great toe, by which arrangement the claws are protected from wear when the animal is walking, and have the concave surface presented outwards; the use of these claws, it would appear, is to cast away the earth which is loosened by the stronger fore-feet and claws. Like the Ornithorhynchus, the heel in the male sex is armed with a strong spur, which is moveable, perforated, and supplied with a gland and muscles capable of ejecting the secretion of the gland through the canal of the spur. Messrs. Quoy and Gaimard tried, by irritating the animal, to induce it to inflict a wound upon themselves, in order to ascertain whether this apparatus was poisonous, but were unsuccessful; and after repeated inquiries could not learn that any accident had ever happened from a wound of the spur.

The figures are of the natural size.

ECHIDNA SETOSA: *Cuv*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

ECHIDNA SETOSA, *Cuv.*

Hairy Echidna.

Echidna setosa, Cuv. Règne Anim., Edit. 1817, tom. i. p. 226; Nouv. Edit., tom. i. p. 235.—Waterh. Nat. Hist. of Mamm., vol. i. p. 47.—Geoff. Bull. Soc. Phil., tom. iii t. 15.—Gray, List of Mamm. in Brit. Mus., p. 192.

Echidna breviaculeata, Tiedemann, Zoologie, tom. i. p. 592.

Tachyglossus setosus, Ill. Schreb. t. 63.

Whether there be one or two species of the present genus is a question on which the opinions of zoologists are divided, but in either case it becomes necessary that animals exhibiting so great a difference as do the Echidnas from New South Wales and Van Diemen's Land, should each be figured in a work on the Mammals of Australia. No instance has come under my notice of the Hairy Echidna or the animal here figured having occurred on the continent of Australia, while in Van Diemen's Land it is very common. I am aware that the hairy covering has been considered indicative of youth, and also as due to the colder climate of Van Diemen's Land; nevertheless I have not failed to remark, that not only is the animal generally speaking of larger size, but the spines are shorter and more slender; it is however, I admit, a matter still wrapped in uncertainty, and one which I would recommend to the attention of zoologists resident in Australia, since it is by their observations that the doubt is most likely to be cleared up.

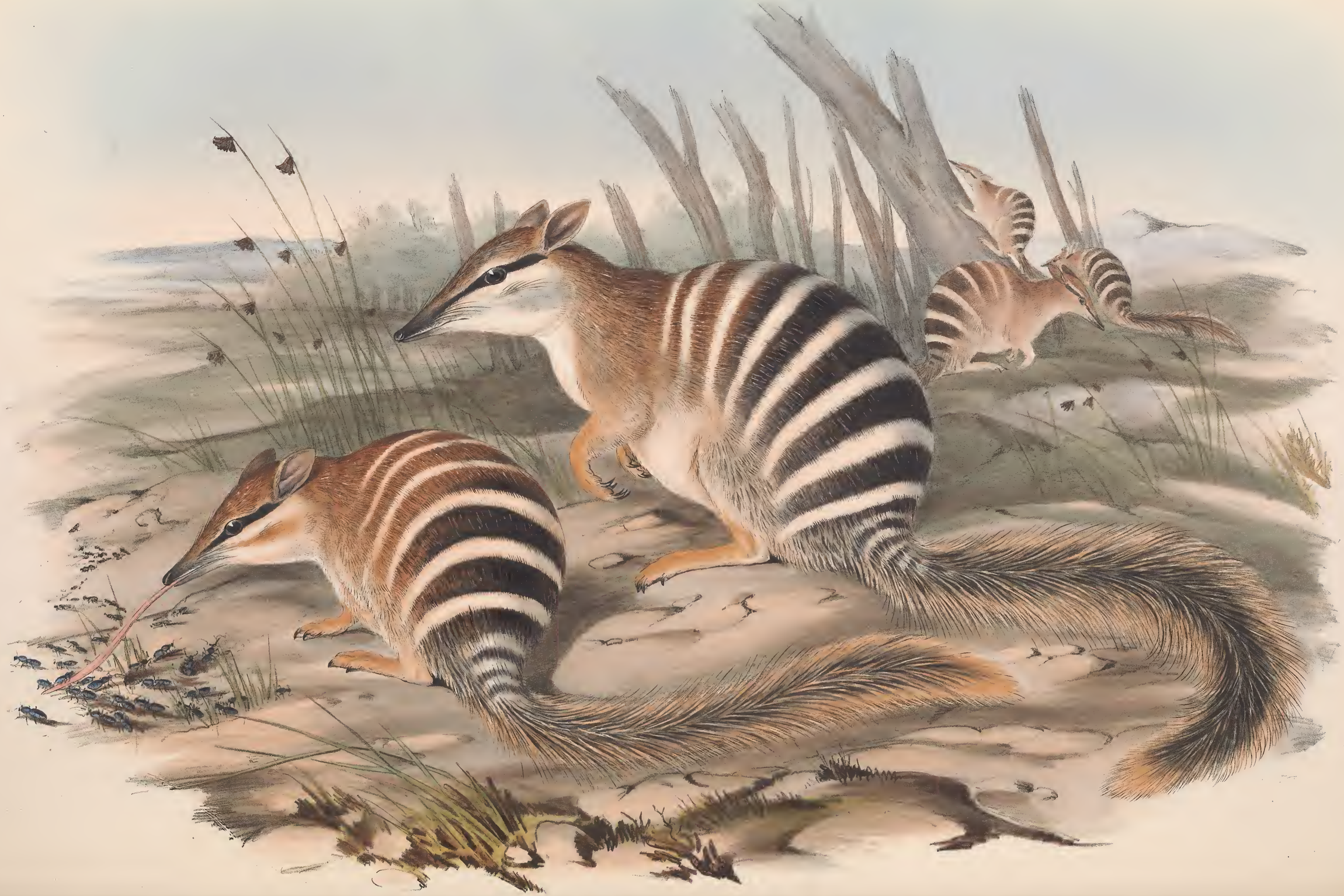
The *Echidna setosa* is universally dispersed over the sandy districts of Van Diemen's Land, and so common is it in the neighbourhood of Hobart Town, that living specimens are frequently brought in and exhibited for sale, the usual price being half-a-crown. Several examples kept by me for some time during my residence there, ran about the room in which I was engaged without exhibiting any signs of alarm; at the same time they appeared impatient of restraint, and made many attempts to escape; but that it might to a certain degree be domesticated or trained to bear captivity, is proved by several examples having lately been brought alive to this country, which unfortunately did not long survive.

Like the other species, it feeds upon ants and other insects, which it procures by protruding and retracting the tongue, covered with a thick glutinous fluid; in captivity sopped bread and milk forms an agreeable substitute for its natural food.

General colour brown; all the upper surface of the body thickly beset with pale yellowish spines tipped with black; the fur on the back dark brown, and so dense and lengthened as nearly to hide the spines; eye brown; snout slate-colour; tongue and soles of the feet pink; claws blackish brown.

"The *E. setosa*," says Mr. Waterhouse, "is subject to some slight variation in tint, as well as in texture of the fur; the spines also vary slightly, being rather longer in some specimens than others; yet the differences observable in individuals are not such as to render it difficult to distinguish the *E. setosa* from the *E. hystrix*;" and he adds, that he suspects the more hairy clothing of this animal may be due to the comparatively humid climate of Van Diemen's Land, which may have had the effect of causing the fur to become longer and more dense; and if so, the increased development of the fur would in all probability affect the growth of the spines, by robbing them of their nutriment.

The figures are of the natural size.



J. Gould and H.C. Richter del. et lith.

MYRMECOBIUS FASCIATUS: Waterh.

Hullmandel & Walton Imp.

MYRMECOBIUS FASCIATUS, *Waterh.*

Banded Myrmecobius.

Myrmecobius fasciatus, Waterh. in Proc. of Zool. Soc., Part IV. pp. 69 and 131.—Ib. Trans. of Zool. Soc., vol. ii. p. 149. pl. 27.—Ib. Nat. Lib. Mamm., vol. ix. (Marsupialia), p. 145. pl. xi.—List of Mamm. in Brit. Mus. Coll., p. 100.
Noom-bat, Aborigines of the York and Toodyay districts of Western Australia.
Wai-haw, Aborigines of King George's Sound.

The beautiful animal forming the subject of the present Plate is a native of Western Australia, where it is very generally dispersed over the interior of the Swan River Settlement, from King George's Sound on the south to the neighbourhood of Moore's River on the north, and as far westward as civilized man has yet been able to penetrate. Although it must have been known to the settlers from the foundation of the colony, yet it is only within the last ten years that specimens have been sent to Europe, and brought under the notice of the scientific world. For the first description of this elegant marsupial we are indebted to Mr. Waterhouse, who, from the scanty materials of a single skin, formed a just view of its affinities and assigned it to the order—the Marsupialia—to which it naturally belongs. Sterile sandy districts thinly studded with moderately sized trees appear to be congenial to its habits and mode of life. As the form of its teeth would indicate, insects constitute a great part of its food; but I believe that it also feeds upon honey and a species of manna which exudes from the leaves of the *Eucalypti*. Wherever the Myrmecobius takes up its abode, there ants are found to be very abundant, and in all probability, for I have no direct evidence that such is the case, it is upon this insect or its larvæ that it mainly subsists.

As regards the ornamental appearance of this animal, I need only call the attention of my readers to the accompanying figures, where it is represented of the natural size. When running on the ground with its beautiful tail spread out to the full extent, it offers a great resemblance to the Squirrels. On the slightest appearance of danger it secretes itself in a hollow tree, from which it is not easily driven. Much diversity exists in the markings of different individuals, and these variations are common to both sexes. In animals of the same age the male considerably exceeds the female in size. The young from their earliest youth are marked with fasciæ like the adult, so that the latter are to be distinguished only by size, or ascertained by dissection.

The following remarks, which I give in the words of the respective writers, and in the order they have reached me, may not prove uninteresting :—

"Two of these animals," says Mr. Dale (from one of which Mr. Waterhouse took his description), "were discovered about ninety miles south-east of Swan River, and within a few miles of each other. They were first observed on the ground, and on being pursued, both directed their flight to some hollow trees which were near. The country in which they were found abounded in decayed trees and ant-hills." (Waterhouse's Marsupialia, p. 147.)

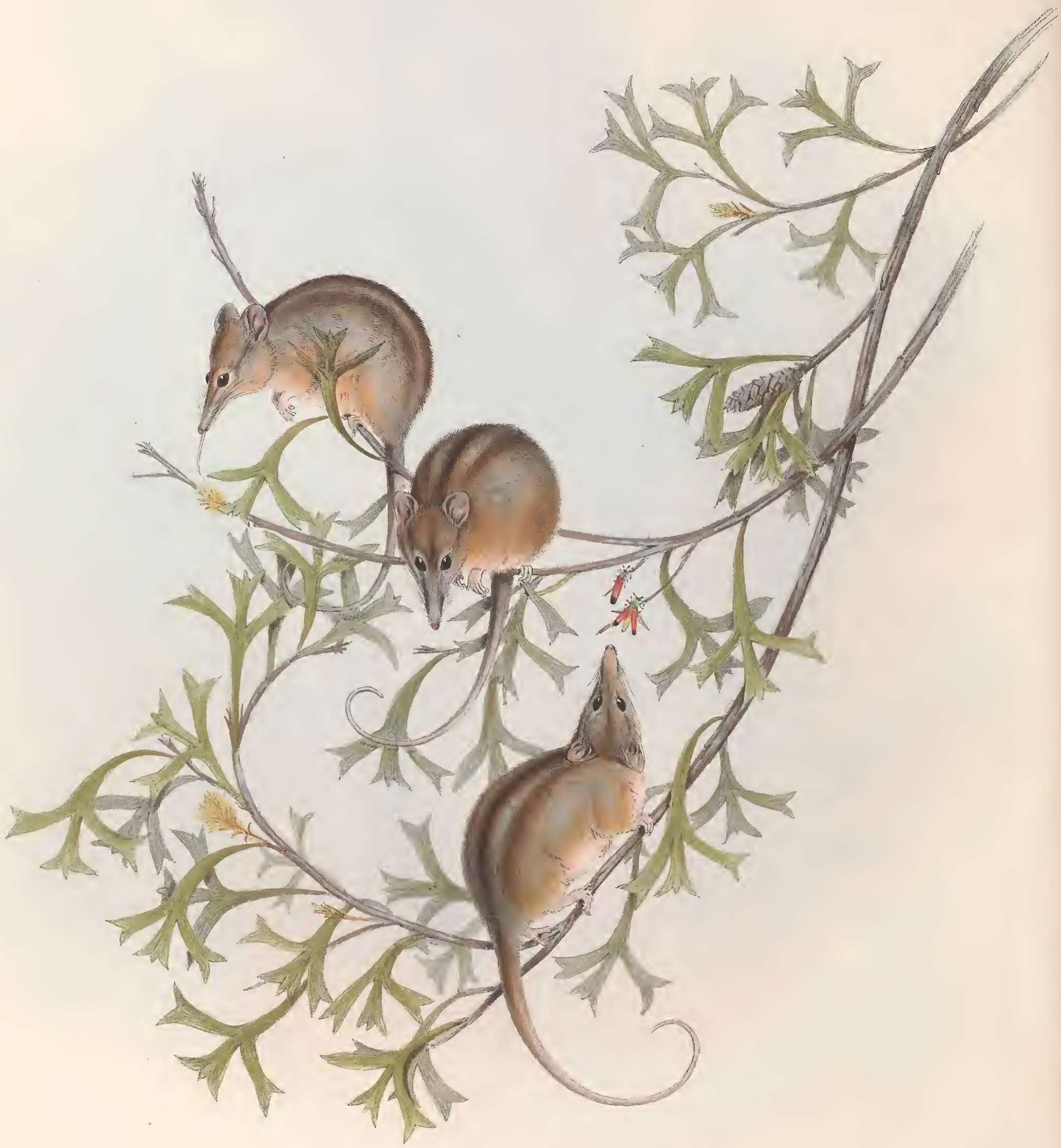
"You may place great reliance," writes His Excellency G. Grey, Esq., Governor of South Australia, "on the following description of the habits of Myrmecobius; it is partly derived from the natives, and partly from the observations of Mrs. Grey, who has seen several in a state of captivity. It cannot run very fast. Its tongue is about as thick as a common tobacco-pipe and gradually tapers; it is extensile and can be protruded from the mouth for several inches, and when in this state the animal moves it about with great rapidity. In the daytime it lives in decayed trees; at night it runs about and climbs the trees like an opossum. One that was kept in confinement was fed on sugar and milk, in which it dipped its tongue."

In a letter lately received from Mr. Gilbert he states, "I have seen a good deal of this beautiful little animal. It appears very much like a squirrel when running on the ground, which it does in successive leaps, with its tail a little elevated; every now and then raising its body and resting on its hind-feet. When alarmed it generally takes to a dead tree lying on the ground, and before entering the hollow invariably raises itself on its hind-feet to ascertain the reality of approaching danger. In this kind of retreat it is easily captured, and when caught is so harmless and tame as scarcely to make any resistance, and never to attempt to bite. When it has no chance of escaping from its place of refuge it utters a sort of half-smothered grunt, apparently produced by a succession of hard breathings. I have heard of this animal being frequently kept in confinement and fed for several weeks together upon no other food than bran.

"The female is said to bring forth her young in a hole in the ground or in a fallen tree, and to produce from five to nine in a litter. I have not myself observed more than seven young attached to the nipples. Like the members of the genus *Antechinus*, this animal has no pouch for protection or envelopment of the young." The only protection afforded their delicate offspring is the long hairs which clothe the under surface of the mother.

The hair of the Myrmecobius is harsh and bristly to the touch. A black stripe passes from the nose through the eye to the neck; shoulders and upper part of the back bright rusty red, which gradually fades into rusty brown on the crown of the head, face and ears; back distinctly banded with lines of buffy white and blackish brown, the number of bands varying in different individuals; chin, throat and all the under surface yellowish white; upper part of both fore- and hind-feet rusty yellow; tail bushy for its whole length and parti-coloured, some of the hairs being black, while others are rusty red or yellowish white; in some instances the hairs of the tail are black at the base, then yellowish white, and terminate in rusty red.

The Plate represents an adult male and female of the size of life.



TARSIPES ROSTRATUS *Gervais Pere*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

TARSIPES ROSTRATUS, *Gerv. et Verr.*

Long-nosed Tarsipes.

Tarsipes rostratus, Gerv. and Verr. in Proc. of Zool. Soc., Part X. p. 1.—Ib. in Guerin's Mag. de Zool., 1842, Mamm., pls. 35, 36, 37.

——— *Spenseræ*, Gray in Ann. and Mag. of Nat. Hist., vol. ix. p. 40.—List of Mamm. in Brit. Mus. Coll., p. 87.

Jeĕ-pin, Aborigines around Perth.

Ngool̈-boon-goor, Aborigines of King George's Sound.

This highly curious little animal was first brought before the notice of the scientific world by M. Paul Gervais, who in his own name and that of M. Jules Verreaux read a lengthened memoir, illustrated by drawings, respecting its structure and affinities, at the scientific meeting of the Zoological Society of London, held on the 11th of January, 1842; immediately after which period specimens were sent to this country from King George's Sound by His Excellency Governor Grey; and Mr. J. E. Gray, conceiving the differences they exhibited from M. Gervais' animal to be of specific importance, applied to the animal in question the term *Spenseræ*, from the maiden name of His Excellency's amiable lady. As soon as I became aware of the existence of so interesting an animal in Western Australia, I wrote to Mr. Gilbert, and directed him to pay particular attention to the subject; and he has since transmitted to me several examples both from the neighbourhood of Swan River and from King George's Sound, a careful examination of which with those above-mentioned has fully satisfied me of their identity.

The following notes accompanied the specimens :—

"The Tarsipes is generally found in all situations suited to its existence from Swan River to King George's Sound, but from its rarity and the difficulty with which it is procured, notwithstanding the high rewards I offered, the natives only brought me four specimens; one of these, a female, I kept alive for several months, and it soon became so tame as to allow itself to be caressed in the hand without evincing any fear or making any attempt to escape. It is strictly nocturnal, sleeping during the greater part of the day and becoming exceedingly active at night: when intent upon catching flies it would sit quietly in one corner of its cage, eagerly watching their movements, as, attracted by the sugar, they flew around; and when a fly was fairly within its reach it bounded as quick as lightning and seized it with unerring aim, then retired to the bottom of the cage and devoured it at leisure, sitting tolerably erect and holding the fly between its fore-paws, and always rejecting the head, wings and legs. The artificial food given it was sopped bread made very sweet with sugar, into which it inserted its long tongue precisely in the way in which the Honey-eaters among birds do theirs into the flower-cups for honey; every morning the sop was completely honey-combed, as it were, from the moisture having been drained from it by the repeated insertion of the tongue; a little moistened sugar on the end of the finger would attract it from one part of the cage to the other; and by this means an opportunity may be readily obtained for observing the beautiful prehensile structure of the tongue, which I have frequently seen protruded for nearly an inch beyond the nose; the edges of the tongue near the tip are slightly serrated. The tail is prehensile, and is used when the animal is climbing precisely like that of the *Hepoona*. The eyes, although small, are exceedingly prominent and are placed very near each other; the ears are generally carried quite erect. When sleeping the animal rests upon the lower part of the back, with its long nose bent down between its fore-feet and its tail brought over all and turned down the back. Mr. Johnson Drummond shot a pair in the act of sucking the honey from the blossoms of the *Melaleuca*; he watched them closely, and distinctly saw them insert their long tongues into the flower precisely after the manner of the birds above-mentioned."

The figures on the accompanying Plate are of the natural size, and being carefully coloured after nature, renders a minute description unnecessary. The sexes are similarly marked, and may be thus briefly described :—

All the upper surface grey with a dorsal stripe of black, on either side of which is a broader one of reddish brown. The under surface and feet are buffy white, the buff tints becoming of a deeper hue on the flanks, the forehead inclining to rufous, and the space round the eye buffy white.

The singular plant upon which the three figures are placed is a species of *Petrophila*, the specific name of which I am unacquainted with: like many others of the Western Australian plants, it is probably undescribed.

CHÆROPUS CASTANOTIS.

J. Gould and H.C. Richter del. et lith.

Printed and col.d by Walton & Maw.

CHŒROPUS CASTANOTIS.

Chestnut-eared Chœropus.

Chœropus castanotis, Gray, Ann. and Mag. of Nat. Hist., vol. ix. p. 42.—List of Mamm. in Brit. Mus. Coll., p. 96.
Chœropus ecaudatus, Ogilby in Proc. of Zool. Soc., Part VI. p. 26.
Chœropus ecaudatus, Mitch. Trav. in Australia, vol. ii. p. 132. pl. 27.—Waterh. Nat. Lib. Mamm., vol. ix. (Marsupialia), p. 163.
Buŕ-da, Aborigines of the Walzemara district.
Wot-da, Aborigines of the interior from York, Western Australia.

For our first knowledge of this very singular animal we are indebted to the researches of Major Sir Thomas L. Mitchell, who during one of his expeditions into the interior of South-eastern Australia procured a specimen on the left bank of the Murray, and of which he gave a figure in the second volume of his "Travels." The specimen itself is deposited in the museum at Sydney, but a drawing by Sir Thomas Mitchell having been submitted to Mr. Ogilby's inspection, he at once perceived that it differed from every other known group of animals, and consequently made it the type of a new genus, assigning to it, from the presumed absence of any tail, the specific appellation of *ecaudatus*. Since that period an example from nearly the same locality has been sent to this country by His Excellency George Grey, Esq., Governor of South Australia, and two others by Mr. Gilbert from Western Australia. All these specimens are furnished with a well-developed tail, and the want of that organ in the Major's animal was doubtless the result of accident; hence it became necessary that the specific term applied to it by Mr. Ogilby should be exchanged for one more appropriate, and Mr. Gray has therefore assigned to it that of *castanotis*, from the deep chestnut colouring of the ears.

"That the *Chœropus*," remarks Mr. Gilbert, "should occasionally lose its tail is not singular, for I have frequently found examples of the *Mala* (*Perameles myosurus*) with their tail shortened or entirely lost, apparently by some accident."

The specimen in the Sydney museum and that from South Australia above mentioned, and which is now in the British Museum, differ considerably, both in colour and in the length of the hair that covers the body, from those from Western Australia, so much so in fact as almost to induce a belief of their being distinct; but until further information has been obtained respecting this very curious form, I prefer considering them as identical, and figuring them as such under Mr. Gray's name of *castanotis*; but should future research prove the Western Australian animal to be distinct, the specific term *occidentalis* might be applied to it.

In Western Australia the *Chœropus* is confined to the interior; it makes a nest precisely similar to that of *Perameles myosurus*, except that it is more abundantly supplied with leaves. It is sometimes found in the densest scrub, where from the thickness of the vegetation it is extremely difficult to be procured.

As its dentition would indicate, its food consists of insects and their larvæ, and vegetables of some kind, probably the bark of trees, bulbous and tuberous roots.

One of the two specimens received from Western Australia is in the collection of the British Museum, the other in that of the Earl of Derby.

The two front figures in the Plate represent the animals from Western Australia, and the central one that from South Australia. All the figures are of the natural size, and coloured so accurately as to render a description unnecessary.

PERAGALEA LAGOTIS.

J. Gould and H.C. Richter del et lith.

Hullmandel & Walton Imp.

PERAGALEA LAGOTIS.

Large-eared Peragalea.

Perameles lagotis, Reid in Proc. of Zool. Soc., Part IV. p. 129.—Waterh. Nat. Lib. Mamm., vol. ix. (Marsupialia), p. 153. pl. xii.
Paragalia lagotis, Gray, App. to Gray's Trav., vol. ii. p. 401.
Peragalea lagotis, List of Mamm. in Brit. Mus. Coll., p. 96.
Dol-goitch or *Dal-gyte*, Aborigines of Western Australia.
Rabbit of the Colonists.

The western portion of Australia is the only locality in which this fine animal has yet been discovered, evidencing with our comparatively recent acquisitions *Myrmecobius* and *Tarsipes*, that the mammalogy of that part of the continent is fully as interesting, both for novelty and singularity of form, as that of the eastern coast, which is inhabited by the Ornithorhynchus, Koala, &c.

The first notice of this animal on record is that published in the "Proceedings of the Zoological Society of London" for 1836, Mr. Reid, a member of the Society, having described it, from a skin exhibited at the scientific meeting of the 13th of December in that year, under the name of *Perameles lagotis*: he was in error, however, when he stated it to inhabit Van Diemen's Land. At the end of his paper, wherein the external characters and the dentition of the animal are minutely described, Mr. Reid gave it as his opinion that the distinctions between it and the other members of the genus *Perameles* were so marked, that it might be considered the type of a distinct genus, for which the term *Macrotis* would be an appropriate designation; he did not, however, publish any generic characters, and as the term *Macrotis* is objectionable from its similarity to the specific name, I am induced to adopt the generic designation proposed for it by Mr. Gray.

Were any attempts to be made at introducing the indigenous animals of Australia into Europe for ornamental purposes, or as additions to our articles of food, the present would be one of those with which it would be most desirable to make the trial. That it bears confinement well and contentedly, is proved by the fact of one having lived in the Gardens of the Zoological Society of London for some time; its death was doubtless attributable to the want of a suitable substitute for its natural food.

That its flesh is sweet and delicate, I have abundant testimony. When boiled it resembles that of the rabbit; prejudice would therefore be the only obstacle to its general adoption as an article of food, and this surely might easily be combated. I trust from what I have here said, that a sufficient hint has been thrown out to induce those who have the opportunity to import it into Europe.

The *Peragalea lagotis* is tolerably abundant over the whole extent of the grassy districts of the interior of the Swan River colony, where it lives for the most part in pairs, usually selecting spots where, the soil being loose, its powerful claws enable it to excavate the earth and form burrows with amazing rapidity. Into these holes it always retreats for safety; and as these subterraneous runs are both deep and long, it frequently eludes the pursuit of the natives, who hunt it for the sake of its flesh.

Its food consists of insects, their larvæ, and the roots of trees and plants; a favourite article is a large grub, the larva of a species of *Cerambyx*? which is deposited in the roots of the *Acaciæ*, and which is equally in request with the natives, who never fail to cut it out from an exposed root whenever they observe the *Dal-gyte* has been unsuccessful.

The number of young brought forth at a time has not yet been satisfactorily ascertained, but we may fairly presume that they are at least three or four.

The sexes present no difference whatever in their colouring, but the female is smaller than the male.

General tint of the upper parts of the head and body ashy grey; sides of the head, shoulders, and the sides of the body very pale vinous rust-colour; under parts of the head and body and the inner side of the limbs white; fore-legs and feet white, with a dark greyish patch on the outside of the former; tarsi white above, the hairs covering the under surface of a smoky brown colour; forepart of the outer legs white, outer and hinder part blackish grey; a whitish line extends backwards on the sides of the rump; soft long hair, coloured like that of the body, clothes about an inch and a half of the base of the tail; beyond this, for about three inches and a half, the tail is covered with black and somewhat harsh hairs; on the under side of the tail they are scarcely half an inch in length, but on the upper side most of them are upwards of one inch in length; the remainder of the tail is covered with white hairs, which increase in length on the upper side to the tip, where they are about two inches in length; on the under side they are short, and decrease in length towards the apex of the tail, the extreme point of which is naked; moustaches moderately long and black; ears almost naked, the margins fringed with whitish hairs; externally on the forepart they are covered with minute brown hairs.

The figure is of the natural size.

PERAMELES FASCIATA: *Gray.*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

PERAMELES FASCIATA, *Gray*.

Banded Perameles.

Perameles fasciata, Gray in App. to Capt. Grey's Journ. of Two Exp. of Discovery in N.W. and W. Australia, vol. ii. p. 407.—Waterh. Nat. Hist. of Mamm., vol. i. p. 379.—Gray, List of Mamm. in Brit. Mus., p. 95.

This elegant speeies of *Perameles* enjoys a wide range over the eastern and southern portions of Australia, but is more frequently met with in the country within the ranges, or what is commonly called in the colony "the interior," than in the distriets lying between the mountains and the sea. In New South Wales, the stony ridges which braneh off from the ranges towards the rivers Darling and Namoi, are localities in which it may always be found; in South Australia I hunted it myself on the stony ranges and spurs which run down towards the great bend of the river Murray. On referenee to my notes, I find the following entry:—"July 1, 1839. Killed for the first time the Striped-baeked Bandieoot, on the ranges bordering the great scrub on the road to the Murray. I started the animal from the crest of one of the stony ridges, and after a sharp chase of about a hundred yards it took shelter under a stone, and was easily captured; it passed over the ground with considerable rapidity, and with a motion precisely similar to the galloping of a pig, to which animal it also assimilates in the tenacity with which its skin adheres to the flesh; on dissection its stomach was found to contain the remains of caterpillars and other insects, a few seeds and fibrous roots; the flesh on being roasted proved delicate and excellent food; as is also that of most, if not all, the other members of the genus." His Excellency Governor Grey transmitted examples to this eountry during his residenee at Adelaide, accompanied by the following note: "This animal is found in the vast open plains near the head of St. Vineent's Gulf, and where no other species is to he met with."

The sexes assimilate in eolour, the female being as eonspicuously marked as the male, but of a smaller size; the markings of the back are also as apparent in the young animal as in the adult.

The *Perameles fasciata* is very nearly allied to *P. Gunnii*, but is of a mueh smaller size, has the ears proportionately rather longer and broader at the basc, the tail longer and dusky along the whole upper surface, instead of for a small space at the base; the feet and muzzle are also more slender.

Fur moderately long and harsh to the touch; upper surface pencilled with black and yellow in about equal proportions; on the sides of the body the yellow, and on the hinder part of the back the black prevails as a ground colour, but here are three broad yellowish-white bands, the foremost of which erosses the back, the other two run obliquely downwards and backwards from the mesial line; the postcrior of these two is almost longitudinal, and the one in front of this joins the foremost band; these bands are interrupted in the middle of the back; under surfaee of the body and the feet white; the tail is also white, but along the whole upper surfaee the hairs are partly black and partly yellow.

The Plate represents the two sexes of the sizc of life.

PERAMELES GUNNII, *Gray.*

J. Gould and H.C. Richter, del. et lith.

Hullmandel & Walton, Imp.

PERAMELES GUNNII, *Gray*.

Gunn's Perameles.

Perameles Gunnii, Gray in Proc. of Zool. Soc., part vi. p. 1.—Ib. Ann. of Nat. Hist., vol. i. p. 108.—Waterh. in Jard. Nat. Lib. *Marsupialia*, p. 156, pl. 15.—Gray, List of Spec. of Mamm. in Coll. Brit. Mus., p. 95. —Waterh. Nat. Hist. of Mamm., vol. i. p. 376.—Gunn in Proc. of Roy. Soc. of Van Diemen's Land, vol. ii. p. 83.

It is well that the name of Mr. Ronald C. Gunn, a gentleman devotedly attached to natural history, and long resident in Tasmania, should be perpetuated in a work of science, as the author would fain have the present considered to be, since he has not only paid considerable attention to the Botany, but also to the Zoology and even to the physical features of his adopted country; and hence I have great pleasure in figuring so conspicuous an animal as the present under his name.

The *Perameles Gunnii* is an inhabitant of Tasmania, and appears to be more common in the northern than in the southern parts of that country; it also, if I mistake not, inhabits the islands in Bass's Straits, and even the southern portions of the continent of Australia. I say this, however, somewhat doubtfully, because I possess no certain evidence that the animal has been killed at Port Phillip, though I have received it direct from thence; but it is just possible that it had been taken there before its transhipment to this country; I incline, however, to consider it a native of those parts as well as of Tasmania. In size this species ranges next to *Perameles nasuta*, being in fact intermediate between that animal and *P. myosurus*; but from these, as well as all others, it differs in its short and white tail; in the banding of its back it approaches *P. fasciata*—but these marks are not so dark or so well defined. Mr. Gunn has given us an interesting account of the destructive habits of this animal when gardens come within its range. This account, moreover, indicates the kind of food upon which it naturally subsists, a point well worthy of the attention of those who have the charge of menageries, and who would wish to be successful in their mode of treating and preserving this tribe of animals.

"It has sometimes been doubted," says Mr. Gunn, "whether the *Perameles* feed upon roots. For several years past my garden at Launceston has suffered severely from the attacks of *P. Gunnii*. Two beds of *Ixia maculata*, var. *viridis*, were entirely eaten, so as to eradicate the species. Some other *Ixiæ* and *Babianæ* were afterwards attacked; but many *genera* of Cape bulbs close to them were left untouched. The *Crocus* seems an especial favourite, as wherever they occurred they were diligently sought out, rooted up, and eaten, and that too at a season when no leaves appeared above ground to indicate their position. Tulips seem to be less relished, although they are occasionally eaten. In the bush I lately discovered a new species of tuberous fungus partly eaten, at the bottom of a hole about nine inches deep, which I believe had been the work of a *Perameles*; my impression is that the *Perameles* live a good deal, if not principally, upon roots and fungi."

The fur is moderate in length and not so hard to the touch as that of *P. obesula* or *P. nasuta*; the hairs of the upper surface are grey at the root, the visible portion of each being pencilled with black and ochreous yellow; on the sides the general hue is somewhat paler, the hairs having a smaller amount of the black pencilling and a delicate vinous tint; on the hind quarters the ground-colour is blackish brown, and on this part are three broad light-coloured bands, the first of which crosses the back slightly in front of the thigh, the second is nearly transverse, and the third longitudinal; under surface pure white; the feet and tail are also white, with the exception of a dusky patch on the base of the latter, and on the sides of the heel of the hind foot the sides are dusky; ears internally clothed with very small pale yellow hairs, but on the hinder part they are nearly white; a broad dusky mark crosses the outer surface of the ear, commencing about the middle of the anterior margin, and running obliquely backwards as it descends to the base.

The Plate represents the male, female, and young, of the size of life.

PERAMELES MYOSURUS: *Wagn:*

A. Goodall and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

PERAMELES MYOSURUS, *Wagn.*

Saddle-backed Perameles.

Perameles myosurus, Wagn. in Wiegm. Archiv, 7th Year, p. 289; and Schreb. Saugth., pl. 155 A.d., Part 111-112, Nov. 1842.
Perameles arenaria, Gould in Proc. of Zool. Soc., Part XII. p. 104.
Mål-a, Aborigines of the York and Toodyay districts.
Nyĕm-mel, Aborigines of King George's Sound.

Having lately had an opportunity of consulting Schreber's "Saugthiere," I find therein the figure of an animal so nearly resembling my *Perameles arenaria*, that I am induced to believe it to be the same species; I have consequently, in justice to the first describer, Dr. Wagner, placed my own name as a synonym to his.

Dr. Wagner, whose labours display great care and no ordinary extent of information, has very accurately pointed out the distinctions between it and the *P. fasciata*, the most nearly allied species yet discovered; but as he has not mentioned the habitat of the animal he has described, I am unable to come to a positive conclusion on the subject: if it be from Western Australia, it is doubtless identical with the one here figured.

The present animal inhabits the whole line of coast of the Swan River colony, but, so far as I can learn, is not found to the westward of the Darling range of hills. It resides in the densest scrub, thickets of the seedling *Casuarinæ* being its favourite resort. It makes a compact nest in a hollow on the ground, of grasses and other materials, which assimilate so closely in colour and appearance to the surrounding herbage, that it is very difficult of detection, the difficulty being much increased by there being no visible opening for the ingress and egress of the animals. The nest is generally inhabited by pairs. The young are either three or four in number.

Its food consists of insects, seeds and grain. It excavates holes in the earth with rapidity and ease, and to these and the hollow trunks of fallen trees it flies for shelter when pursued by its natural enemies.

Mr. Gilbert remarks that this species is, without exception, the most difficult to skin of all the marsupials with which he is acquainted; the skin in fact is so tender, that the weight of one of the limbs, if left hanging by the skin, is sufficient to separate it from the body; and living specimens are often met with minus a portion or the whole of the tail.

The sexes are alike in colour, but when adult the female is smaller than the male. Examples are frequently seen of all sizes, which appears to be solely occasioned by a difference of age.

The fur is harsh to the touch, and of a greyish brown hue, interspersed with numerous long black hairs, which form a broad indistinct band across the flanks immediately above the hind-legs, and a kind of saddle-like mark on the centre of the back; ears of three colours, rusty red near the base, then dark brown, and the apex of a light greyish brown; sides of the muzzle and all the under surface buffy white; line along the upper surface of the tail dark brown, the remainder buffy white; outside of the fore-legs brownish grey; feet and claws buffy white.

The figures represent the two sexes of the natural size. The flowering plant is a species of *Melaleuca*, probably undescribed.

PERAMELES NASUTA, *Geoff*

J. Gould. and H.C. Fischter del. et lith.

Hullmandel & Walton, Imp.

PERAMELES NASUTA, *Geoff.*

Long-nosed Perameles.

Perameles nasuta, Geoff. Ann. du Muséum, tom. iv. p. 62. pl. 44.—Waterh. in Jard. Nat. Lib. Mamm., vol. xi. (Marsupialia) p. 155. pl. 13.—Gray, List of Mamm. in Coll. Brit. Mus., p. 96.—Waterh. Nat. Hist. of Mamm., vol. i. p. 374.

——— *Lawsoni*, Quoy et Gaim. Voy. de l'Uranie, Zoologie, pp. 57 & 711.

——— *nasuta* et *aurita* of the Paris Museum.

Although this animal inhabits the portion of Australia which has been longest known to us, it is remarkable how little is the information that has been obtained respecting it; I procured many specimens during my sojourn in the country, and ascertained that it is sparingly dispersed over the districts lying between the mountain ranges and the sea. It frequents stony and sterile localities, and in all parts of this character, even in the neighbourhood of Sydney, it occurs as frequently as elsewhere. It is perhaps the largest species of the genus yet discovered, and is distinguished from every other by the great length of its snout, which circumstance has obtained it the specific appellation of *nasuta*. I have never met with this species in collections from any other part of Australia than New South Wales: I mention this because Dr. Gray considers the *Perameles Bougainvillii* of MM. Quoy and Gaimard, which inhabits Western Australia, to be identical with it; but, in my opinion, such is not the case. Independently of the genus *Paragalea*, there are two other very distinct sections of the *Peramelinæ*, one of them inhabiting low swampy grounds covered with dense vegetation; the other, the stony ridges of the hotter and more exposed parts: the former is represented by the *Perameles obesula* and its allies, the latter by the beautiful banded group comprising *P. fasciata*, *P. Gunni*, *P. myosurus*, &c. To this latter section the present species, though destitute of the dorsal markings, also belongs.

The food of this animal consists of bulbous and other roots, which it readily obtains by means of its powerful fore feet and claws.

The sexes, as is usual with the other members of the family, do not differ in colour, but the female never attains the size of the male.

The fur, which is almost entirely composed of harsh, flattened hairs with a scanty under-fur of finer hairs, is of a pale grey on the upper surface of the body; the longer and coarser hairs of the back are pencilled with pale brown and blackish; on the sides the black is nearly obsolete, and here, as well as on the sides of the head, the general tint is pale vinous-red; the under surface of the body is white, the hairs being uniform to the root; feet white; the fore leg is grey externally at the base, and the hind leg has a dusky patch immediately above the heel; ears clothed with very small hairs, which are whitish on the inner side, dusky on the outer, and pale brown near the anterior angle; the small stiff hairs of the tail are brownish on the upper surface and dirty-white on the under.

The front figure is of the natural size.

PERAMELES OBESULA, *Geoff*

J. Gould and H.C. Richter del. et lith

Hullmandel & Walton, Imp.

PERAMELES OBESULA, *Geoff.*

Short-nosed Perameles.

Didelphys obesula, Shaw, Nat. Misc., vol. viii. pl. 298.—Ib. Gen. Hist., vol. i. p. 490.
Perameles obesula, Geoff. Ann. du Mus., tom. iv. p. 64. pl. 45.—Waterh. Nat. Hist. of Mamm., vol. i. p. 368.—Gunn in Proc. Roy. Soc. of Van Diem. Land, vol. ii. p. 82.
Isoodon obesula, Desm. in Nouv. Dict. d'Hist. Nat., tom. xvi. p. 409.
Perameles fusciventer, Gray in App. to Grey's Journ., vol. ii. p. 407.
——— *affinis*, Gray, List of Mamm. in Coll. Brit. Mus., p. 96.
Gwĕn-dee, Aborigines of Perth, Western Australia.
Quoint, Aborigines of King George's Sound.

Having had many opportunities of observing this animal in a state of nature, both in Van Diemen's Land and New South Wales, I am enabled personally to state, that it does not, like some of the other species of the genus, such as *Perameles Gunni*, *P. fasciata* and *P. myosura*, dwell among the stony ridges of the open country, but evinces a preference for the low, damp, swampy places, overgrown with dense green herbage, which occur on the borders, and even within the great forests. In Van Diemen's Land it is more frequently met with on the southern side of the River Derwent than elsewhere. This great river, indeed, forms the line of demarcation to many species both of quadrupeds and birds; its southern side being clothed with vast forests of *Eucalypti*, growing on a stiff clayey soil, while the opposite bank is of a light sandy character, suitable to the growth of *Banksiæ* and *Acaciæ*; the former is the kind of country preferred by the animal under consideration, and, as might be supposed, it is found in all parts of Van Diemen's Land wherever similar localities occur; it is also to be found in like situations on the islands in Bass's Straits, in New South Wales, and in Southern and Western Australia. Specimens from all these countries are now before me, and although the range extends over an area of nearly three thousand miles, I am unable to detect any differences of sufficient value to warrant the establishment of a second species. The only perceptible difference between the examples from Western Australia and those from New South Wales and Van Diemen's Land, is a slightly darker tint in the colouring of the under surface of the former: very old males from each country attain to nearly a foot in length, exclusive of the tail, while the adult female is considerably smaller, and immature animals may be found of all sizes, according to age and sex. While engaged in my observations on the "Birds of Australia," I have very frequently trodden upon the almost invisible nest of this species and aroused the sleeping pair within, which would then dart away with the utmost rapidity, and seek safety in the dense scrub, beneath a stone, or in the hollow bole of a tree; that is, if their career were not stopped by a discharge from my gun, or by my dogs.

The following note is from the pen of the late Mr. Gilbert, and comprises his observations of the animal in Western Australia, which, although they do not quite agree with my own, I give in his own words:—

"This little animal is abundant in every part of the colony, and is found in every variety of situation; in thick scrubby places, among the high grass growing along the banks of rivers and swamps, and also among the dense underwood both on dry elevated land and in moist situations. It makes a nest of short pieces of dried sticks, coarse grasses, leaves, &c., sometimes mixed with earth, and so artfully contrived to resemble the surrounding ground, that only an experienced eye can detect it. When built in dry places, the top is flat, and on a level with the ground, but in moist situations the nest is often raised in the form of a heap, to the height of about twelve inches; the means of access and exit being most adroitly closed by the animal both on entering and emerging. The *P. obesula* is generally found in pairs: when driven from its nest, it takes to the first hollow log or hole in the ground that occurs. Athough its usual food consists of insects, it occasionally feeds on grain, and I have several times seen it in great numbers in a wheat-stack. Specimens are sometimes met with of a very large size, which circumstance has induced a belief among the settlers that there are two species, but such is certainly not the case."

No one has more diligently endeavoured to unravel the confusion which has hitherto existed respecting

the synonymy of this animal than Mr. Waterhouse; it will be but fair, therefore, to give his remarks on the subject:—

"The Short-nosed Perameles has an unusually wide range, being found in New South Wales, South Australia, King George's Sound, the Swan River district, and Van Diemen's Land. I have examined specimens from each of these localities, and taken much pains to satisfy myself of their specific identity. The males I have usually found larger than the females; their fore-feet are proportionately larger, and so are the canine teeth. The colouring varies somewhat in different individuals, and is darker than that of other species, if we except *P. macroura*."

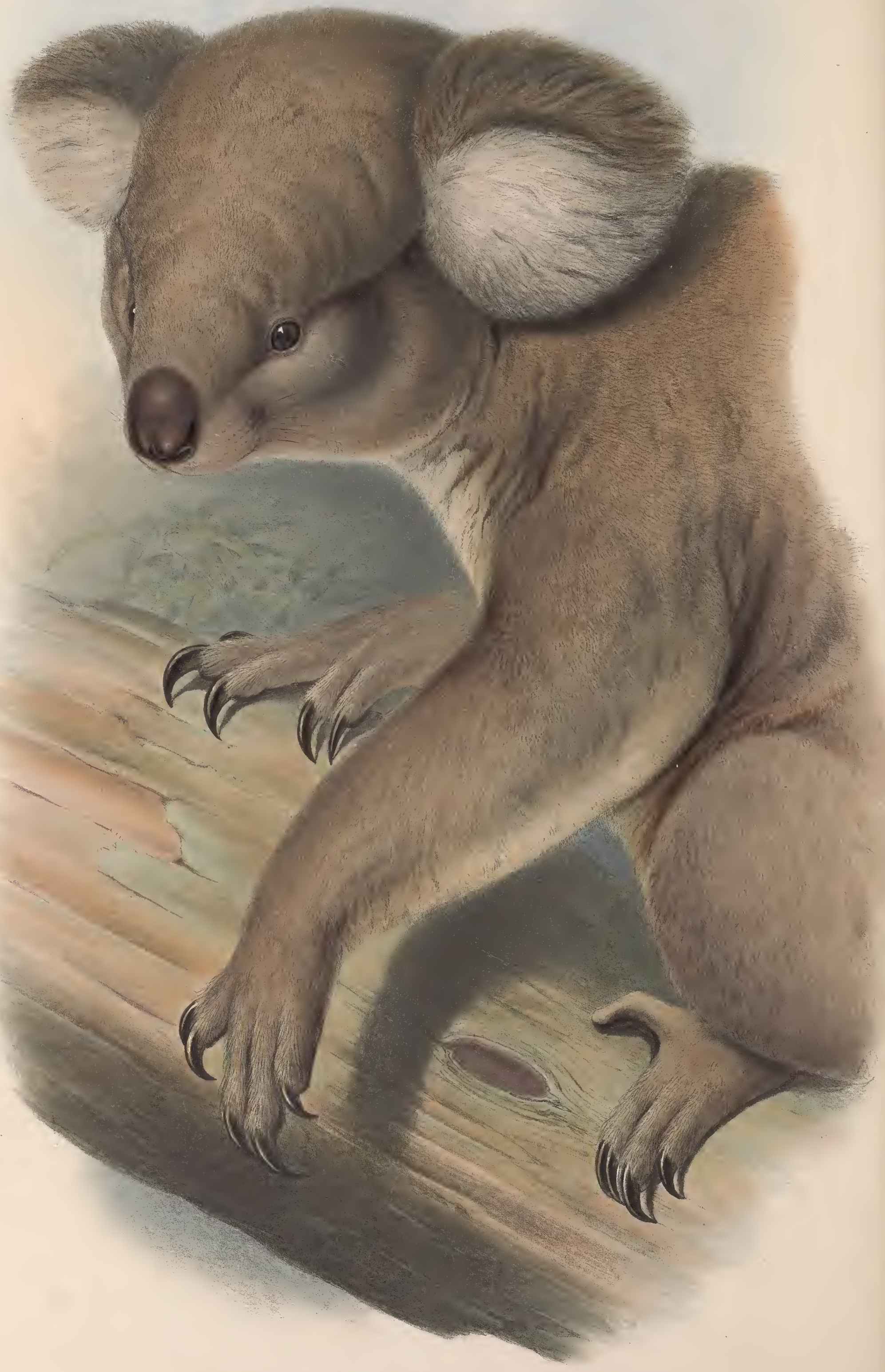
The *Perameles affinis* of Dr. Gray "is founded upon a small animal from Van Diemen's Land, which appears to me to be a young individual of *P. obesula*: excepting in size, I can perceive no difference; its length from the tip of the nose to the root of the tail is 8 inches. When of this size, the young *P. obesula* has so much the general appearance of an adult animal in the character of the fur, &c., that I supposed, like Dr. Gray, there really existed a second species resembling *P. obesula*; but after examining the skulls, removed from two such specimens, I was convinced that their small size merely indicated immaturity."

Of the *Perameles fusciventer* of Dr. Gray, Mr. Waterhouse remarks, "Two specimens in the British Museum are labelled *Perameles fusciventer*; one agrees in every respect with the *P. obesula*, excepting that its head is rather shorter. . . . . The other is considerably smaller than the adult *P. obesula*, and differs in being more strongly pencilled with black on the upper parts of the body, and in having the under parts of the body of a pale brownish-yellow, and the hairs on this part are slightly tinted with grey at the root. The head bears the same proportion to the body in length as in *P. obesula*. I question much whether the shortness of the head in the larger specimen does not arise from the mode in which the specimen has been stuffed; and with regard to the yellowish tint of the abdomen, I may observe, that in specimens which are undoubtedly the *P. obesula*, the under parts of the body are sometimes tinted with yellow, though less strongly than in the little animal above described. I cannot see any good grounds for regarding the specimens called *fusciventer* as specifically distinct from the *P. obesula*."

The animal here represented is one of the very commonest of the Australian mammals, and is, moreover, one of the oldest known, having been figured and described in some of the earliest works on that country.

The hairs composing the fur of this animal are of two kinds: all that are visible are harsh to the touch, flattened, pointed and glossy: upon dividing these coarse hairs, a soft, somewhat scanty fur becomes visible: on the upper parts of the body the coarse hairs are greyish-white at the root, black at the point, and broadly annulated in the middle with ochreous-brown, giving the whole the appearance of being pencilled in about equal proportions with black and ochreous-brown; the under-fur is grey; on the under parts of the body the hairs are yellowish-white at the tip and white at the base, and the under-fur is also white: towards the end of the muzzle the hairs are of a uniform dusky-brown; the lips, chin and throat are whitish; hairs clothing the inner side of the ears yellowish, becoming brownish on the margin; on the outer side dusky, becoming paler on the posterior part, and there is a faint indication of a pale spot at the base, near the anterior margin; fore-feet whitish; tarsi dirty-white, tinged with yellowish, and freckled with black on the upper surface; on the inner side they are delicate yellow; hairs of the base of the tail similar to those of the body; beyond this the upper surface is dusky, and of a dirty yellowish tint on the under surface.

The figures are somewhat less than the size of life.



PHASCOLARCTOS CINEREUS.

J.Gould and H.C.Richter, del et lith.

Hullmandel & Walton, Imp

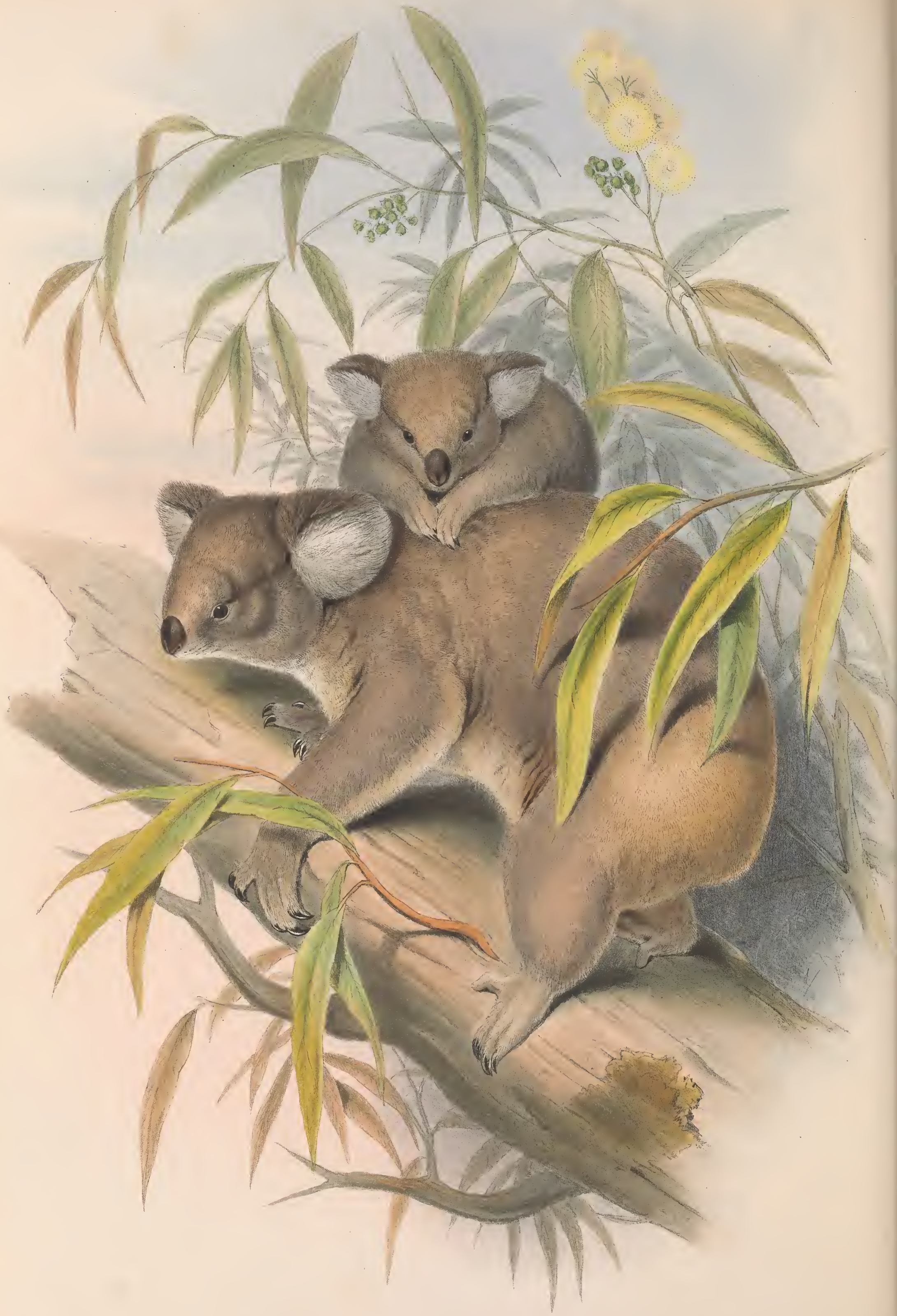
PHASCOLARCTOS CINEREUS.

Koala.

HEAD AND FORE LEG, OF THE SIZE OF LIFE.

LIKE the *Ornithorhynchus*, this remarkable creature is only found in the south-eastern portion of the great land of the South. It is in the brushes which skirt the sea side of the mountain-ranges between the district of Illawarra and the River Clarence that it is most numerous; here, among the leafy branches of the great trees, the Koala remains sleeping during the daytime; but at nightfall this lethargy gives place to more active habits, and it then moves about with agility in search of its natural diet, which is said to be the tender buds and shoots of the *Eucalypti*.

Like too many others of the larger Australian mammals, this species is certain to become gradually more scarce, and to be ultimately extirpated; I have not hesitated, therefore, to give a life-sizcd head, as well as reduced figures, which, with a full account of the economy of the animal, will be found to follow the present page.



PHASCOLARCTOS CINEREUS.

J. Gould and H.C. Richter, del. et lith.

Hullmandel & Walton, Imp.

PHASCOLARCTOS CINEREUS.

Koala.

Lipurus cinereus, Goldf. in Oken's Isis, 1819, p. 271.
Phascolarctos fuscus, Desm. Mammalogie, p. 276.—Ib. Dict. des Sci. Nat., tom. xxxix. p. 448.—Wallich in Jard. Nat. Lib., Marsupialia, p. 295.
———— *Flindersi*, Less. Man. de Mamm., p. 221.
———— *fuscus* et *cinereus*, Fisch. Syn. Mamm., p. 285.—Wagn. Schreb. Saugth., 111–112 Heft, p. 92.
———— *cinereus*, List of Mamm. in Coll. Brit. Mus., p. 87.
Koala Wombat, Home, Phil. Trans. 1808, p. 304.
Le Koala ou Colak, Desm. Nouv. Dict. d'Hist. Nat., tom. xvii. p. 110. tab. E. 22. fig. 4.
Wombat of Flinders, Knox in Edinb. New Phil. Journ. 1826, p. 111.
Phascolarctus cinereus, Waterh. Nat. Hist. of Mamm., vol. i. p. 259.—Gray, Ann. Phil. 1821.
New Holland Sloth, Perry, Arcana, t. .
Native Bear and *Native Sloth* of the Colonists.

During my two years' ramble in Australia, a portion of my time and attention was directed to the fauna of the dense and luxuriant brushes which stretch along the south-eastern coast, from Illawarra to Moreton Bay. I also spent some time among the cedar brushes of the mountain ranges of the interior, particularly those bordering the well-known Liverpool Plains. In all these localities the Koala is to be found, and although nowhere very abundant, a pair, with sometimes the addition of a single young one, may, if diligently sought for, be procured in every forest. It is very recluse in its habits, and, without the aid of the natives, its presence among the thick foliage of the great *Eucalypti* can rarely be detected. During the daytime it is so slothful that it is very difficult to arouse and make it quit its resting-place. Those that fell to my own gun were most tenacious of life, clinging to the branches until the last spark had fled. However difficult it may be for the European to discover them in their shady retreats, the quick and practised eye of the aborigine readily detects them, and they speedily fall victims to the heavy and powerful clubs which are hurled at them with the utmost precision. These children of nature eat its flesh, after cooking it in the same manner as they do that of the Opossum and the other brush animals.

I believe the Koala to be extremely local in its habitat, as up to the present time the south-eastern portion of the continent of Australia is the only part in which it is known to exist.

No difference occurs in the external appearance of the sexes.

An excellent account of the habits of this animal was given in the "Philosophical Transactions" for 1808, by Colonel Patterson, formerly Governor of New South Wales. It was known to this gentleman as an inhabitant of the forests about fifty or sixty miles to the south-west of Port Jackson, whence, it is stated, the first specimens were brought. "The New Hollanders," says Colonel Patterson, "eat the flesh of this animal, and therefore readily join in the pursuit of it: they examine with wonderful rapidity and minuteness the branches of the loftiest gum-trees, and, upon discovering a Koala, they climb the tree with as much ease and expedition as a European would mount a tolerably high ladder. Having reached the branches, which are sometimes 40 or 50 feet from the ground, they follow the animal to the extremity of a bough, and either kill it with a tomahawk or take it alive. The Koala feeds upon the tender shoots of the blue gum-tree, being more particularly fond of this than of any other food; it rests during the day on the tops of these trees, feeding at ease or sleeping. In the night it descends and prowls about, scratching up the ground in search of some particular roots; it seems to creep rather than walk: when incensed or angry, it utters a long shrill yell, and assumes a fierce and menacing look. They are found in pairs, and the young is carried by the mother on her shoulders. This animal appears soon to form an attachment to the person who feeds it."

"It has been frequently compared to a bear in its movements and mode of climbing," observes Mr. Waterhouse, "and, indeed, in appearance the animal is not unlike a small bear."

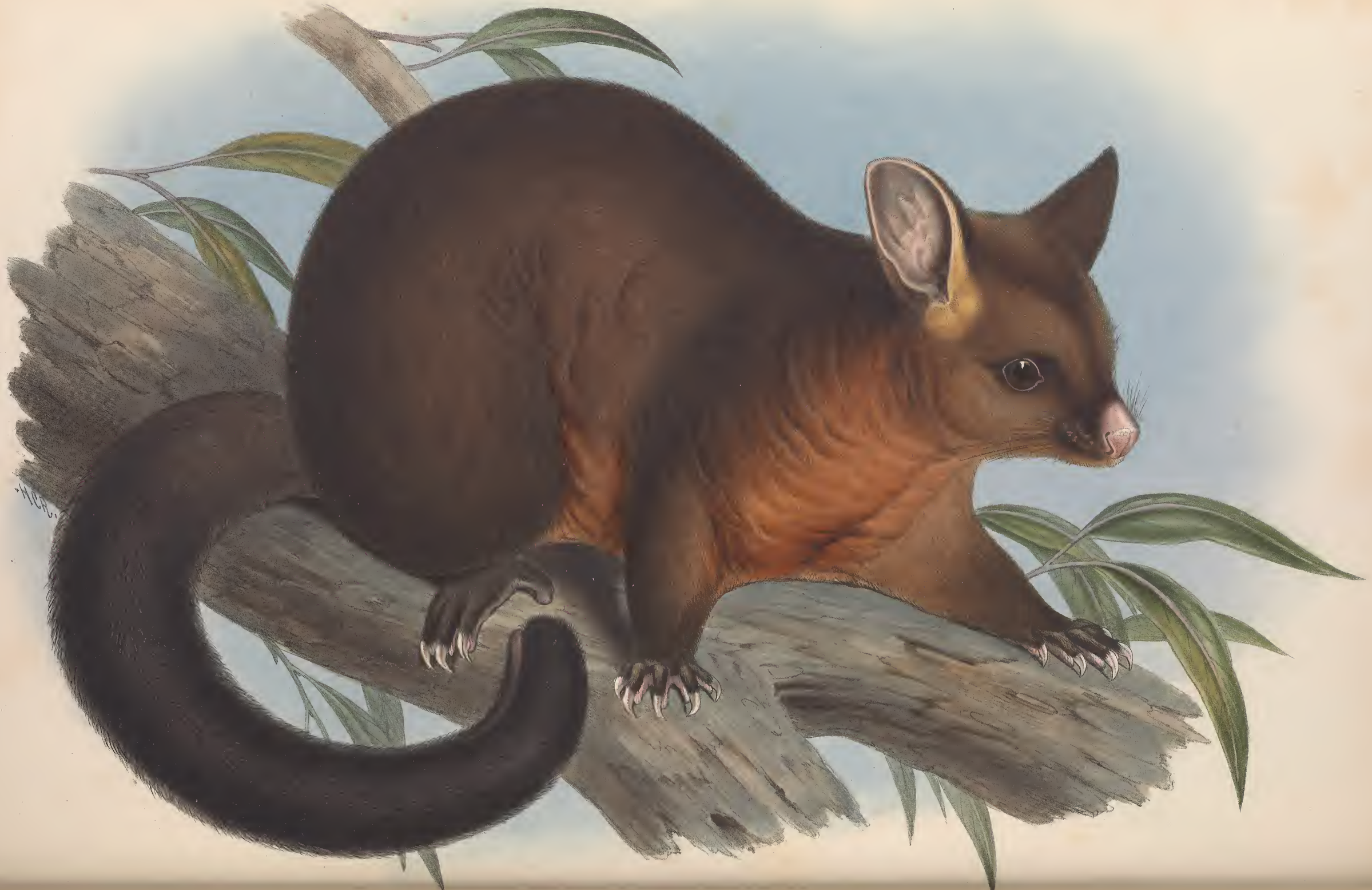
Mr. Waterhouse has given so correct a description of this animal in his "Natural History of the Mammalia," that I cannot perhaps do better than transcribe it into these pages:—

"The Koala is usually about 2 feet in length, and when on all-fours stands 10 or 11 inches in height; the girth of the body is about 18 inches. Its limbs are of moderate length, and powerful; the hands and feet large, and admirably adapted by their structure to tree-climbing habits. The toes of the fore feet are so arranged, that the two innermost of the five are opposed to the other three; and all the toes,

both of the fore and hind feet (if we except the innermost one of the latter), are provided with large, curved, very deep, and compressed claws. The innermost toe of the hind foot is large, nail-less, assumes the form of a thumb, and is used as such, being opposed to the toes in grasping, as is the thumb of the human hand to the fingers. The head is rather large, the muzzle short and nearly naked both on the sides and on the upper surface, these parts being merely and rather sparingly clothed with small velvet-like hairs; the part thus sparingly clothed is most extended on the upper surface of the muzzle, here reaching back about $1\frac{1}{2}$ inch from the tip of the nose, while at the sides only $\frac{1}{2}$ an inch or rather more of the muzzle is destitute of the ordinary fur. The ears are of moderate size and pointed, and entirely hidden by the very long hairs with which they are clothed, these latter being for the most part about 2 inches in length; on the inner side of the ears the hairs are white, and on the outer side of the same grey hue as those of the head, excepting those which spring from the anterior margin of the ear, which are chiefly black. The eyes are rather large, and, like those of other Marsupial animals (with the exception of the Kangaroos), are not protected by eyelashes; there are, however, a few long bristly hairs springing from immediately above the eye; the hairs of the moustaches are small and scanty. The fur is tolerably long, dense, of a wool-like quality, and rather soft to the touch; its general hue ashy grey somewhat suffused with brown,—a tint produced by the hairs being brown before, and whitish at the point. The hinder part of the back is of a dirty yellowish white hue. The under parts of the head and body, as well as the inner side of the fore legs and the posterior part of the hind legs, are white, but not very pure; the hairs covering the feet have the visible portions whitish, but they are dusky brown at the root, and a slight pencilling of this darker hue is generally observable on the toes. The inner side of the hind legs is of a brownish rust-colour. The muffle is naked, and, like the naked soles of the feet, appears to have been black in the living animal.

"A very young Koala in the Museum of the Zoological Society presents some features worthy of notice. Instead of having the woolly fur of the adult, it is clothed with hairs which are moderately soft, short, and closely applied to the skin; on the mesial line of the back a little behind the shoulders, the hairs radiate, and running forwards over the neck meet those of the head having an opposite direction, and form a kind of crest at the line of junction; on the rump there is another of these centres from which the hairs radiate. The ears, which are much pointed and have the posterior edge emarginated, are clothed with hairs of about a quarter of an inch in length. Its colouring is the same as in the adult."

One of the accompanying Plates represents the head of the animal, of the size of life; the other, a reduced figure of a female and young.



PULSANCISTA FULIGINOSA. Ogilby

PHALANGISTA FULIGINOSA, *Ogilby.*

Sooty Phalangista.

Phalangista fuliginosa, Ogilby in Proc. of Comm. of Sci. and Corr. of Zool. Soc., Part I. p. 135.—Gray, List of Mamm. in Brit. Mus., p. 85.—Waterh. Nat. Hist. of Mamm., vol. i. p. 288.
Phalangista Cuvieri, Gray.
————*felina,* Wagn.?

A QUESTION has been raised by Mr. Waterhouse, no mean authority as regards mammalia, whether the *Phalangista fuliginosa* of Mr. Ogilby is really a distinct species from *Phalangista vulpina*: admitting that he has some slight grounds for the suspicion alluded to, I am myself induced to consider them to be distinct; and I have come to this conclusion from having seen much of the two animals in a state of nature; I have taken them alive, fed upon their flesh, and their skins have served me for a covering in the country they both inhabit. The true and, I believe, exclusive habitat of the animal to which Mr. Ogilby gave the name of *fuliginosa* is Van Diemen's Land, while the continent of Australia is as exclusively the native country of the *P. vulpina*. Two important points of difference between the two animals are found to exist: the island species or *P. fuliginosa* far exceeds the other in size, and is subject to great variety in its colouring, varying as it does from an almost jet-black to light grey, while many are characterized by a large admixture of red of a greater or lesser degree of intensity: on the other hand, the continental species or *P. vulpina* are of a uniform light grey,—at least that was the colouring of all those I saw while resident in the country; the fur of the Van Diemen's Land animal is also of a more dense and frizzly character. The skins of the island and continental animals are both made into sleeping rugs, but the former are esteemed so much more highly, that a rug formed of them is considered worth three times the price of one of the latter. I am aware that climate has considerable influence over many animals, but it is not usual to find increase of size and depth of colouring in the colder latitudes. The habits of both animals are as nearly alike as may be: strictly nocturnal, they spend the entire day in sleep in the hollows of the boles and large limbs of the *Eucalypti* and other trees of the forest; on the approach of night they sally forth, and sometimes seek their food on the ground, but more frequently among the branches; the food consisting of the leaves and tender shoots, and the flowers and honey-cups of the *Eucalypti*. They both form a considerable article of food for the natives, who having discovered their retreat cut a hole in the branch, fearlessly insert their hand in the hole, seize the animals by the tail, drag them forth, and despatch them by beating the head against the tree; when roasted the flesh is white and delicate, and not unlike that of a rabbit.

The animal in the British Museum which has been named *P. Cuvieri* by Mr. Gray, is considered by Mr. Waterhouse to be identical with the present species, as the feet and incisor teeth, which are larger than those of *P. vulpina*, precisely agree with those of *P. fuliginosa*, from which it only differs in being paler and in having the tail less bushy; and with respect to these differences, he remarks, that the animal had lived in confinement for some time prior to its death, and when it died had shed the greater portion of the longer and coarser hairs of the fur; I may add that I have myself examined the animal, and believe that it is referable to one or other of the above species, and I conclude from its greater size that it must be regarded as synonymous with *P. fuliginosa*. I have had no opportunity of examining the *P. felina* of M. Wagner; Mr. Waterhouse remarks that it agrees in size with *P. fuliginosa*, with some of the varieties of which it also agrees in colouring; he does not believe it to be a distinct species, and as I know of no other it resembles, I regard it, at least for the present, as synonymous with the animal here represented.

Much variation in colour is found to exist in this animal, some having the general colour almost black, especially on the back, with a rich brown hue on the sides and the throat; chest and under parts of a rich brownish fulvous hue, rather deeper on the abdomen than elsewhere; the chin and muzzle, back of the ears, feet and tail almost entirely black; others are of a very deep rufous brown tint, much suffused with black on the back; others are of a rich rufous grey, and others again are entirely grey.

The figure in the accompanying Plate, which was drawn from life, represents a dark variety, somewhat less than the natural size.

PHALANGISTA RULPINA, *Desm*

J. Gould and H.C. Richter, del. et lith.

Hullmandel & Walton, Imp.

PHALANGISTA VULPINA, *Desm.*

Vulpine Phalangista.

Didelphys vulpina, Shaw, Gen. Zool., vol. i. p. 503.
——— *lemurina*, Shaw, Gen. Zool., vol. i. p. 487. pl. 110.
Phalangista vulpina, Desm. in Nouv. Dict. d'Hist. Nat., tom. xxv. p. 475.—Ib. Ency. Méth. Mammalogie, part i. p. 267.—Temm. Monog. de Mamm., tom. i. p. 5.—Gray, List of Mamm. in Coll. Brit. Mus., p. 86.—Martin in Proc. of Zool. Soc., part 4. p. 2.
——— *melanura*, Wagn. in Schreb. Saug. Suppl. 111, 112. Heft, p. 81.
——— *xanthopus*, Ogilby, Proc. of Comm. of Sci. and Corr. of Zool. Soc., part i. p. 135.—Waterh. Nat. Hist. of Mamm., vol. i. p. 294.
Phalanger de Cook, F. Cuv. et Geoff. Mammifères, pl. 45.
Vulpine Opossum, Phillips's Voy. to Botany Bay, p. 150, and pl. .
Wha Tapoa Roo, White's Journ. of a Voy. to New S. Wales, p. 278, and pl. .
Phalangista (*Trichosurus*) *vulpina*, Waterh. Nat. Hist. of Mamm., vol. i. p. 284. pl. 9. fig. 1.

Of all the Opossums inhabiting Australia, the *Phalangista vulpina* is by far the commonest, and the one most widely distributed over the country, being found in all parts of New South Wales, Port Philip, and Southern and Western Australia. According to Mr. Waterhouse, it is also found in Northern Australia; but I observe that specimens from that country are larger than those obtained in the countries above mentioned, and a doubt exists in my mind as to their identity.

During my travels in Australia no living mammal was more frequently presented to my notice, and no one was more often brought by the natives to the camp-fire for the purpose of eating. All these examples were of a uniform grizzly-grey, and in no instance did I meet with the dark colouring of *Phalangista fuliginosa*, in my account of which species I stated, that I believed its true and exclusive habita to be Van Diemen's Land; that opinion I now find to be incorrect, as I have recently received examples from the dense brushes near the coast of the continent; its range therefore, independently of Van Diemen's Land, evidently extends over the brushes of New South Wales, and perhaps future research may prove that it enjoys a still wider range of habitat.

The *Phalangista vulpina*, like its congener, is strictly nocturnal in its habits, living in the hollow spouts and holes of the large gum-trees during the day, and ascending the branches during the night to feed upon the buds, leaves and fruit; sometimes descending to the ground, where it probably finds herbs to its taste. "While climbing," says Mr. Waterhouse, "its prehensile tail assists it to maintain a firm hold of the branches: in captivity I have noticed, that in descending from one perch of its cage to another, or to the floor, the tail invariably encircled the perch it was quitting until the animal was again securely lodged. Numerous specimens have from time to time formed part of the Zoological Society's living collection, and, from my own observations, they appeared to be by no means intelligent animals. During the day-time they were usually asleep, but towards evening they became active, and on the alert for their food, consisting of bread and milk, and various vegetable substances, including fruits. Whatever eatable was given to them, was taken by and held between the hands, in the manner a squirrel holds a nut. Occasionally a dead bird was given to them, when they evinced an evident fondness for such food, and more particularly for the brain, which was the part first consumed."

This animal constitutes a considerable part of the food of the natives, who diligently search for it, and having discovered a tree in which it is secreted, ascend it with surprising agility; the position of the animal being ascertained, a hole is cut with their little axes sufficiently large to admit the naked arm; it is then seized by the tail, the chopping and jarring of the tree not inducing it to leave its retreat, and before it has time to bite, or use its powerful claws, it is deprived of life by a blow against the side of the tree, and thrown to the ground; its captor proceeding to his encampment with a dinner in perspective. I have

frequently eaten its flesh myself, and found it far from disagreeable. Mantles and sleeping rugs are made of its skin, but, as I have mentioned in my account of *P. fuliginosa*, are not considered so valuable as those made from the skin of that animal.

A very elaborate account, by Mr. Martin, of the internal anatomy of a female of this species will be found in the "Proceedings of the Zoological Society" above quoted.

Fur long, loose, and moderately soft; general colour grey, the visible portions of the hairs being partly black and partly white; fur of the back of a somewhat deeper hue than on the sides, owing to a plentiful interspersion of long black hairs; muzzle and chin blackish, the former pale near the tip, and the naked muffle of a whitish flesh-colour; eyes encircled with blackish hairs; skin of the inner surface of the ears brownish-pink, with a few scattered pale-coloured hairs; outer surface of the ear, excepting near the point and a narrow space along the anterior margin, clothed with a dense and moderately long fur, which is white at the posterior angle and towards the apex, but black elsewhere; the hairs of the moustaches are long, numerous and black, and there are a few long bristly black hairs springing from above the eyes; throat, under surface of the body, and inner side of the limbs pale buffy-yellow, with a large oblong patch of deep rust-coloured hairs along the chest; feet yellowish-white, suffused with brown on the toes; naked soles flesh-coloured; claws dusky; tail clothed at the root like the body; beyond, the fur is more bushy, of a harsher character, and black, the last inch or so being in some instances white; the extreme point of the tail, and the apical half of the under surface are naked.

The figure represents the animal rather under the size of life.

PHALANGISTA CANINA, *Ogilby*

J. Gould and H.C. Richter, del. et lith.

Hullmandel & Walton, Imp.

PHALANGISTA CANINA, *Ogilby*.

Short-eared Phalangista.

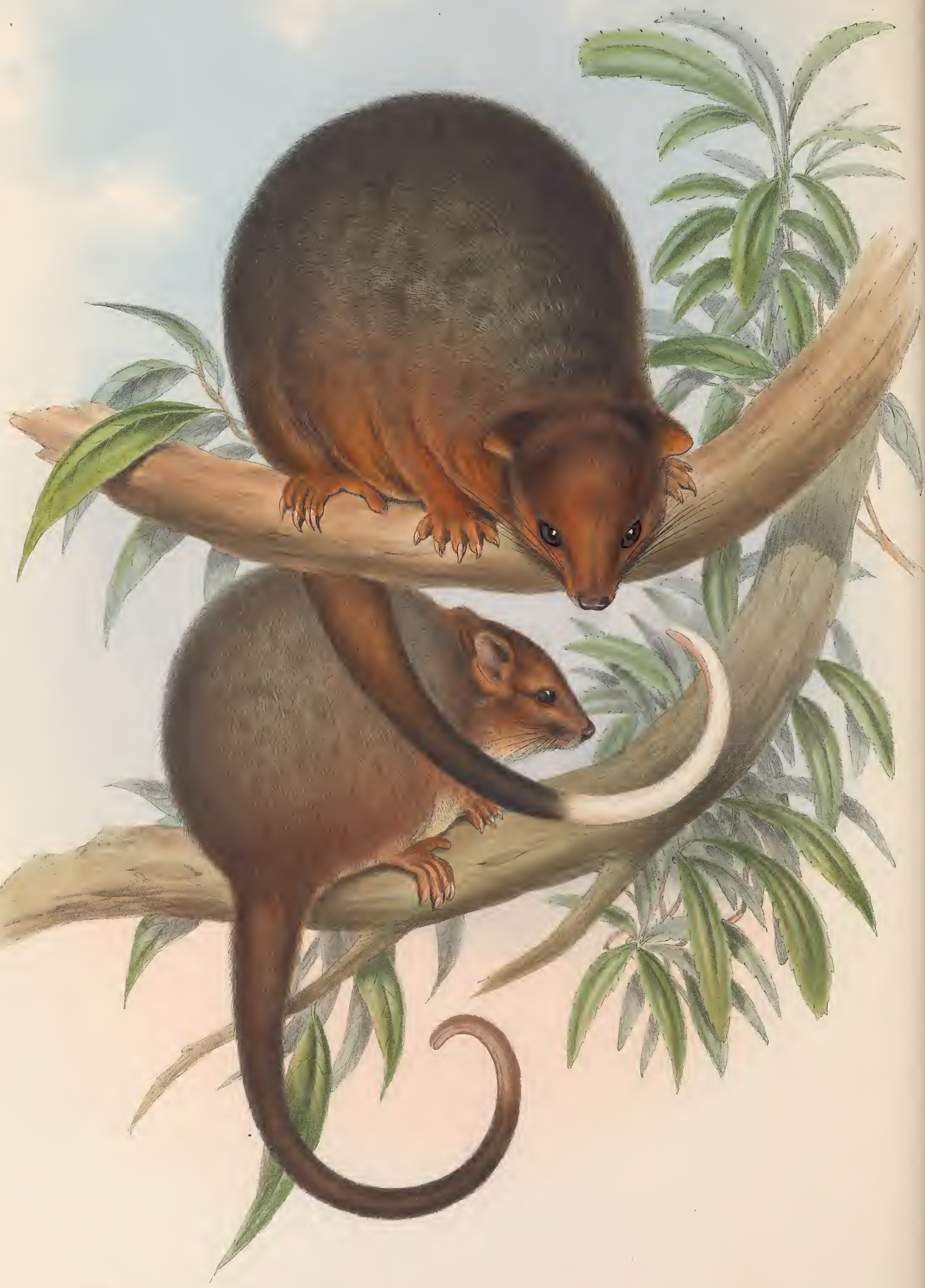
Phalangista canina, Ogilby in Proc. of Zool. Soc., part iv. p. 191.—Gray, List of Mamm. in Coll. Brit. Mus., p. 85.—Waterh. Nat. Hist. of Mamm., vol. i. p. 296.

This is a powerful animal, fully equalling in size the *P. fuliginosa*. It is at once distinguished from that, and from every other known species of the genus, by the short and rounded form of its ears. It is much more restricted in its habitat, being, so far as my knowledge extends, exclusively confined to the brushes of New South Wales, particularly those in the neighbourhood of the Hunter, Clarence, and Richmond rivers, and the cedar brushes of the Liverpool range. Its habits and economy closely resemble those of its near ally the *P. vulpina*, but it is much more fierce in its disposition. Like the *P. fuliginosa*, it is subject to much variation in its colouring, some specimens being black, while others have a reddish tinge pervading the shoulders and flanks; the prevailing tint is a dark grizzly-grey, similar to that represented in the accompanying Plate.

The following is Mr. Waterhouse's description of this animal, taken from the typical specimen in the Museum of the Zoological Society of London:—

The fur is long, dense, and somewhat woolly; its general hue is grey, being finely pencilled with black and white; on the under surface of the body it is white, but each hair is indistinctly suffused with yellow externally, and is greyish next the skin; on the chest is a narrow rusty-brown mark; ears nearly naked internally; externally they are furnished at the base with fur of the same kind as that on the head, and of a blackish hue, but towards the exterior margin the hairs are whitish; muzzle dusky, and the eye surrounded by the same dark hue; feet blackish; tail very bushy, coloured at the base like the body, the thick bushy hairs on the remaining portion black; apical third of the under surface and the tip of the tail naked; moustaches black; claws pale horn-colour.

The figure is somewhat smaller than the natural size of the animal.



PHALANGISTA COOKI, *Desm*

J.Gould. and H.C.Richter, del. et lith.

Hullmandel & Walton, Imp.

PHALANGISTA COOKI, *Desm.*

Cook's Phalangista.

Phalangista Cookii, Desm. Nouv. Dict. d'Hist. Nat., tom. xxv. p. 478.—Temm. Mon. de Mamm., tom. i. p. .—Gray, Ann. Nat. Hist. new ser. 1838, vol. i. p. 107.
———— *Banksii*, Gray, Ann. Nat. Hist. new ser. 1838, vol. i. p. 107.
Phalanger de Cook, Cuv. Règn. Anim. ed. 1817, tom. i. p. 179 ; ed. 1829, tom. i. p. 183.
———— *Bougainville*, Cuv. Règn. Anim. ed. 1829, tom. i. p. 183.
Phalangista Bougainvillii, Wagn. in Schreb. Saug. 111, 112. Heft, p. 82.
New Holland Opossum, Penn. Hist. of Quad., vol. ii. p. 301.
White-tailed Opossum, Shaw, Gen. Zool., vol. i. p. 504.
Phalangista (*Pseudochirus*) *Cookii*, Waterh. Nat. Hist. of Mamm., vol. i. p. 299.—Gunn in Proc. of Roy. Soc. Van Diem. Land, vol. ii. p. 84.
Balantia Cookii, Kuhl, Beitr. 63.
Hepoona Cookii, Gray, List of Mamm. in Coll. Brit. Mus., p. 84.
Ring-tailed Opossum of the Colonists.

A QUESTION has been raised by some modern mammalogists, whether the Ring-tailed Opossum of New South Wales, characterized by the rusty-red hue of its colouring, and the animal of the same form inhabiting Van Diemen's Land, which is principally of a sooty blackness, are distinct species, or merely varieties of one and the same animal. Mr. Waterhouse considers them to be identical: Mr. Ogilby, on the other hand, is of opinion that they are not, and has given the name of *viverrina* to the island or darker-coloured specimens, retaining that of *Cooki* for the animal from New South Wales: now, it may be asked, what is the opinion of one who has seen these animals in a state of nature? In reply, I may say, that I have hunted them upon very many occasions in both countries, and that I invariably found the black specimens to be confined to Van Diemen's Land, and the red ones to New South Wales; besides which, I observed that the island examples were of a larger size and were always dressed in a softer and longer fur.

My figure of *Phalangista Cooki* represents the animal as it generally appears in the brushes of New South Wales, while that of *P. viverrina* as correctly portrays the one killed in Van Diemen's Land. It will be seen that, at least for the present, I have regarded them as distinct.

The *Phalangista Cooki* is strictly nocturnal in its habits, sleeping in the hollow spouts and holes of the larger trees during the day and leaving its retreat on the approach of darkness, sometimes descending to the ground, but more frequently ascending to the smaller branches to feed upon the flowers and tender shoots of the *Eucalypti*.

Its flesh is delicate, juicy, and well-tasted, and is much prized by the aborigines.

I have spoken of the brushes of New South Wales as being the part of the country inhabited by this animal; it is just possible that it may also be found on the plains and *Angophora* flats between the lower mountain ranges; but it must not be confounded with a smaller and more woolly species which is there found, the *Phalangista laniginosa*, a figure and description of which will be found in its proper place in this work.

The fur is dense and somewhat harsh to the touch; its colour on the upper surface of the body and tail in some specimens is dark brown, grizzled with grey; in others a greyer hue prevails; face, cheeks, sides of the neck and body, the outer surface of the limbs and the under surface of the basal portion of the tail, rich deep rust-red; sides of the muzzle blackish; eyes surrounded by a series of black hairs; chin, under surface of the body and inner sides of the limbs tawny, increasing to rufous in some specimens; in some examples the apical half of the tail is white, in others the apical third, and in others it is of nearly the same hue as the basal portion, but this latter state rarely occurs.

The Plate represents the sexes somewhat under the size of life.

PHALANGISTA VIVERRINA, *Ogilby*

J.Gould and H.C.Richter, del. et lith.

Hullmandel & Walton, Imp.

PHALANGISTA VIVERRINA, *Ogilby*.

Viverrine Phalangista.

Phalangista viverrina, Ogilby in Proc. of Zool. Soc., part v. p. 151.—Waterh. Nat. Hist. of Mamm., vol. i. p. 303.
———— *Cooki*, Gunn, Ann. of Nat. Hist., vol. i. 1838, p. 102.

On reference to the description of the preceding species, *Phalangista Cooki*, will be found some general observations respecting the Ring-tailed Opossums of Van Diemen's Land and New South Wales. A lengthened discussion between Mr. Ogilby and Mr. Gray, as to whether the island or continental animals should be called *Cooki*, will be found in the "Annals of Natural History" for the year 1838, into the merits of which I shall not enter, but merely remark, that my observations of the animals in a state of nature lead me to coincide with Mr. Ogilby, and, for the present at least, to consider the Van Diemen's Land animal as distinct from that of New South Wales, and as the one for which his name of *viverrina* should be retained. I saw much of this animal during my sojourn in the island, and frequently hunted it in company with some of the settlers, and the servants who accompanied me. Like many other species, it evinced a great partiality for certain trees and localities, some districts being resorted to by great numbers, while in others it was almost entirely absent. It may extend its range to the continent, as I have lately seen a dark-coloured specimen which had been obtained in the brushes. The Ring-tailed Opossums procured by Mr. Gilbert in Western Australia, of which I have several examples, are fully equal in size, and even blacker in colour, than the Van Diemen's Land animals; but he did occasionally meet with greyer specimens in the neighbourhood of Perth. I mention this, that mammalogists may form opinions for themselves as to whether these animals constitute one or more species; whether they do or do not, I have considered it advisable to give correct representations of the very opposite colours they exhibit, and to state all I know respecting them.

I found this animal gave a decided preference to those districts of Van Diemen's Land that are of a sandy character, and where the large gum-trees were sparingly dispersed, such as the islands on the River Derwent and the plains on the northern side of that stream; but it was not to be found in the more dense and humid scrub of its opposite shore. Our usual mode of hunting this animal was to go out in a small party on moonlight nights, when, with the aid of one or two small cur dogs, it was soon discovered, either on the ground or among the branches of the trees, where, if looked for with the face towards the moon, it is not difficult to see, and when seen, much less difficult to shoot, as it never attempts to retreat.

Mr. Gunn states that this animal "is common near Launceston, and is there usually called Ring-tail Opossum as a specific name. All the opossums come out of the holes of the trees, in which they usually sleep all day, about twilight; and for about an hour or two after sunset they may be seen busily employed eating the leaves of the various species of *Eucalypti*; on the branches in moonlight nights they are usually shot, and opossum-shooting is sometimes fine sport where a few join together. Orchards in country places suffer sometimes from the opossums eating all the leaves and young branches."

Mr. Gilbert says this animal is called *Ngö-ra* by the aborigines of Perth, and *Ngork* by those of King George's Sound; and states that "it does not confine itself to the hollows of trees, but is often found in holes in the ground, where the entrance is covered with a stump, and from which it is often hunted out by the Kangaroo dogs. It varies very much in the colour of the fur, from a very light grey to nearly black. In one instance I caught a pair in the same hole exhibiting these extremes of colour."

At page 303 of Mr. Waterhouse's "Natural History of the Mammalia," he mentions that there are five specimens from Van Diemen's Land in the British Museum, in which the general hue of the fur is pale rufous-grey on the back, and bright rust-colour on the sides of the body and limbs; this statement induced me carefully to examine these specimens, and I feel confident that, by some accident, the labels they originally bore have been lost, probably during the process of mounting; and that they are from New South Wales, and not from Van Diemen's Land.

The following is the description of a specimen from Van Diemen's Land sent to me by R. C. Gunn, Esq.:—

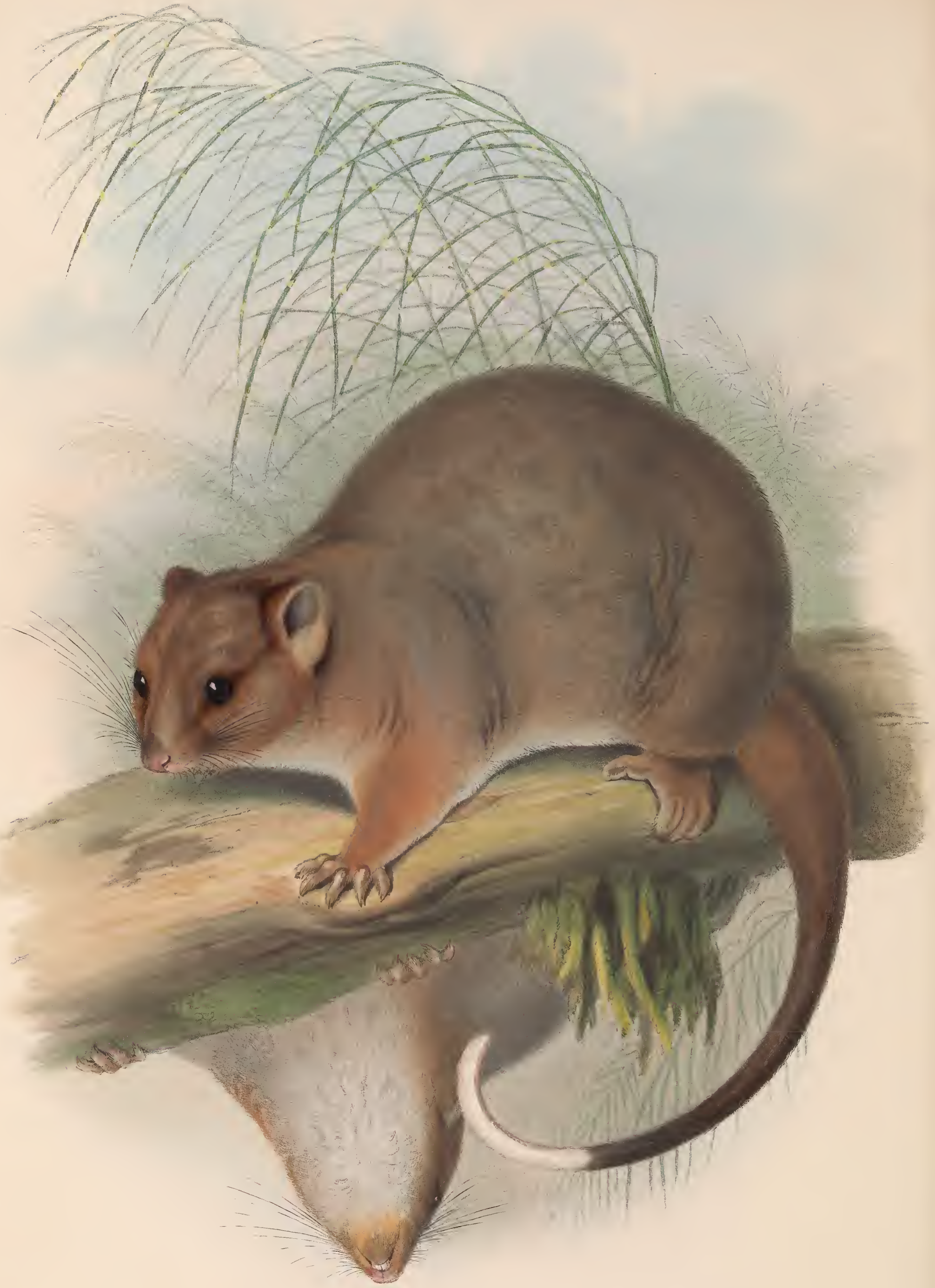
Fur of the head, all the upper surface of the body, the outer side of the limbs, and basal half of the tail, sooty-grey, grizzled with whitish, and with numerous interspersed long black hairs; sides of the face and

orbits dusky; posterior part of the exterior of the ear, and a patch behind and below it, white; throat, chest, abdomen, inner side of the limbs and apical half of the tail white; moustaches black.

Other examples from that island have the upper surface very much darker.

Specimens from Swan River are still darker, not only on the upper but on the under surface, which latter is of a brownish-grey only a trifle lighter than the hue of the upper parts. The colour of one example now before me is almost wholly black, somewhat paler beneath, and with a small patch of white on the chest, and an interrupted line of white down the throat and abdomen. The colouring, in fact, is much varied between grey and black, but never exhibits the rufous hue of the New South Wales animal, *Phalangista Cooki*.

The figures are somewhat less than the natural size.



PHALANGISTA LANIGINOSA, *Gould*.

J. Gould and H.C. Richter, del. et lith.

Hullmandel & Walton Imp.

PHALANGISTA LANIGINOSA, *Gould.*

Woolly Phalanger.

At the period of my visit to Australia, this species was abundant on most of the *Angophora* or "Apple-tree" flats of the Upper Hunter, particularly those of the Dartbrook district, and it is doubtless to be found there still, and in all probability will be for ages to come. I mention this locality especially because there are two nearly allied *Phalangistæ* in New South Wales, which, when brought to this country and exposed in our museums, undergo so great a change in the colouring of their fur as to render it exceedingly difficult to distinguish them. These two nearly allied species are the *Phalangista Cooki* and the *P. laniginosa* figured on the accompanying Plate. I am the more certain of the specific distinctness of these two animals as those keen observers, the natives, particularly impressed upon my attention that the animal from the flats was different from the one frequenting the brushes which clothe the "corries" of the great Liverpool Chain. While in the country I had no difficulty in distinguishing them, and never had a doubt of their being distinct; but what was plain to me in Australia, I am unable to render so clear to the Mammalogists of Europe; I have no doubt, however, that when the great country of Australia has sons of her own interested in the subject, my views will be borne out and strictly verified, and it is for this reason that I have given so particularly the precise locality in which my specimens were obtained; doubtless all similar districts in Eastern Australia will also be favoured with the presence of this animal. I may remark that there is a greater difference between the *P. laniginosa* and *P. Cooki* than there is between *P. Cooki* and *P. fuliginosa*, which, indeed, may possibly be mere varieties of each other, although I have treated them as distinct.

My figure of *P. laniginosa* is taken from a fully adult male now before me. This animal is clothed in a thick, short, woolly kind of fur, of a greyish hue, with a wash of rufous on the outer side of the limbs; has the throat and all the under surface white, and the tail not so extensively tipped with white as in its near allies; it is also of smaller size.

The following is a more minute description of the animal:—Fur soft and yielding to the touch; general colour of the upper surface brownish grey, interspersed on the back with numerous greyish-white hairs; head and neck suffused with rufous, particularly round the eyes and on the outer surface of the ears; lower edge of the ear buff; whiskers black; outer side of the limbs rusty red; throat, under surface of the body and inner side of the limbs greyish white; basal fourth of the tail brownish grey, suffused with rufous; apical fourth white, the middle portion blackish brown.

The figures are fully the size of life.

CUSCUS BREVICAUDATUS.

J.Gould. and H.C.Richter, del. et lith.

Hullmandel & Walton imp.

CUSCUS BREVICAUDATUS, *Gray*.

Short-tailed Cuscus.

Phalangista (*Pseudocheirus*) *nudicaudata*, Gould in Proc. of Zool. Soc. 1849, p. 110.
Cuscus brevicaudatus, Gray in Proc. of Zool. Soc., part xxvi. p. 102.—Ib. Cat. of Mamm. and Birds of New Guinea in Coll. Brit. Mus., p. 7.
Pseudocheirus nudicaudata, Macg. Voy. of H.M.S. Rattlesnake, vol. i. p. 129.

That a member of the genus *Cuscus* should be found in the extreme north-east of the Australian continent is not surprising, from the contiguity of New Guinea and the adjacent islands, where various members of the genus abound. It will be seen, by the synonyms given above, that when I described this animal, I regarded it as a *Phalangista*, and gave it the name of *Phalangista* (*Pseudocheirus*) *nudicaudata*; now, as all the *Cusci* have the extremity of the tail denuded of hairs, this specific appellation is certainly inappropriate, and I have therefore adopted that of *brevicaudatus*, proposed for it by Dr. Gray.

When speaking of the objects observed near Port Albany, Mr. Macgillivray says,—"The natives one day brought down to us a live Opossum, quite tame and very gentle. It turned out to be a new species, and has since been described by Mr. Gould under the name of *Pseudocheirus nudicaudatus*;" and this, unfortunately, is all we know of the natural history of this pretty animal.

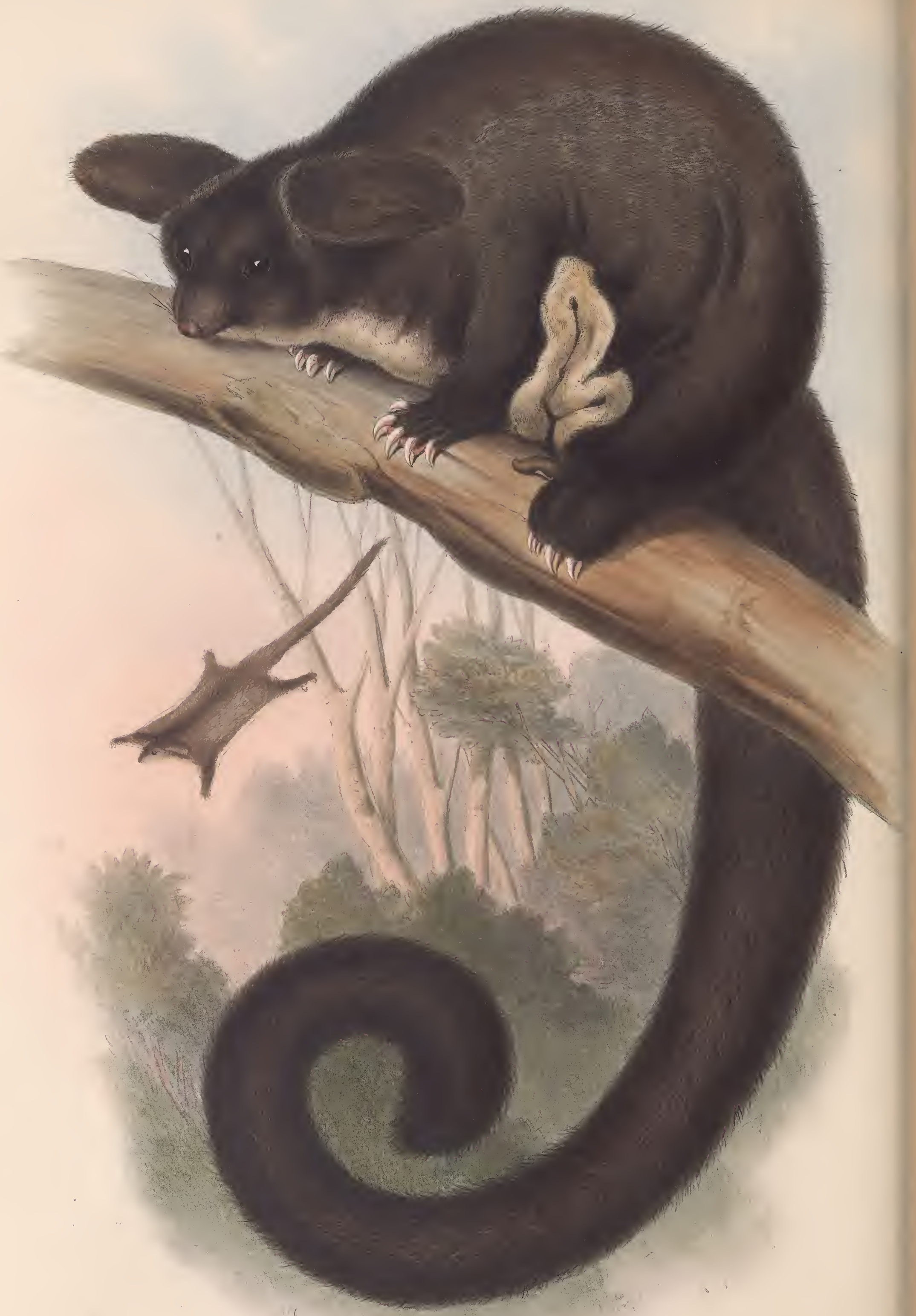
Dr. Gray, in his "Observations on the Genus *Cuscus*," published in the 'Proceedings of the Zoological Society of London' for the year 1858, says,—"This species" (the *Cuscus brevicaudatus*) "is very like the ashy variety of *Cuscus maculatus*, but the front lower cutting-teeth are much broader, and the tail is considerably shorter than any of the specimens of the *C. maculatus* contained in the British Museum collection.

"The light mark on the rump is common to all the species of *Cuscus*, and is probably produced by the habit of the animal sitting on that part of the body, rolled up into a ball, on the fork of the branches of a tree."

Head, all the upper surface, the sides of the body, and the outer sides of the limbs brownish grey; the tips of the hairs with a silky appearance; under surface of the neck and body and the inner sides of the limbs pale buff; the colouring of the upper and under surface distinctly defined on the sides of the body, but gradually blending on the limbs, the rump, and root of the tail, which is thickly clothed on its basal third, and naked for the remainder of its length; hands, feet, and naked portion of the tail pinky flesh-colour.

	inches.
Length from tip of nose to root of tail	12
,, of tail	8
,, of fore-feet, including the nails	3
,, of hind-feet, including the nails	$3\frac{1}{2}$

The animal is figured in two positions, of the size of life; at the same time, it must be mentioned that it is believed to be immature, and not more than two-thirds of the size it would be when adult.



PETAURISTA TAGUANOÏDES.

J. Gould and H.C. Richter, del. et lith.

Hullmandel & Walton, Imp.

PETAURISTA TAGUANOÏDES, *Desm.*

Great Flying Phalanger.

Petaurus Taguanoïdes, Desm. Nouv. Dict. d'Hist. Nat., tom. xxv. p. 400.—Waterh. in Jard. Nat. Lib. Mamm., vol. xi. (Marsupialia) p. 283. pl. 27.
Petaurista Taguanoïdes, Desm. Mamm., pt. 1. p. 269.—Gray, List of Mamm. in Coll. Brit. Mus., p. 84.
Petaurista Peronii, Desm. Nouv. Dict. d'Hist. Nat., tom. xxv. p. 400.
Petaurus Peronii, Benn. Cat. of Australian Museum, Sydney, p. 3. no. 10.
Petaurus Leucogaster, Mitch. Three Exp. into Eastern Australia, vol. i. p. xvii.?
Petaurus (Petaurista) taguanoïdes, Waterh. Nat. Hist. Mamm., vol. i. p. 322.

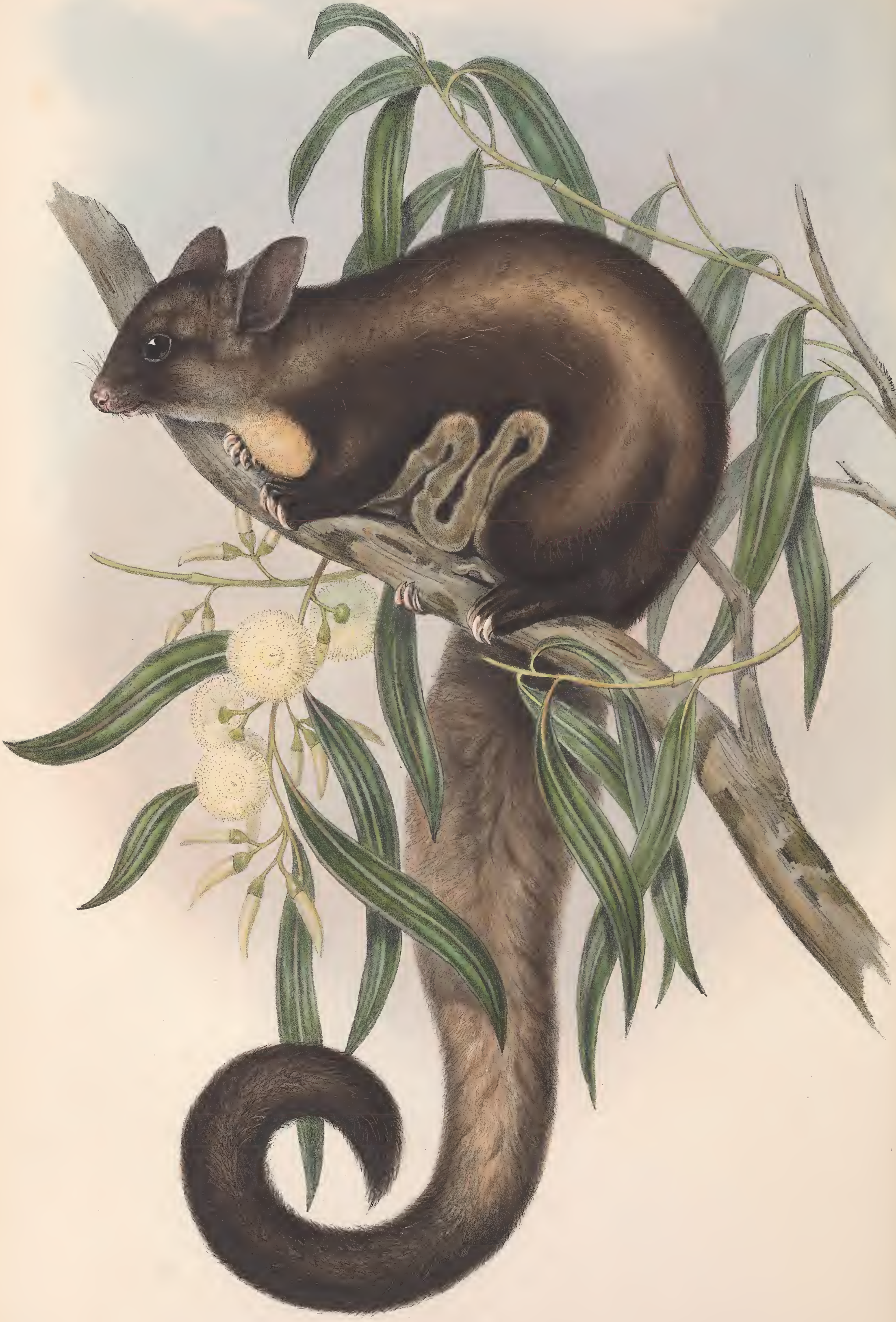
The Great Flying Phalanger is strictly an inhabitant of the extensive brushes which stretch along the south-eastern and eastern portions of New South Wales, the forests between the mountain ranges and the sea from Port Philip to Moreton Bay being in fact its native habitat. Strictly nocturnal in its movements, this fine animal secretes itself during the day in hollow trees of the largest growth, and on the approach of evening emerges from its retreat in quest of the newly opened blossoms of the *Eucalypti*, in which, together with the tender buds and shoots of the same trees, it finds a description of food congenial to its well-being. It passes along the branches with the utmost celerity, and, when necessitated to remove from one tree to another, effects its object by leaping from the higher branches, and floating through the air in easy and elegant sweeps, its progress being greatly aided by the parachute-like membrane at its sides. Although plentiful in the districts above mentioned, examples are not procured without difficulty, owing to the thickness of the brush or forest; the natives, however, readily detect its retreat by the presence of a few straggling hairs at the entrance of its hole, or by the impressions made by its sharp claws in the bark, and having found it speedily cut it out with their hatchets. It is not a little surprising that this very singular animal should not have been captured alive and sent to this country, like the smaller members of the family; it would be by far the most interesting and attractive: its power of inflicting most severe lacerations with its sharp teeth and strong hooked claws may be one reason why this has not been done.

At present this is the only well-established species of the genus *Petaurista*, but I doubt not that others exist in the extensive forests which stretch along the eastern coast of Australia, and which have as yet been but imperfectly explored. It is subject to very great variety in the colouring of its fur, some specimens being entirely blackish brown on the upper surface, while in others it is blackish brown suffused with grey; others are of a uniform cream colour, and others again quite white: these latter I have always regarded as mere varieties; I am not, however, prepared to say that they had red eyes, like true albinos.

The sexes offer no external difference, except that the female is somewhat smaller than the male.

Fur very long, loose, and soft to the touch, of a brownish black hue on the upper surface and on the flank-membrane, and of a browner tint on the head and back of the neck; the flank-membrane is, moreover, pencilled with white; feet, muzzle and chin nearly black; throat, chest, under side of the body and of the flank-membrane, and the inner side of the limbs pale buffy white; the wrists and ankles are, however, black both on the inner as well as on the outer side; the long hairs near and at the posterior margin of the ear are whitish and project from the edge of the ear like a fringe; tail black or brownish black, almost always paler at the root and along the under surface for a considerable distance from the base, sometimes of a yellowish brown, at others of a brownish white.

The drawing represents the animal rather more than two-thirds of the size of life.



J. Gould and H. C. Richter del. et lith.

BELIDEUS FLAVIVENTER.

Hullmandel & Walton Imp.

BELIDEUS FLAVIVENTER.

Long-tailed Belideus.

Petaurista flaviventer, Desm. Mamm., p. 269.
Didelphis Petaurus, Shaw, Gen. Zool., vol. i. p. 496.
Petaurus (Belideus) flaviventer, Waterh. Nat. Lib. Mamm., vol. ix. (Marsupialia), p. 286.
——— *australis*, Shaw, Nat. Misc., vol. ii. pl. 60.—List of Mamm. in Brit. Mus. Coll., p. 83.
Didelphys volucella, Meyer, p. 26.
Petaurus Cunninghami, Gray, MSS. B.M.
Sciurus Novæ-Hollandiæ, Meyer.
Didelphys macroura, Shaw, Zool. of New Holl., p. 33. pl. xii. young.—Ib. Gen. Zool., vol. i. p. 500. pl. 113. young.
Petaurus macrourus, Waterh. Nat. Lib. Mamm., vol. ix. (Marsupialia), p. 288. young.

Mr. Waterhouse, who has paid considerable attention to the Marsupialia, in speaking of this animal, says, "The Hepoona Roo of White's Journal, the original also of Shaw's *Didelphis Petaurus*, is still in existence in the Museum of the College of Surgeons; it proves to be the present species, and not the *P. Taguanoides*, as has always been supposed. This ought therefore to be regarded as the type of Shaw's genus *Petaurus*, if authors are right in attributing that genus to Shaw; but I do not perceive that he ever regarded the animal in question as constituting a genus, or that he applied the name in a generic sense."

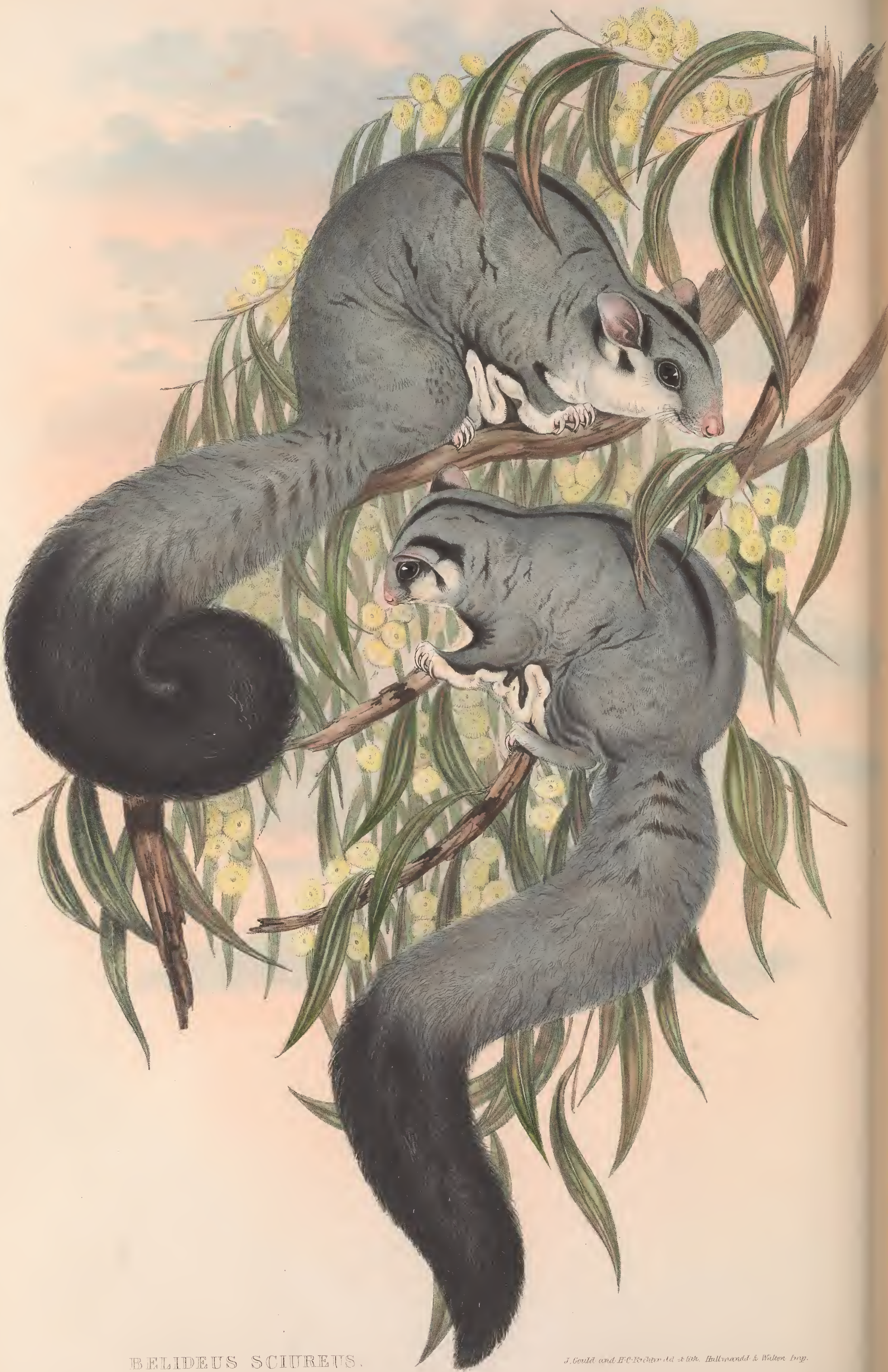
This fine species is common in all the brushes of New South Wales, particularly those which stretch along the coast from Port Philip to Moreton Bay. In these vast forests, trees of one kind or another are perpetually flowering, and thus offer a never-failing supply of blossoms upon which the Long-tailed Belideus feeds; the flowers of the various kinds of gums, some of which are of great magnitude, are the principal favourites. Like the rest of the genus it is nocturnal in its habits, dwelling in holes and in the spouts of the larger branches during the day, and displaying the greatest activity at night while running over the small leafy branches, frequently even to their very extremities, in search of insects and the honey of the newly-opened blossoms. Its structure being ill adapted for terrestrial habits it seldom descends to the ground, except for the purpose of passing to a tree too distant to be attained by springing from the one it wishes to leave. The tops of the trees are traversed by this animal with as much ease as the most level ground is by such as are destined for terra firma. If chased or forced to flight, it ascends to the highest branch, and performs the most enormous leaps, sweeping from tree to tree with wonderful address; a slight elevation gives its body an impetus, which with the expansion of its membrane enables it to pass to a considerable distance, always ascending a little at the extremity of the leap; by this ascent the animal is prevented from receiving the shock which it would otherwise sustain.

It is now very generally believed that the *Petaurus macrourus* is only the young of *Petaurus flaviventer*; I have therefore placed the former name as a synonym.

General colour either greyish or yellowish brown; head clouded with black, particularly round the eyes, at the base of the ear, on the muzzle and chin; a black mark extends from the occiput along the middle of the back; the fore and hind legs and the side membrane blackish brown; edge of the membrane and under surface of the body buff; basal half of the tail yellowish brown, the remainder black.

The sexes are alike in colour.

The accompanying Plate represents the animal a trifle less than the natural size.



BELIDEUS SCIUREUS.

J. Gould and H.C. Richter del. et lith. Hullmandel & Walton Imp.

BELIDEUS SCIUREUS.

Squirrel-like Belideus.

Didelphys sciurea, Shaw, Zool. of New Holl., pl. xi. p. 29.
Petaurus sciureus, Desm. Nouv. Dict. d'Hist. Nat., 2nd Edit., tom. xxv. p. 403.
Petaurus (*Belideus*) *sciureus*, Waterh. in Proc. of Zool. Soc., Part VI. p. 152.—Nat. Lib. Mamm., vol. ix. (Marsupialia), p. 289. pl. xxviii.—List of Mamm. in Brit. Mus. Coll., p. 83.
Norfolk Island Flying Squirrel, Phillip's Voy., pl. in p. 151.
Sugar Squirrel, Colonists of New South Wales.

This is not only one of the most elegant and beautiful species of the genus to which it belongs, but is also one of the commonest animals of the country; being very generally dispersed over the whole of New South Wales, where, in common with other Opossums, it inhabits the large and magnificent gum-trees. Nocturnal in its habits, it conceals itself during the day in the hollows and spouts of the trees, where it easily falls a prey to the natives, who capture it both for the sake of its flesh and its skin, which in some parts of the colony they dispose of to the colonists, who occasionally apply it to the same purposes as those to which the fur of the Chinchilla and other animals is applied in Europe,—the trimming of dresses, boas, &c.

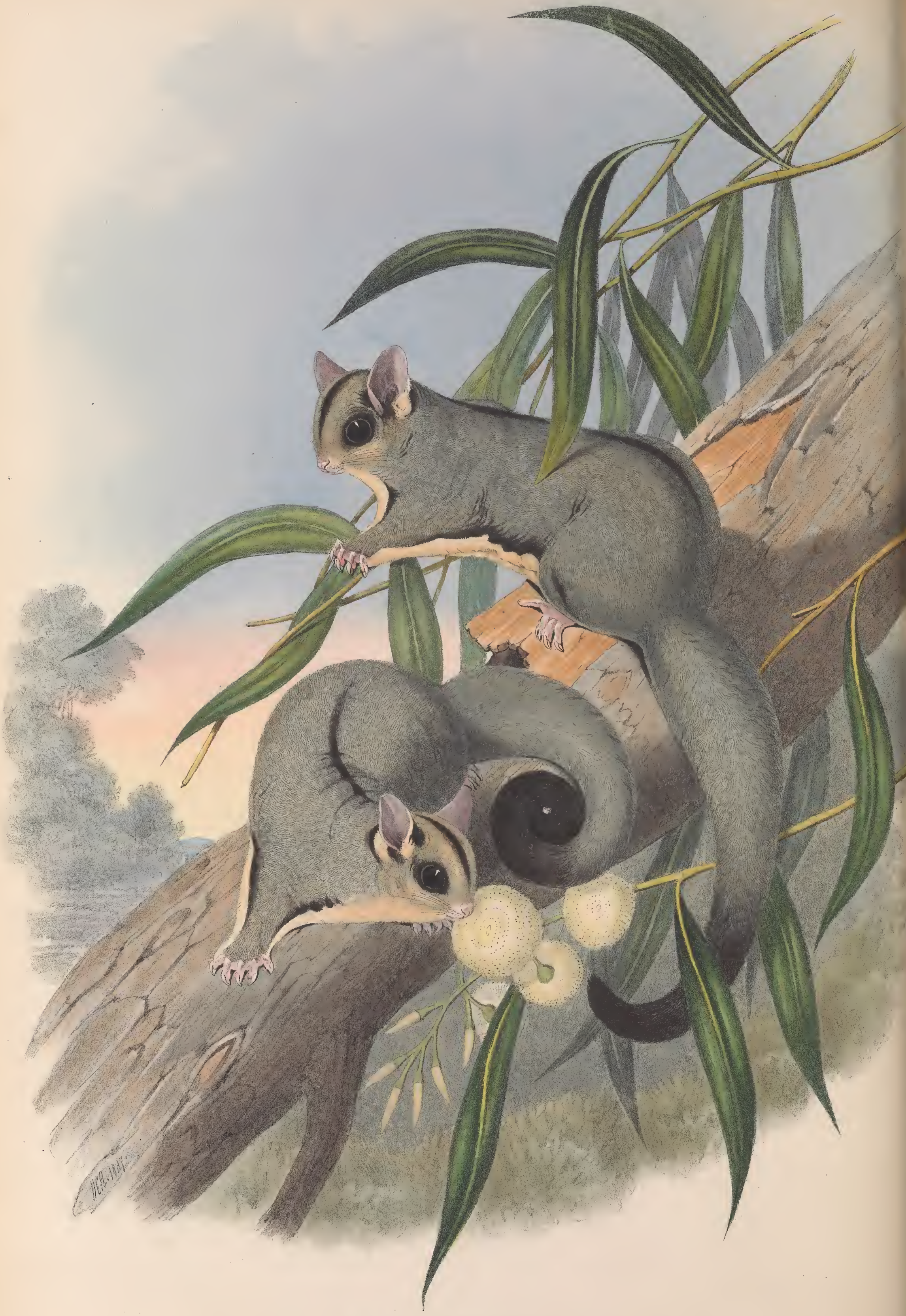
At night it becomes as active and agile in its motions as it is sluggish and torpid in the daytime. I observed that it prefers those forests which adorn the more open and grassy portions of the country to the thick brushes near the coast. By expanding the beautiful membrane attached to its sides it has the power of performing enormous leaps, and of passing from tree to tree without descending to the ground: like other animals provided with a similar means of transit, it slightly ascends at the extremity of its leap, and thereby avoids the shock which a direct contact with the branch upon which it alights would cause it to sustain.

It is of course marsupial, and I believe produces two young at a time, as I found two animals about half-grown in the same hole with the adults.

For a beautiful living example of this animal I am indebted to the kindness of my most estimable friend Mrs. Simpkinson, to whom it had been sent by her sister Lady Franklin, who procured it from Port Philip. It has become very tame, and its actions when permitted to run about the apartments are amusing and attractive in the extreme: the slightest projection affording it support, it passes over the cornices, picture-frames and hangings with the greatest ease; it becomes exceedingly animated at night, leaping from side to side of its cage, spreading its membrane and tail, and repeatedly turning completely over, or performing several summersaults in succession. Its usual food is sopped bread and milk, upon which it thrives, and which appears to be a good substitute for its natural food, which consists of insects, the honey of flowers, and the tender buds and leaves of the *Eucalypti*.

Fur extremely soft and of moderate length; general tint of the upper surface ashy grey; a blackish brown line extends from the nose along the middle of the back nearly to the root of the tail; the upper surface of the flank membrane, and the anterior and posterior portion of the fore and hind legs black or brownish black; just below the ear a brownish black patch; feet dusky grey; chin, throat, inner side of the limbs and the under surface of the body white; under side of the flank membrane dusky; the margin fringed with white hairs; tail smoke-grey for somewhat more than the basal half of its length, the remainder deep black; ears nearly naked except at the base, where they are clothed with a black fur, and the posterior margin which is white; eyes very full and black.

The figures represent fully adult animals of the natural size on a branch of one of the commonest of the *Eucalypti* of New South Wales.



BELIDEUS BREVICEPS; *Waterh.*

J. Gould. and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

BELIDEUS BREVICEPS, *Waterh.*

Short-headed Belideus.

Petaurus (*Belideus*) *breviceps*, Waterh. in Proc. of Zool. Soc., Part VI. p. 152.—Ib. vol. xi. Nat. Lib. (Marsupialia), p. 290. pl. 29.—Ib. Nat. Hist. of Mamm., vol. i. p. 334.
Petaurus Peronii, G. Benn. Cat. Aust. Mus., p. .? not of Desmarest.
Petaurus breviceps, Gray, List of Mamm. in Brit. Mus., p. 83.

This species of *Belideus* is not so widely dispersed over New South Wales as the *B. Sciureus*; it is in fact a much more local species; judging from the great number of specimens I have seen from Port Philip, I presume that district to be its great stronghold. I have two specimens in my collection, sent by Mr. Strange, one of which is labeled Wollongong, and the other Torrumbong; the former, as is well known, is the port of the rich district of Illawarra, and I presume the latter to be the name of an adjacent locality, as both bear the date of June 9. It is a somewhat singular circumstance, that, so far as we yet know, no example of this form has been found in Southern or Western Australia, nor in Van Diemen's Land.

In general appearance this animal closely resembles the *B. Sciureus*, but differs in being of a smaller size, and in having the tail more slender and cylindrical: the head is so much shorter, that the difference is readily perceptible in the living or recent animal, and conspicuously so in the denuded crania; it is from this character that Mr. Waterhouse assigned to it the specific name of *breviceps*.

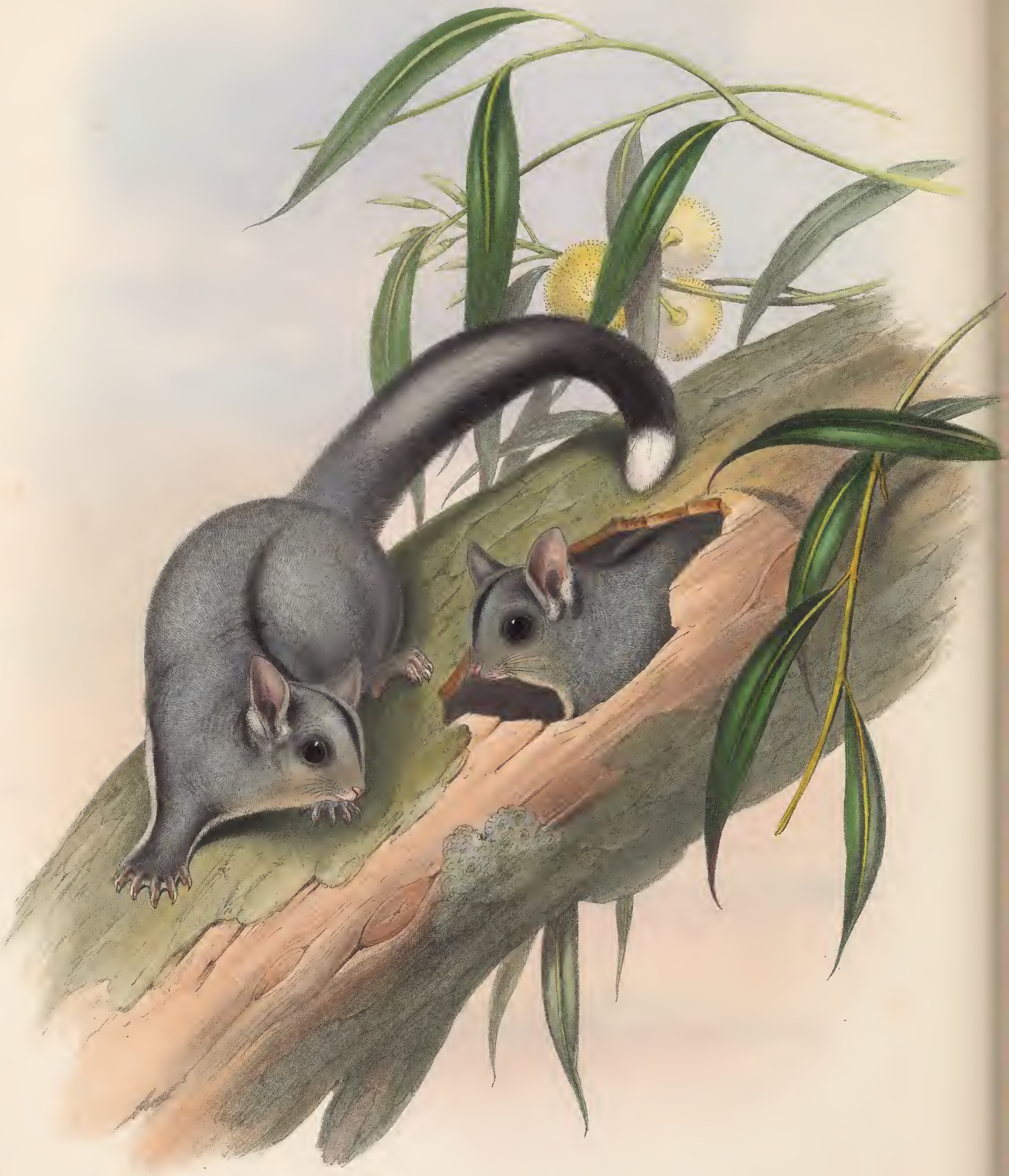
In its habits and general economy there is no marked difference from those of *B. Sciureus*; like that species, it secretes itself in the hollows of trees, and sallies forth in search of food on the approach of evening, when it becomes exceedingly active, and readily transports itself from tree to tree by means of the expanding membrane attached to the sides and limbs.

The accompanying drawing was made from living examples in the possession of Mr. Harrington which had bred and reared two young ones, either in London or during their passage to this country.

In a state of nature its food consists of the tender buds of trees and flowers, honey, and insects; in captivity, bread and milk sweetened with sugar forms an excellent substitute for its natural food.

Fur soft; upper surface ashy grey; a dusky longitudinal line extends from between the eyes along the back until lost in the general hue of the rump; tail dusky grey, rather more than two inches of its apical portion black; flank-membrane blackish above, white on the edge, this white fringe extending along the hinder part of the arm to the tip of the little finger; upper surface of the arm sooty black; a dusky mark along the outer side of the legs; under surface white, greyish white or greyish buff; ears black at the base, white at the posterior angles.

The figures are of the natural size.



BELIDEUS NOTATUS, *Peters.*

J. Gould and H. C. Richter, del. et lith.

Hullmandel & Walton, Imp.

BELIDEUS NOTATUS, *Peters.*

Stripe-tailed Belideus.

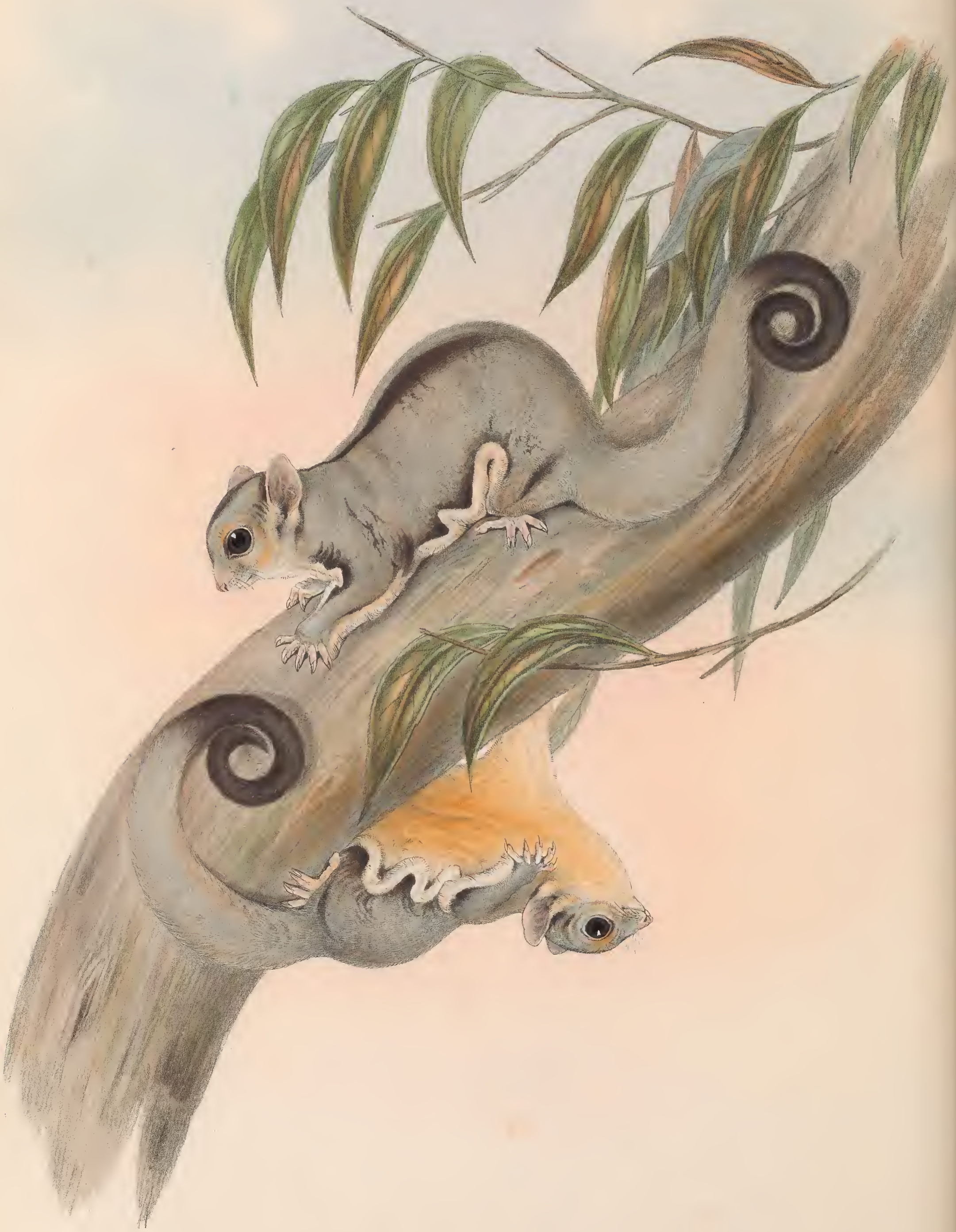
Petaurus (*Belideus*) *notatus*, Peters in Monatsb. der Königl. Preuss. Akad. der Wissensch. zu Berlin, 1859, p. 14.

I HAVE been kindly favoured by Dr. W. Peters, the Director of the Royal Museum of Berlin, with the loan of a little Flying Opossum, to which he has given the name of *notatus*, and which was procured by M. Gerard Krefft in the district of Victoria, generally known as Port Phillip.

Dr. Peters had doubtless duly compared this animal with the other members of the genus to which it is most nearly allied, and satisfied himself that it was distinct from either of them, otherwise I should have been inclined to regard it as identical with the *B. breviceps* of Waterhouse; but in no specimen of *breviceps* that has come under my notice has the tail presented the peculiar marking which characterizes the present animal, the organ being rendered conspicuously different from that of every other member of the genus by the white stripe, bounded on each side by black, which passes down the centre, and by its snow-white tip; and hence this remarkable deviation from all that has yet come to light certainly deserves to be figured in a work on the Mammals of Australia.

General colour of the upper surface grey, lightest on the head and back of the neck; commencing on the forehead, and continuing down the centre of the head, neck, and back, is a narrow line of sooty black, which is deepest on the head, and gradually fades into the grey near the root of the tail; a broad sooty-black mark also occupies the upper edge of the flying membrane; the front part of the anterior limbs and the front and hinder part of the posterior limbs are also sooty black; the ear, and the fur around its base, are black; sides of the face and all the under surface greyish white; tail grey, deepening into black towards the extremity, with a broad mark of light grey down the middle portion of the upper surface within the black; the extreme tip snow-white.

The figures are of the natural size.



BELIDE'S ARIEL: *Gould*

Gould and H.C. Richter del et lith

Hullmandel & Walton Imp.

BELIDEUS ARIEL, *Gould.*

Ariel Belideus.

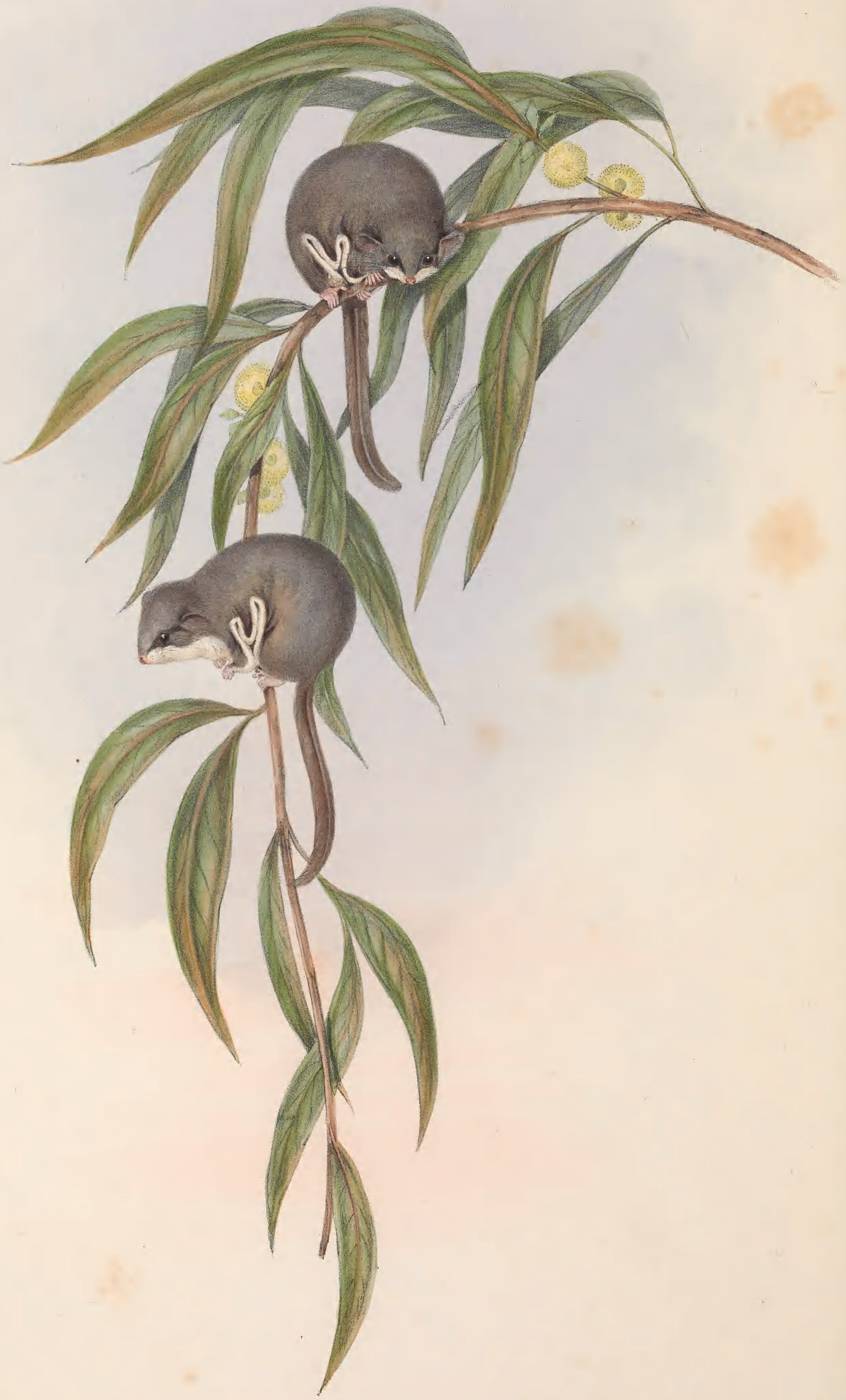
Belidea Ariel, Gould in Proc. of Zool. Soc., Part X. p. 11.
Petaurus (Belideus) Ariel, Waterh. Nat. Hist. of Mamm., p. 336.
Petaurus Ariel, Gray, List of Mamm. in Brit. Mus., p. 84.
Wor-gi, Aborigines of Port Essington.

This is the smallest and undoubtedly one of the most elegant species of the genus yet discovered: it is as much smaller in all its proportions than *B. breviceps* as that species is smaller than *B. sciureus*; the tail is also much more cylindrical, less clothed with fur, and equally or more attenuated than that of *B. breviceps*; the fur of the upper surface is also lighter and of a more delicate buffy grey, and the under surface either pale yellow or rich yellowish buff, as represented in the accompanying figure. The native country of this little animal is the northern portion of Australia; all the specimens I have seen have been sent from Port Essington, where Mr. Gilbert states that, previous to the hurricane which visited that colony in 1839, it was exceedingly abundant, there being scarcely a hollow tree, shed, or hut, uninhabited by one or more pairs, but since that occurrence it had become exceedingly rare. Commander Ince, R.N., succeeded in bringing living examples from Port Essington to this country, and it is by his kindness in favouring me with the loan of his animals that I have been enabled to make the accompanying drawing from life.

In habits, economy and mode of life it assimilates so closely to the species inhabiting the south coast, that a separate description of them is unnecessary.

General colour of the upper surface pale ashy grey, faintly suffused with yellow; a narrow black mark commences between the eyes, runs along the back, and extends nearly to the root of the tail; eyes narrowly encircled with black, and a black ring surrounds the ear at the base, but is interrupted at the posterior angle where the hairs are pale yellow; upper surface of the flank membrane blackish, especially near the margin, which is pale yellow; anterior part of the arm, the wrist, and the posterior part of the hind-leg dusky; under surface pale yellow.

The figures are of the natural size.



ACROBATES PYGMÆUS: *Desm.*

J. Gould. and H.C. Richter del. et lith.

Hallmandel & Walton Imp.

ACROBATES PYGMÆUS, *Desm.*

Pygmy Acrobates.

Didelphis pygmæa, Shaw, Zool. of New Holl., No. 1. pl. 2. p. 5.—Ib. Gen. Zool., vol. i. p. 501.
Petaurus pygmæus, Desm. Nouv. Dict. d'Hist. Nat., tom. xxv. p. 405.
Petaurista (*Acrobata*) *pygmæa*, Desm. Mamm., pt. 1. p. 270.
Petaurus (*Acrobata*) *pygmæus*, Waterh. Nat. Lib., vol. ix. (Marsupialia), p. 293. pl. 30.—Ib. Nat. Hist. of Mamm., vol. i. p. 339.
Acrobates pygmæus, Gray, List of Mamm. in Brit. Mus., p. 83.

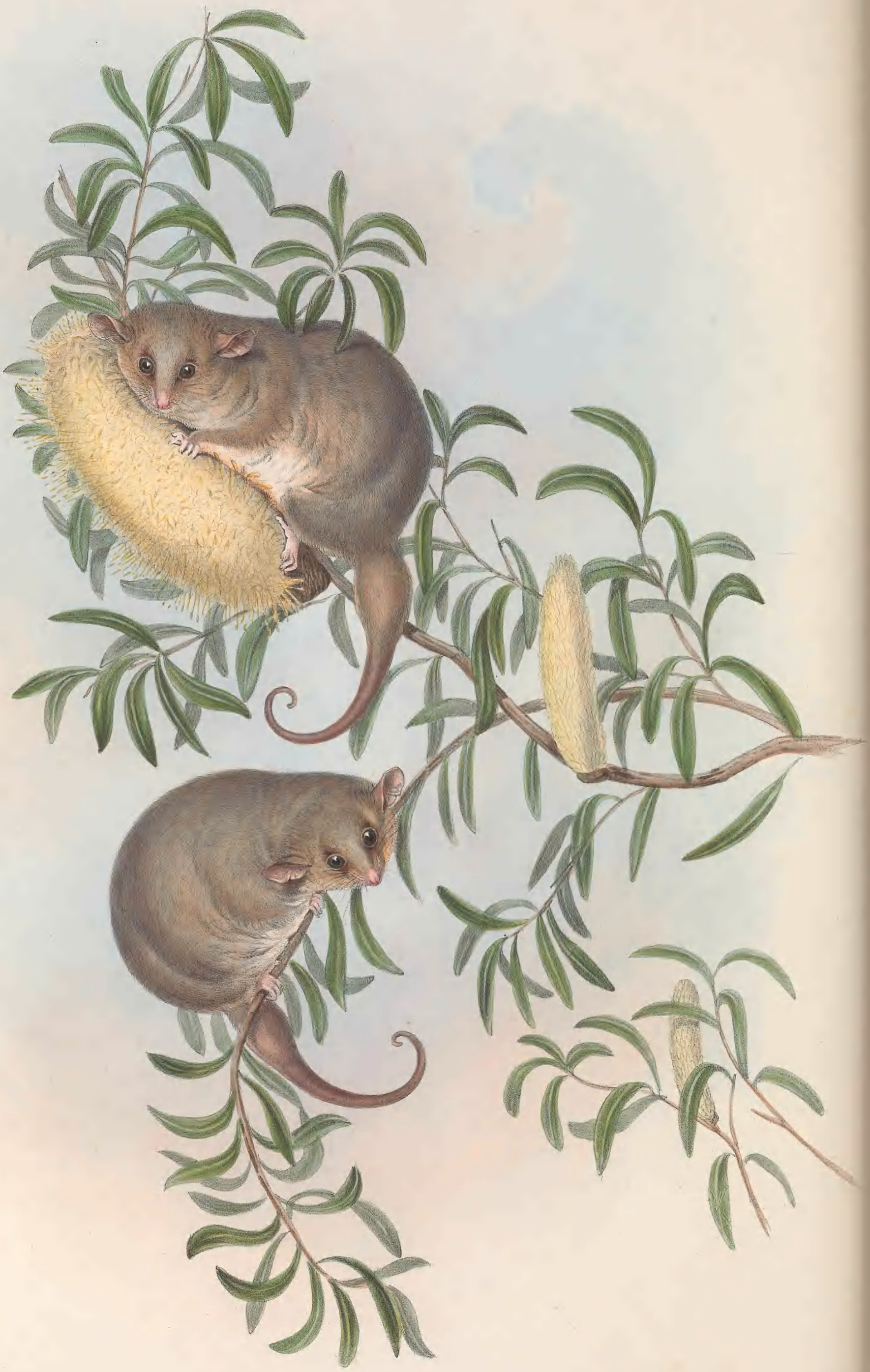
The portion of Australia designated New South Wales is the only part of that great continent in which I have seen this elegant little Opossum; and it would appear that this is its sole habitat. In a letter recently received from my friend Ronald C. Gunn, Esq., he informs me that "The *Acrobates pygmæus* does not exist in Van Diemen's Land; nor in fact any of the Flying Opossums; but the *Belideus Sciureus*" (*B. breviceps*?) "is now not uncommon in the forests a few miles round Launceston: a number of individuals imported from Port Philip in the years 1835, 1836 and 1837, having escaped from confinement, are doubtless now breeding."

This pretty little animal, the "Opossum Mouse" of the colonists, is very common in every part of New South Wales; but from its noeturnal habits, its small size, and from the circumstance of its exclusively inhabiting the hollow limbs of the larger gum-trees, it rarely comes under the observation of ordinary travellers; it is in faet seen in considerable numbers only by those who really live in the bush, and to their notice it is seldom presented except under extraordinary circumstanees, the most frequent of which are the blowing off of a large limb in which it is concealed: if this occurs in the daytime, the animal, being then in a torpid state, does not make its appearance; but if, as occurred several times during my explorations, the limb be thrown upon the traveller's firc, the little inhabitant is soon driven forth by the heat: occasionally as many as four or five are diseovered by this means; it was thus that I obtained the speeimens here figured, as well as numerous others which I kept alive for some time; and a more charming little pet cannot be imagined, an ordinary-sized pill-box forming a eonvenient domicile for the tiny creature, in whieh it lies eoiled up during the day, becoming more and more aetive as night approaches. Its food consists of the saecharine matter which is so abundant in the flower-eups of the ever-blossoming *Eucalypti*, for which well-sweetened bread and milk forms an excellent substitute. The agility it displays among the branches in the night-time is very great; it not only passes over, around and beneath them, but, aided by the membrane attached to the sides and limbs, leaps from one bunch of flowers to another with the greatest facility.

The sexes are alike, but the female is somewhat smaller than her mate.

Fur short, dense, soft, glossy, and on the upper surface ashy greyish brown; under surface greyish white in some, yellowish white in others, this colour extending on to the lower part of the cheeks and the upper lip; eircle surrounding and a spaee in front of each eye blaek; ears dusky towards the fore-part, and whitish behind; on the inner side of the ear near the apex and on the apical portion spring numerous long and extremely fine hairs; moustaches numerous, slender, and of a dusky brown; tail fringed on the sides with longer hairs than those clothing its upper and under surfaces.

The figures are of the natural size.



DROMICIA GLIRIFORMIS.

J. Gould and H.C. Richter del. et lith.

Ballmenedel & Walton Imp.

DROMICIA GLIRIFORMIS.

Thick-tailed Dromicia.

Phalangista gliriformis, Bell in Linn. Trans., vol. xvi. p. 121. pl. 13.
Dromicia gliriformis, List of Mamm. in Brit. Mus. Coll., p. 85.

The *Dromicia gliriformis* is nowhere more abundant than in Van Diemen's Land, particularly the northern parts of the island; and indeed it is very questionable if it is to be found in any other part of Australia; but our present knowledge will not admit of the positive assertion.

I am sufficiently acquainted with the habits and economy of the *Dromicia gliriformis* to state that it is a strictly noeturnal animal, and that of all trees it prefers the Banksias, whose numerous blossoms supply it with a never-ceasing store of food, both of insects and sweets; if I mistake not, it also feeds upon the tender buds and spikes of the flowers. During the day it generally slumbers coiled up in some hollow branch or fissure in the trees, whence if its retreat be discovered it is easily taken by the hand; this state of inactivity is totally changed at night, when it runs over the smaller branches and leaps from flower to flower with the utmost ease and agility. This disposition is just as strongly displayed by it when kept in confinement; being so drowsy during the daytime as to admit of its being handled without evincing the least anxiety to escape, while the contrary is the case as soon as night approaches. I have also observed that during the months of winter it is less active than in the summer; undergoing in fact a kind of hybernation, somewhat similar, but not to the same extent, as the Dormouse.

That this interesting little animal bears confinement well and contentedly, is proved by the circumstance of the pair from which the accompanying drawing was taken being now alive in the possession of Her Most Gracious Majesty at Windsor Castle, where they are thriving as well as if they were in their native wilds. They were brought to this country by the Very Reverend the Archdeacon Marriott, who kindly permitted me to make drawings of them for the present work. If any difference is perceptible between examples in captivity and those in a state of nature, it is that the former are more sluggish in their actions and inclined to obesity.

Four individuals formed part of the collection in the Zoological Gardens, Regent's Park, and after living there for three years died, apparently without disease and probably from old age; and my most estimable friend Thomas Bell, Esq., F.R.S., was in possession of living examples for four years, which furnished him with the materials for a paper on its habits and economy while in confinement, and I take the liberty of copying the following extract verbatim:—

"In their habits they are extremely like the Dormouse, feeding on nuts and other similar food, which they hold in their fore-paws, using them as hands. They are nocturnal, remaining asleep during the whole day, or, if disturbed, not easily roused to a state of activity, and coming forth late in the evening, and then assuming their natural rapid and vivacious habits; they run about a small tree which is placed in their cage, using their paws to hold by the branches, and assisting themselves by their prehensile tail, which is always held in readiness to support them, especially when in a descending attitude. Sometimes the tail is thrown in a reverse direction, turned over the back, and at other times, when the weather is cold, it is rolled closely up towards the under part and coiled almost between the thighs. When eating they sit upon their hind-quarters, holding the food in their fore-paws, which, with the face, are the only parts apparently standing out from the ball of fur of which the body seems at that time to be composed. They are perfectly harmless and tame, permitting any one to hold and caress them without ever attempting to bite, but do not evince the least attachment either to persons about them or to each other."

Considerable diversity of colour exists in different individuals; in some the upper surface is nearly uniform grey, while in others a fine tawny or rufous tint pervades the same parts; and examples are constantly met with exhibiting every variety of intermediate shade.

The sexes are very nearly alike in size and colour.

The fur is very soft and thick; all the upper surface either grey or yellowish grey, the yellow tint predominating on the sides, body, and the face; under surface either greyish white or yellowish white; base of the tail similar in colour to the upper surface of the body, but becoming purplish flesh-colour towards the tip.

The figures are of the natural size.

DROMICIA CONCINNA: *Gould.*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

DROMICIA CONCINNA, *Gould.*

Beautiful Dromicia.

Dromicia concinna, Gould in Proc. of Zool. Soc., Jan. 14, 1845.
Man-dur̈-da, Aborigines of Western Australia.

This pretty little animal is abundantly and very generally distributed over the colony of Swan River. Its habits being strictly nocturnal, it secretes itself during the day in the hollows and chinks of trees, particularly those of the *Casuarinæ* and *Banksiæ*; at night it leaves its retreat for the flowering branches of shrubby low trees in search of insects and sweets, of which, from the abundance of flowering plants, it easily obtains a never-ceasing supply.

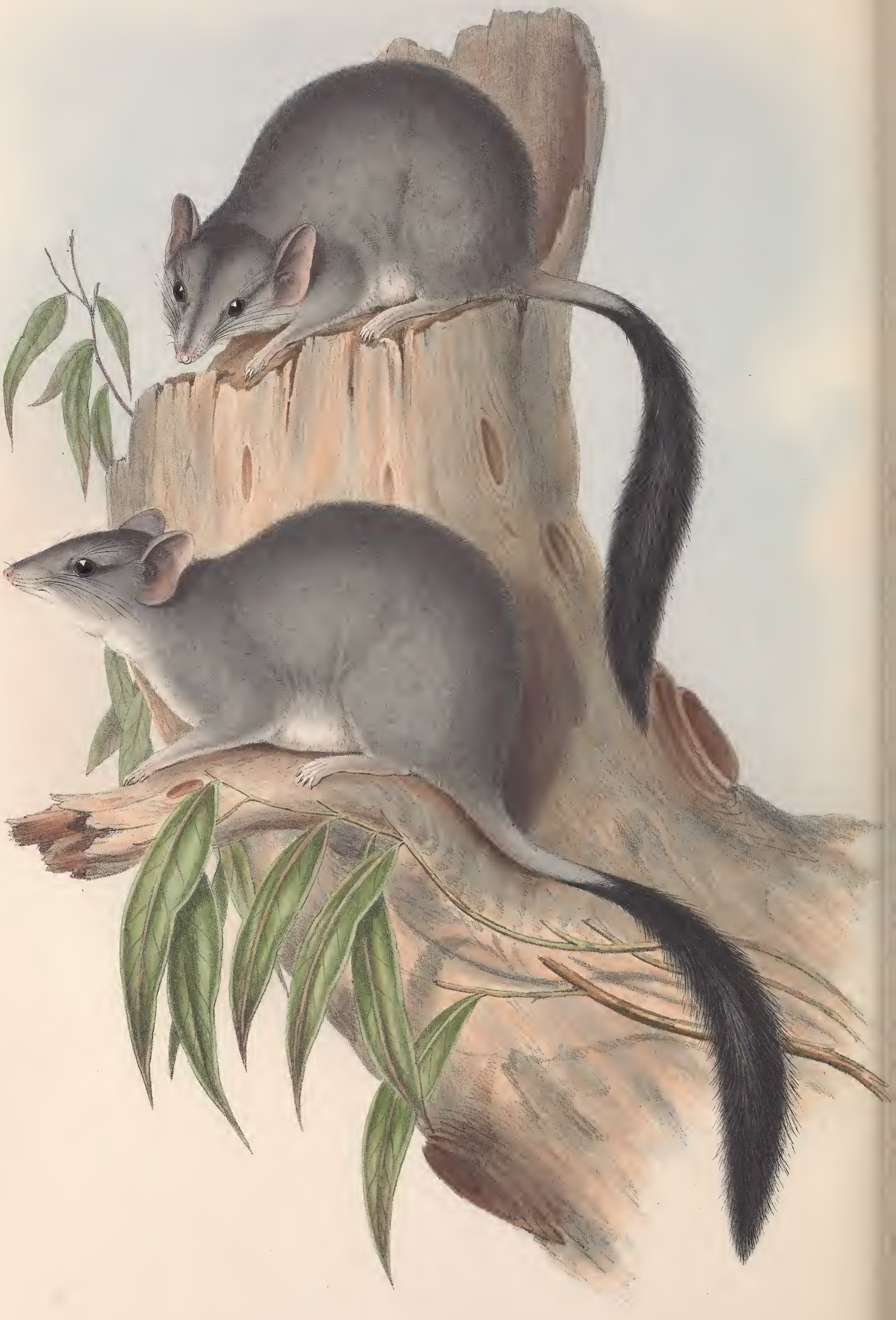
It becomes very tame in confinement; spending the daytime in sleep with its body rolled up in the form of a ball, and on the approach of evening throwing off its drowsiness and becoming animated in the extreme, leaping about from side to side of its cage in chase of insects, of which it is exceedingly fond.

The extent of its range over the continent of Australia, and all minute particulars respecting its habits and economy, have yet to be ascertained.

The sexes are so similar that they present but little difference either in size or colour; in some specimens the under surface is slightly tinged with buff.

Before the eye a mark of black; all the upper surface, the outer side of the limbs and the tail pale sandy brown; all the under surface and the inner side of the limbs white; the two colours distinctly separated, or not blending into each other.

The Plate represents a male and a female, on a branch of a very beautiful species of *Melaleuca*.



PHASCOGALE PENICILLATA

J.Gould and H.C.Richter del et lith.

Hullmandel & Walton Imp.

PHASCOGALE PENICILLATA.

Brush-tailed Phascogale.

Tapoa-tafa, White's Journ., pl. in p. 281.
Didelphys penicillata, Shaw, Gen. Zool., vol. i. part 2. p. 502. pl. 113. fig. 1.
Dasyurus penicillatus, Geoff. Ann. du Mus., tom. iii. p. 361.
———— *Tafa*, Geoff., loc. cit.
Phascogale penicillata, Temm. Monogr. de Mamm., tom. i. p. 58.—Skull, pl. vii. figs. 9–12.—Waterh. Nat. Lib. Mamm., vol. ix. (Marsupialia), p. 136, pl. viii.—List of Mamm. in Brit. Mus. Coll., p. 98.
Tapoa-tafa, Aborigines of New South Wales.
Bul̈-loo-wa, Aborigines of the York district of Western Australia.
Bal̈-a-ga, Aborigines of Perth.
Bal-lă-wa-ra, Aborigines to the north of Perth.

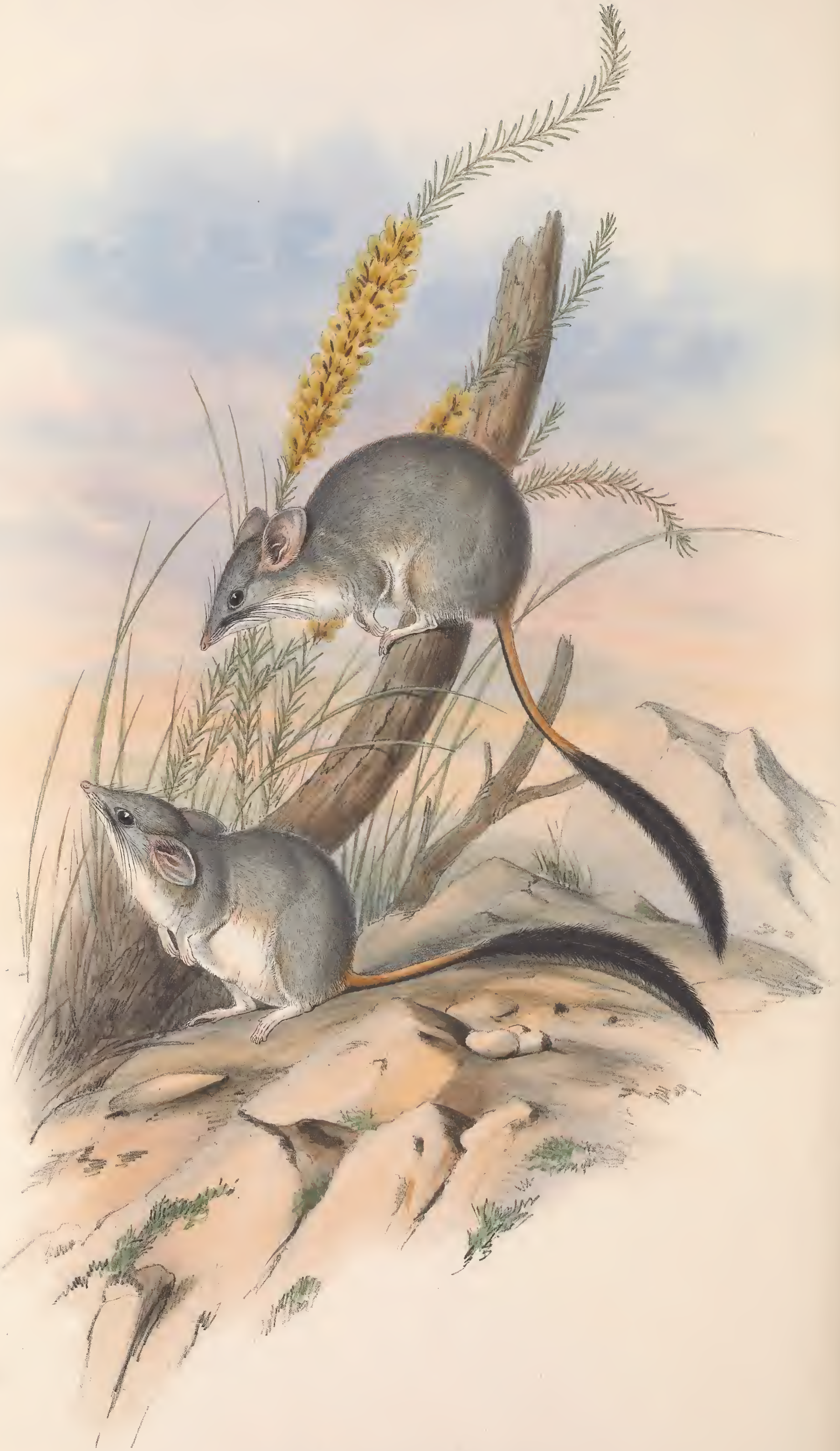
As several specimens of this animal, contained in a collection lately received from Western Australia, offer on comparison no difference whatever from others procured in South Australia and New South Wales, it is evident that the Brush-tailed Phascogale has an unusually wide range of habitat. It probably does not extend so far south as the island of Van Diemen's Land, or northward of the twenty-fifth degree of south latitude.

The plain and the mountain districts appear to be equally inhabited by it, and from its destructive propensities is I fear likely to become a pest to the colonists. It has already been known to enter the stores of the settlers and commit severe depredations whenever they contained anything suited to its palate, and, whether justly or not I am unable to say, it has also been charged with killing the fowls and chickens of the hen-roost. In the stomachs of some that were dissected were found the remains of coleopterous insects, and what appeared to be a species of fungus. Nocturnal in its habits, it sleeps during the day in the hollows of decayed trees, from which retreat it emerges on the approach of evening, when it ascends the trees and displays the greatest activity among the branches. When captured it becomes quite ferocious and struggles hard to effect its escape, and so severe are the lacerations it inflicts, that even a native can rarely be induced to put his hand within reach of a living one. It breeds in the hollows of the gum-trees, but the precise number of its young has not yet been ascertained. The sexes differ but little in size and colour, but the male is somewhat the largest. The accompanying Plate represents the animal of the size it is when fully adult. It is necessary to mention this, because much difference exists in the relative size of specimens sent to this country, many individuals that I have seen not being more than half the size of those figured, and which is solely attributable to the youthful state of the animal, and not to a difference of species. It was first figured in White's "Journal of a Voyage to New South Wales," a work published in 1790, under the name *Tapoa-tafa*; the specimen there represented is still preserved in the Museum of the Royal College of Surgeons, so that we have the clearest evidence of its identity with the animal here figured.

The colouring of the Brush-tailed Phascogale may be thus described :—

Face, all the upper surface and the base of the tail grey; chin, throat, inside of the legs and feet greyish white; a darker grey mark commences at the tip of the nose and extends over the forehead to the nape; the fur is moderately long and loose, that which covers the back and upper surface being uniform blue-grey next the body, and grizzled grey and brown towards the surface; lengthened black hairs are also thinly scattered among the fur of the upper surface; the tail for about four-fifths of its length from the tip is clothed with long and stiff hairs of the finest black, giving that organ a brush-like appearance, whence its specific name; tip of the nose flesh-colour; ears purplish, very thinly covered with fine hairs.

The figures represent the two sexes of the size they attain when fully adult.



PHASCOGALE CALURUS: *Gould*

J. Gould and H.C. Richter del. et lith.

Bullmandel & Walton Imp.

PHASCOGALE CALURA, *Gould.*

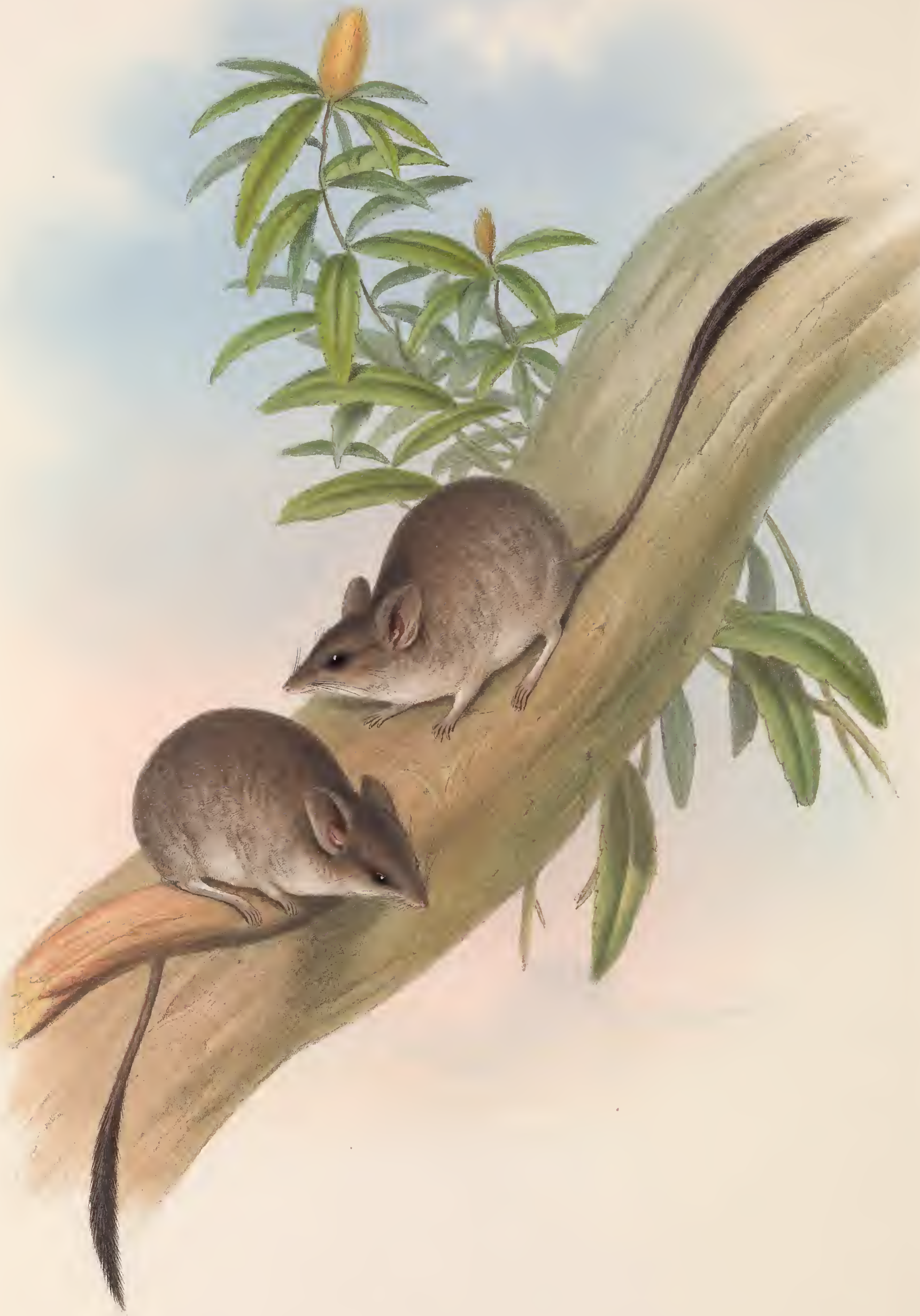
Handsome-tailed Phascogale.

Phascogale calura, Gould in Proc. of Zool. Soc., Part XII. p. 104.

All mammalogists who are acquainted with the *Phascogale penicillata* will observe that a great similarity in form exists between that animal and the one here represented, of which a single individual has lately been forwarded to me from Western Australia, and which I believe to be the only specimen yet transmitted to Europe. I am led to consider it one of the most interesting of the Australian mammals lately discovered, not only from its forming the second species of the genus as now restricted, but from the extreme elegance of its form and the chaste but diversified character of its markings. The rich rust-red of the basal half of the upper surface of the tail is a very unusual mark in animals of this order. Mr. Gilbert procured the specimen above-mentioned while staying at the Military Station on William's River, and he merely says: "For this new animal I was indebted to a domestic cat who had captured it in the night. The soldiers informed me that they had often met with it in the store-room of the Station, but they could give me no other information respecting it, except that specimens with much larger or more brushy tails were sometimes seen." The fact of its visiting the stores shows, that in habits and disposition it assimilates as closely to the *P. penicillata* as it does in form.

The fur is soft and moderately long; its general colour is ashy grey externally and grey next the skin; under surface of the body white, tinted with cream-colour, which becomes more distinct on the sides; eyes surrounded by a narrow ring of black; in front of the eye a blackish patch; ears sparingly clothed for the most part with very minute dusky hairs, but at the base, both externally and internally, are some long yellowish hairs; base of the tail for nearly half its length clothed with short hairs of a brilliant rusty red colour; on the apical half of the tail the hairs are long and black, as is also the under surface of the base to near the root.

The Plate represents the animal, which is now in the British Museum, of the natural size.



PHASCOGALE LANIGERA, *Gould.*

J. Gould. and H.C. Richter, del. et lith.

Hullmandel & Walton, imp.

PHASCOGALE LANIGERA, *Gould.*

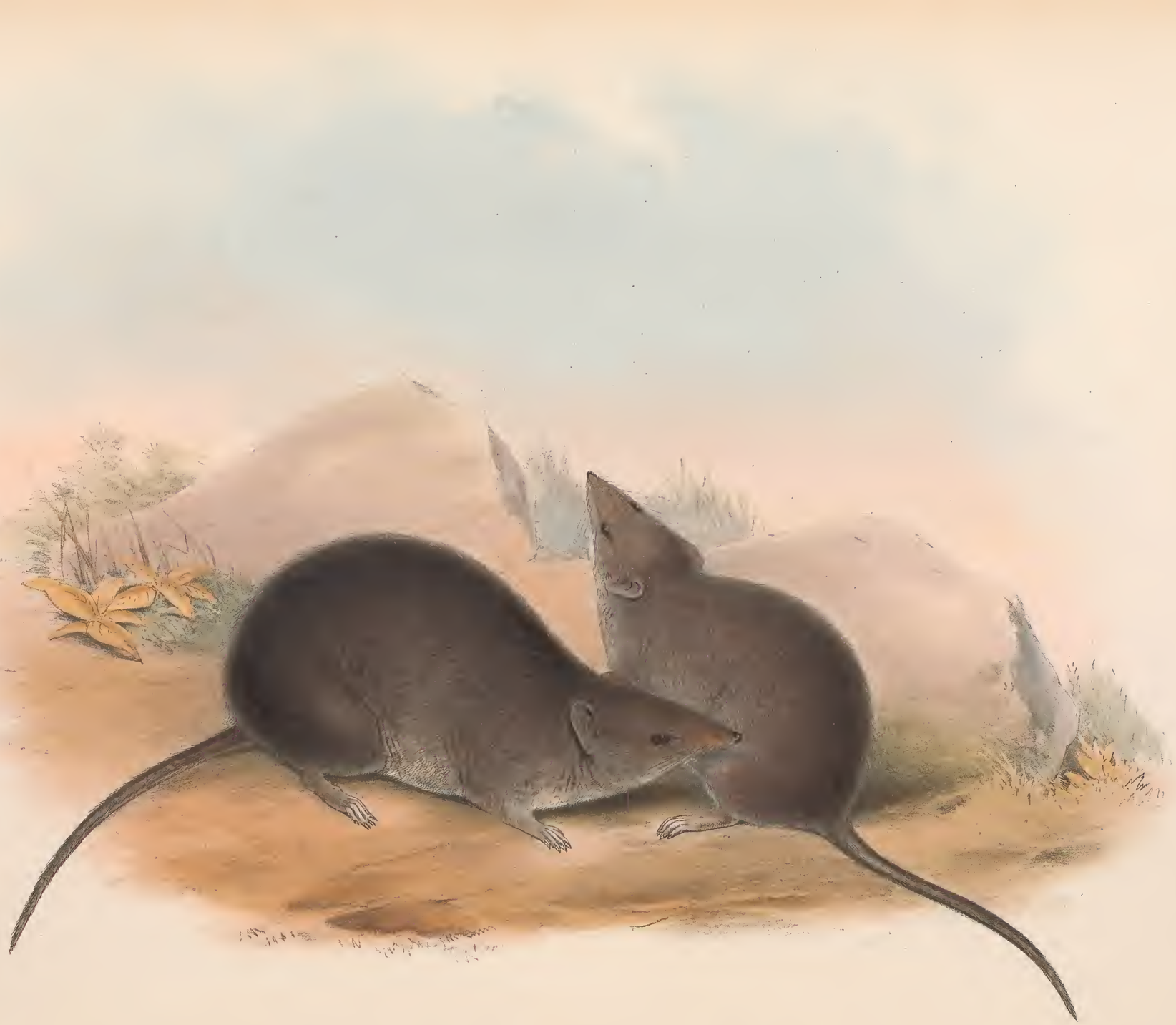
Woolly Phascogale.

A SINGLE specimen of the little Phascogale figured on the accompanying Plate was discovered by Sir Thomas Mitchell, during one of his expeditions into the interior of Australia. This specimen, which is now in the British Museum, appears to be fully adult. In form it is precisely similar to the *Phascogale calura*, but in size and colouring it is very different, being a much smaller animal, and having no trace of the rufous colouring so conspicuous on the basal portion of the tail of that species. I regret to state that no account of the habits of this little animal accompanied the specimen.

I am indebted to Dr. Gray, of the British Museum, for permission to figure and describe this new and interesting addition to the genus *Phascogale*. The paucity of the information we possess respecting it affords further evidence of the little we know respecting the smaller animals of the interior of Australia, an acquaintance with which is rendered all the more difficult of acquisition from the circumstance of the whole, or nearly the whole of them being nocturnal in their habits.

The fur is soft, and of a character somewhat more woolly than that of *P. calura*; its general colour is brown externally and grey next the skin, becoming hoary on the hind-quarters; under surface of the body greyish-white; eyes surrounded by a narrow ring of black; ears sparingly clothed with minute brown hairs; fore- and hind-feet white, becoming brownish-grey on the toes; basal portion of the tail brown, like the body; hairs of the apical half of the tail long and black, as is the under surface of the base to near the root.

The figures are of the natural size.



ANTECHINUS SWAINSONI.

J.Gould and W.Richter del. et lith.

H.C. Hansard, Printer.

ANTECHINUS SWAINSONI.

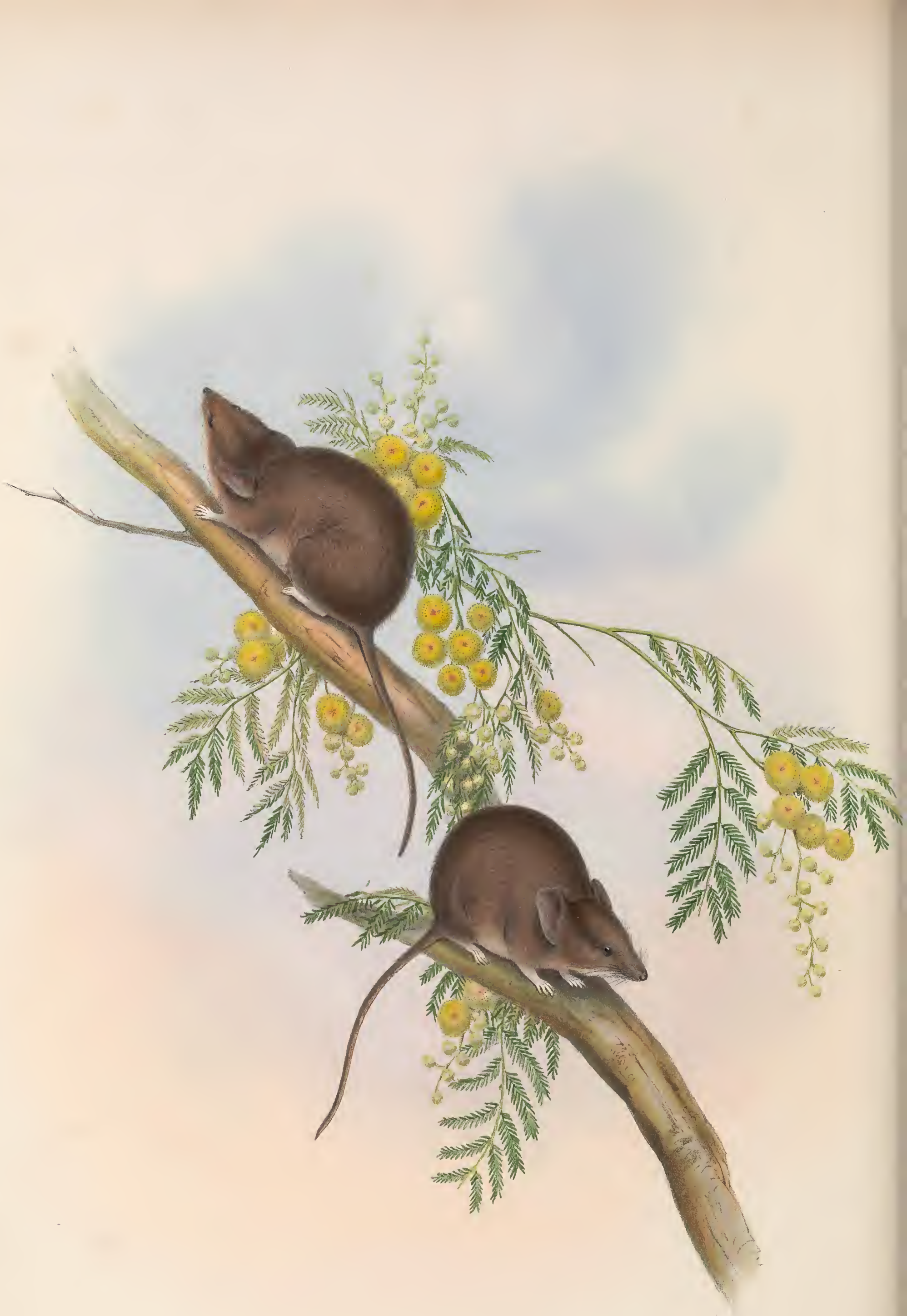
Swainson's Antechinus.

Phascogale Swainsonii, Waterh. Mag. Nat. Hist., vol. iv. p. 300.
——— (*Antechinus*) *Swainsonii*, Waterh. Nat. Hist. of Mamm., vol. i. p. 411.—Gunn, Proc. of Roy. Soc. of Van Diemen's Land, vol. ii. p. 82.—Zool. of Erebus and Terror, Beasts, pl. 25. fig. 1.

Of the animals comprising the restricted genus *Antechinus*, the present is the largest and the most darkly coloured species yet discovered. Van Diemen's Land, if not its sole habitat, is the country in which it is usually found, and I believe I am right in stating that up to the present time it has not been obtained elsewhere.

Mr. Waterhouse, after remarking that this species is of a much darker colour than any of the other *Antechini*, and is almost destitute of any grey hue, says, "The fur is long and moderately soft, and is of a deep grey colour next the skin; on the back the hairs are most of them annulated with rusty yellow or brownish rust-colour, the deeper tint being observable on the hinder parts. The hairs of the hinder parts of the body are grey, but tipped with yellowish. The tail is clothed throughout with small adpressed hairs of a dusky-brown colour, and a trifle paler on the under than on the upper surface. The feet are uniform dusky brown; the fleshy pads on their under surface are transversely striated, and the remaining naked portion of each foot is apparently smooth. The muzzle is narrower and more elongated than usual. The specimen from which the original description was taken measured from the tip of the nose to the root of the tail 5 inches and 2 lines in length, and its tail was 3 inches and 5 lines long." But that the animal attains a larger size is certain, there being an example in the British Museum which is 7 inches in length, and others of an equal size in the fine collection bequeathed to the town of Liverpool by the late munificent Earl of Derby.

The figures are of the size of life.



ANTECHINUS LEUCOPUS, *Gray*

Hewitt and H.C. Richter, del. et lith. *Hullmandel & Walton, Imp.*

ANTECHINUS LEUCOPUS, *Gray*.

White-footed Antechinus.

Phascogale leucopus, Gray in Ann. and Mag. of Nat. Hist., vol. x. p. 261.—Ib. List of Spec. of Mamm. in Coll. Brit. Mus., p. 100.
———— (*Antechinus*) *leucopus*, Waterh. Nat. Hist. of Mamm., vol. i. p. 423.

I have figured this little Opossum as an inhabitant of Van Diemen's Land on the authority of Dr. Gray. The specimen from which he took his description is now in the British Museum, and appears to differ sufficiently from the other members of the group to warrant its being characterized as distinct; but on this point Mr. Waterhouse remarks,—

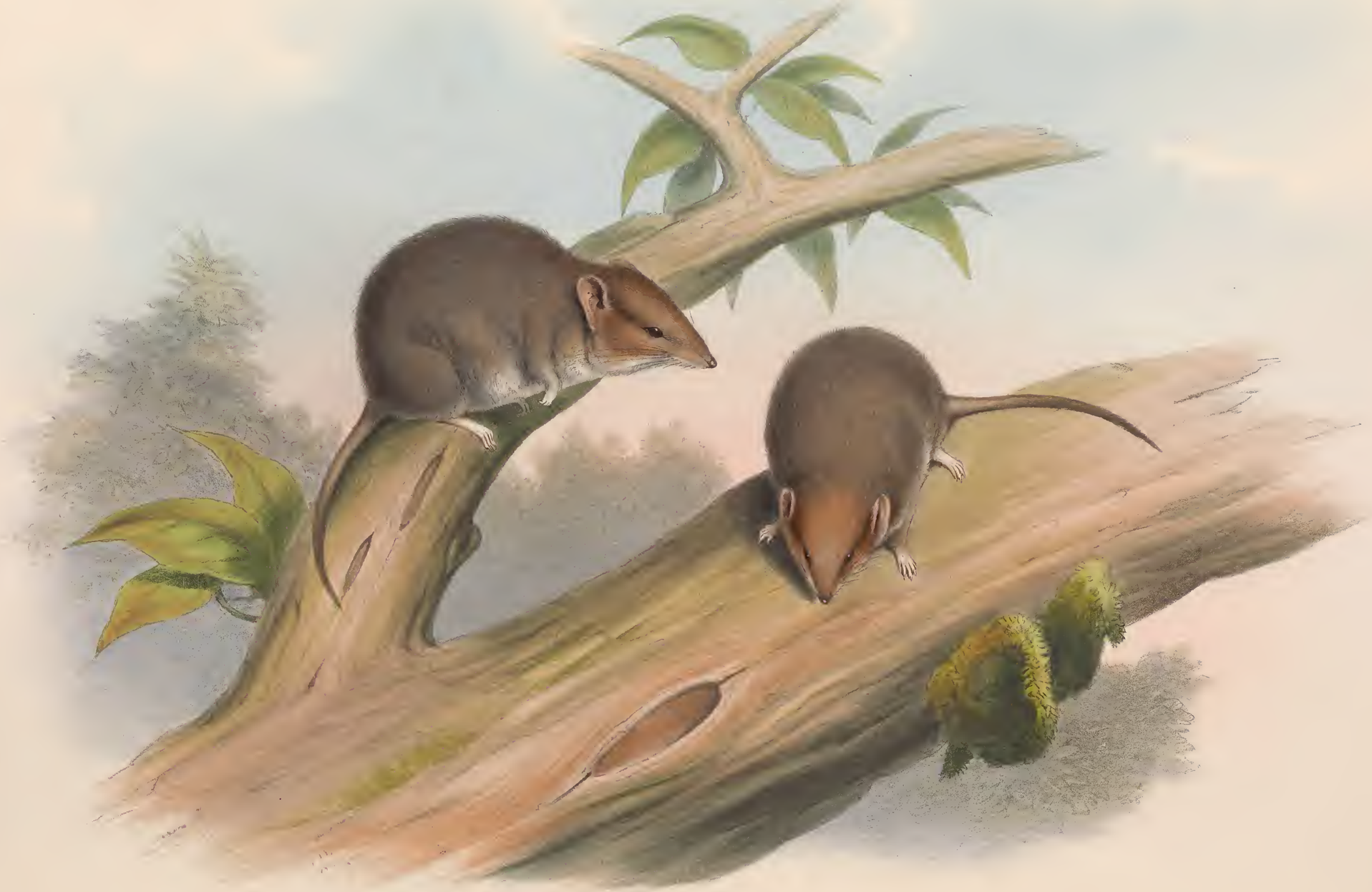
"The general tint of this animal is somewhat darker than that of *Phascogale albipes*; the upper surface of the tail is almost black, while in the species just mentioned it is greyish, and the ears are smaller. Beyond these, I can perceive no other points of distinction between the Van Diemen's Land animal and the Continental one (*P. albipes*). Of the former I have seen but one specimen, and I can scarcely satisfy myself, from such imperfect materials as are before me, that these White-footed *Phascogales* are specifically distinct.

"A small Phascogale is found at King George's Sound, which agrees very closely with the *P. leucopus*, being of the same dark colour, and having the tail black above, or nearly so. Two specimens in Mr. Gould's collection, thus resembling the Van Diemen's Land animal, differ, however, in having the chest of a dusky grey hue. A specimen from King George's Sound, and contained in the British Museum collection, differs in having the colouring less dark, and, indeed, very closely resembling that of *Phascogale albipes*.

"Fur very soft and rather long; general colour grey, much suffused with black on the back, and very finely pencilled with pale yellow, the yellow most distinct on the head and sides of the body; feet and under parts of the body white; ears tolerably large, and clothed with minute hairs, for the most part dusky, but pale at the basal portion of the ear externally; upper surface of the tail nearly black, under surface dirty white.

	Male.	
	inches.	lines.
"Length from tip of nose to root of tail	4	4
,, of tail	3	7
,, of ear		5
,, of hind-foot and nails		$8\frac{1}{2}$"

The figures are of the natural size.



ANTECHINUS FERRUGINIFRONS, *Gould*

J.Gould and H.C.Richter del. et lith. *Hullmandel & Walton Imp.*

ANTECHINUS FERRUGINIFRONS, *Gould.*

Rusty-fronted Antechinus.

Having received two specimens of this animal direct from Sydney, I have little hesitation in stating New South Wales to be the true habitat of this new species; at the same time I am unable to say of what particular locality it is a native. Its yellowish rust-coloured face, more lengthened muzzle and larger size, at once distinguish it from *Antechinus flavipes* and *A. unicolor*, to both of which it is allied. It also differs from both in the more slender form and in the white colouring of its feet; points in which it offers some affinity to the smaller members of the genus, such as *Antechinus fuliginosus*, *A. albipes*, &c. In all probability this modification in the structure of the feet is accompanied by some diversity in the habits or economy of these slender-footed animals, but this is a point which can only be determined when we are able to obtain a more intimate knowledge of these singular little quadrupeds than we at present possess.

Fur moderately long and soft; face, head and occiput rusty fawn colour, interspersed with fine blackish hairs; general colour of the upper surface and sides of the body pale greyish brown, interspersed down the back with numerous fine blackish hairs; sides of the face washed with buff; throat and under surface of the body pale greyish white; all the four feet white; tail light brown.

Total length from the tip of the nose to the end of the tail $7\frac{3}{4}$ inches; of the tail $3\frac{1}{4}$; of the nose to the ear $1\frac{1}{8}$ inch; of the ear $\frac{1}{2}$ an inch; of the tarsi and toes $\frac{3}{4}$ of an inch.

The figures represent the animal of the size of life.

ANTECHINUS UNICOLOR, *Gould*

J Gould and H C Richter, del. et lith *Hullmandel & Walton, Imp*

ANTECHINUS UNICOLOR, *Gould.*

Dusky Antechinus.

This animal is altogether larger and more robust than the *Antechinus ferruginifrons*, has a broader or more dilated hind foot, a shorter muzzle, and a more uniform style of colouring, the general tone being a rusty brown, with a somewhat heightened or brighter rusty hue on the lower part at the back and rump; both the fore and hind feet moreover are of a light brown.

Like the *A. ferruginifrons* this species is a native of New South Wales. The specimens I possess of both species were in fact received at one time by way of Sydney, without, unfortunately, any particulars as to the locality in which they had been obtained. Such then is all the information I am able to give respecting these rare species, of each of which two specimens were transmitted to me. Australia appears to abound in these small insectivorous animals, as evidenced by the numerous species described and figured in the present work, and when the forests of that great country are more closely searched, many others will doubtless be discovered. In its general structure this species must be associated with the broad-footed section, of which *A. flavipes* may be considered a typical example.

Fur moderately soft; general colour of the upper surface fulvous brown, interspersed with numerous black hairs; under surface paler fulvous brown; feet pale brown.

Length, from the tip of the nose to the end of the tail, $9\frac{1}{4}$ inches; of the tail, $3\frac{5}{8}$; from the nose to the ear, $1\frac{1}{8}$; of the ear, $\frac{1}{2}$ an inch; of the tarsi, $\frac{3}{4}$ of an inch.

The Plate represents two animals of the size of life.

ANTECHINUS LEUCOGASTER, *Gray*

J. Gould and W. Richter del. et lith.

Hullmandel & Walton, Imp.

ANTECHINUS LEUCOGASTER, *Gray*.

White-bellied Antechinus.

Phascogale leucogaster, Gray, App. to Grey's Journ., vol. ii. p. 407.
Antechinus leucogaster, Gray, List of Mamm. in Coll. Brit. Mus., p. 99.
Phascogale (*Antechinus*) *leucogaster*, Waterh. Nat. Hist of Mamm., p. 417.

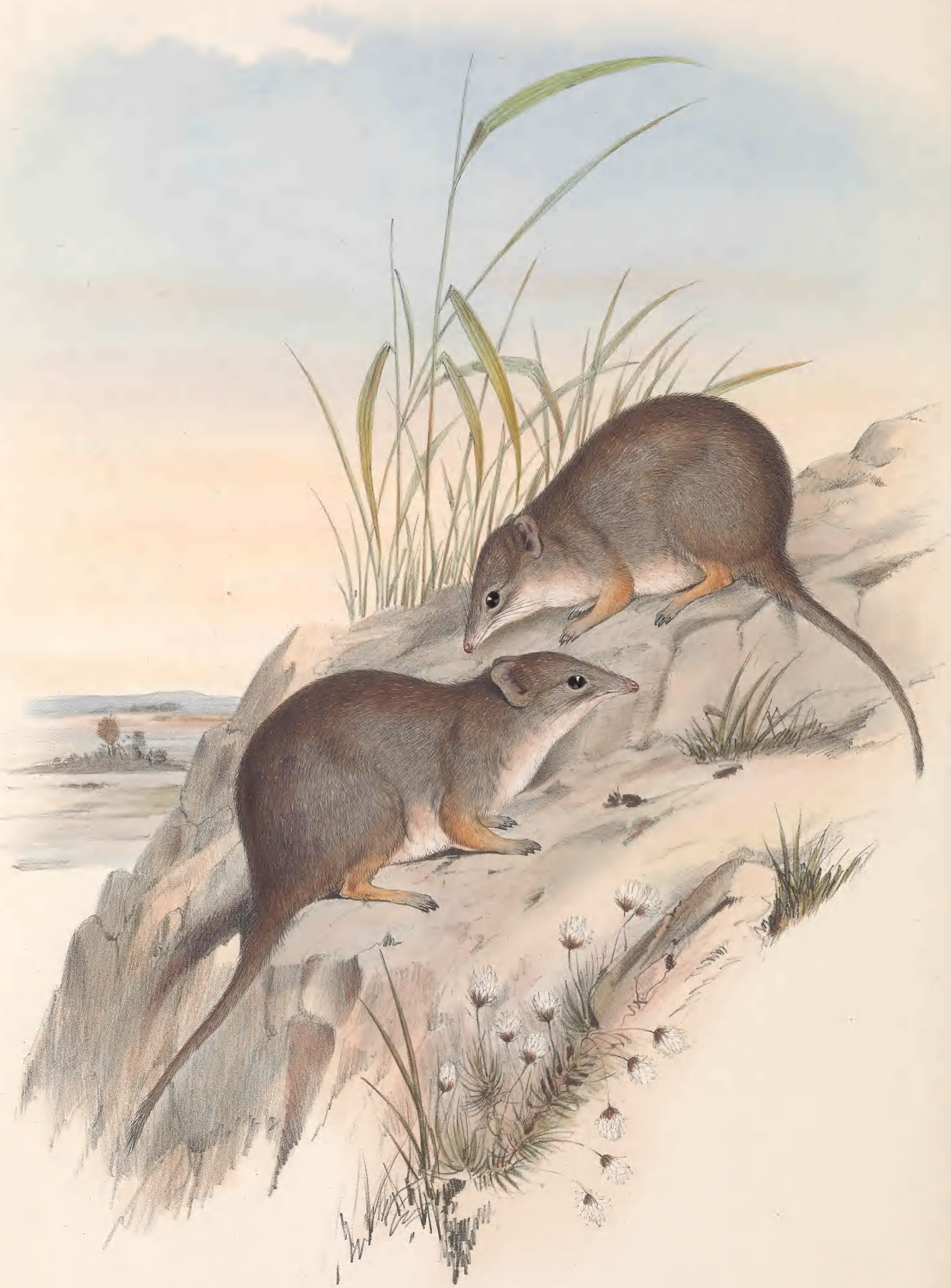
"This animal so closely resembles the *Antechinus flavipes* in all its proportions, as well as in the structure of its skull and teeth, that it is with considerable hesitation I describe it as a distinct species. I have seen, however, several specimens from Western Australia which agree perfectly with the individual from which Mr. Gray drew up his original description, and which differ from the *A. flavipes* in having the under parts of the body white, and little or no rusty yellow on the sides of the body and on the feet. The general tint of the upper surface likewise differs somewhat, being less grey on the fore parts of the body, and on the hinder parts rich brown. The feet are brownish white, not unfrequently suffused with brown behind; the tail is brown above, pale brown beneath, and dusky towards the point.

"A skull removed from a specimen sent me from King George's Sound by Mr. Neill, differs from a skull of *A. flavipes* in the British Museum collection in having the muzzle (and consequently the nasal bones) a trifle shorter, but the difference is not more than is often found in individuals of the same species, and I think it by no means improbable that the *A. leucogaster* is a local variety of *A. flavipes*."

The above are Mr. Waterhouse's opinions respecting a Western Australian animal, of which my collection contains two or three examples obtained at King George's Sound. I figure it with the same degree of doubt as to its specific value that is entertained by Mr. Waterhouse, but I may state that I have seen hundreds of *A. flavipes* from Southern and Eastern Australia, all of which had the feet and under surface of a deep rusty colour, a hue I have never yet seen in any of the specimens of the Western Australian *Antechini*.

Fur rather soft, general colour dark brownish grey; the hind quarters tinted with rusty brown; all the upper surface beset with numerous fine black hairs; ears sparingly clothed with minute pale-coloured hairs; under surface greyish white; tail dusky, passing into blackish at the apex; feet light brown.

The figures are of the natural size.



ANTECHINUS APICALIS.

J. Gould and H. C. Richter del. et lith.

Hullmandel & Walton Imp.

ANTECHINUS APICALIS.

Freckled Antechinus.

Phascogale apicalis, Gray, Ann. and Mag. Nat. Hist., vol. ix. p. 518.
Antechinus apicalis, List of Mamm. in Brit. Mus. Coll., p. 99.
Marn̈-dern, Aborigines in the neighbourhood of Moore's River.
Wy̆-a-lung, Aborigines of Perth.
Dib̆-bler, Aborigines of King George's Sound.

This animal is very generally distributed over every part of the colony of Western Australia, where it inhabits trees of various kinds, from the prostrate trunk of the once patriarchal gum of the dense forest to the living grass-trees of the more open districts. Mr. Gilbert's notes comprise all that is at present known of its habits, and these I give in his own words :—"The nest of this animal and the situation in which it is placed appear to vary in different parts of the country. The aborigines in the neighbourhood of Moore's River agree in stating that it is placed in a slight depression of the ground beneath the overhanging leaves of the *Xanthorrhœa*; on the other hand, the natives around Perth assured me that they always captured the animal either in a dead stump or among the grasses of the *Xanthorrhœa*; at King George's Sound it appears to differ from both the preceding, for there the natives always pointed out as the nest of this species, a raised structure of fine twigs and coarse grass, very closely resembling that of the common Perameles. The stomachs of those I dissected contained the remains of insects of various kinds. While at King George's Sound, I obtained a female with seven young attached; they were little more than half an inch in length, quite naked and blind. Above the mammæ of the mother is a very slight fold of skin, from which the long hairs of the under surface spread downwards and effectually cover and protect the young. The fold in the skin of the abdomen is the only approximation to a pouch that I have found in any member of this genus. The young are very tenacious of life; those above mentioned lived nearly two days, attached to the mammæ of the dead mother; and after being immersed in spirits of wine continued in motion for nearly two hours."

The sexes are precisely alike in colour; but the female is somewhat the smaller.

This little animal may be thus described :—All the upper surface reddish brown, interspersed with numerous longer hairs, which are black in the centre and white at the tip, giving the animal a peculiarly grizzled appearance; flanks and under surface buffy grey; outside of the fore and hind legs rufous; tail similar to the upper surface, passing into black at the tip which terminates in a fine point, whereas at the base it is thicker and the hairs more lengthened than in any other species of the genus; the hairs are also of a more stiff and wiry character.

The Plate represents both sexes of the natural size.

ANTECHINUS FLAVIPES.

J.Gould and H.C.Richter, del. et lith.

Hullmandel & Walton, Imp.

ANTECHINUS FLAVIPES.

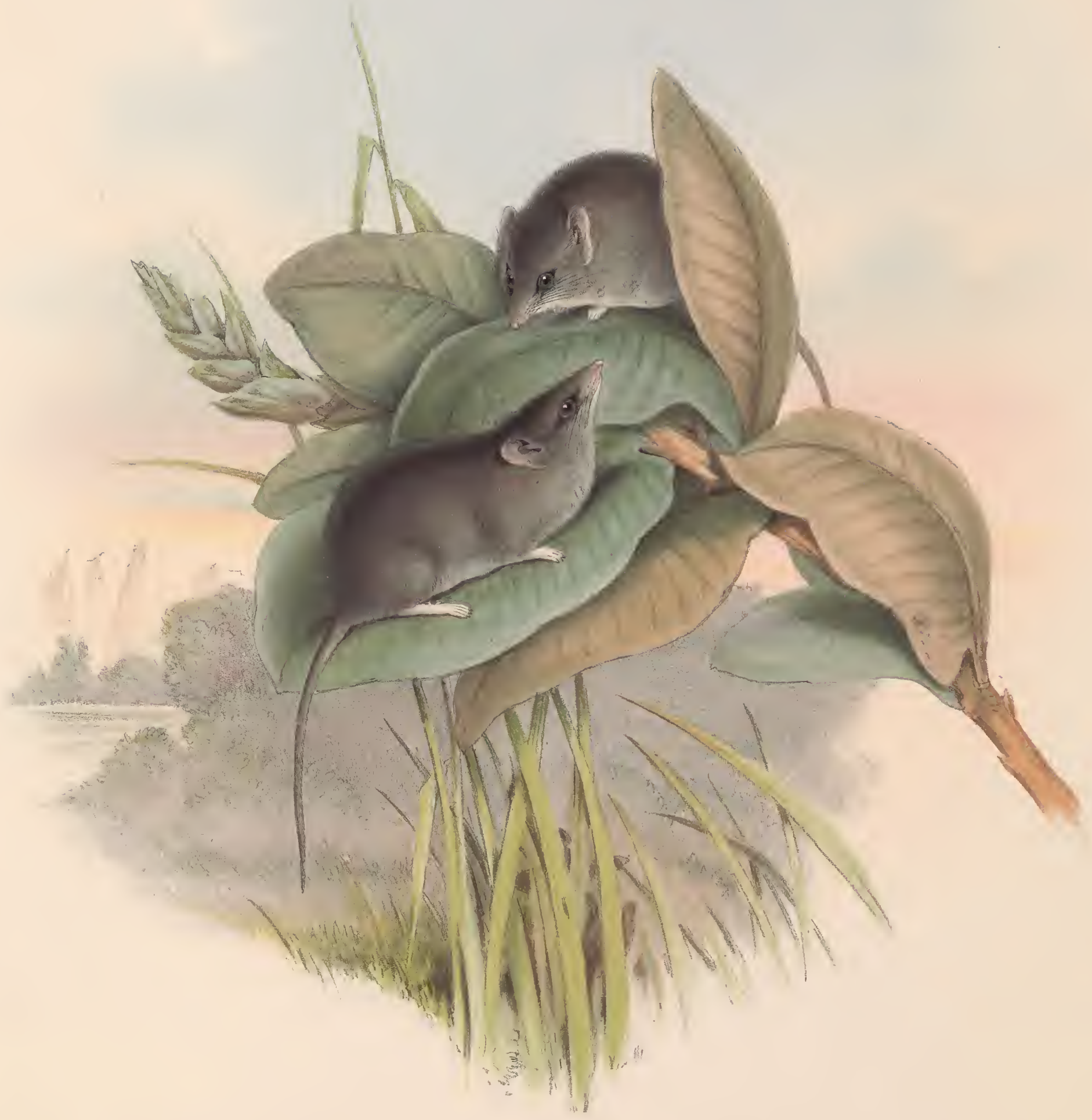
Rusty-footed Antechinus.

Phascogale flavipes, Waterh. in Proc. of Zool. Soc., part 5. p. 75.
——— *rufogaster*, Gray, App. to Grey's Journ., vol. ii. p. 407.
Antechinus flavipes, Gray, List of Mamm. in Coll. Brit. Mus., p. 99.
Phascogale (*Antechinus*) *flavipes*, Waterh. Nat. Hist. of Mamm., vol. i. p. 415.

The specific term of *flavipes* is scarcely an appropriate appellation for this animal, for, as will be seen on reference to the accompanying drawing, which, if not taken from the original type, was made from precisely similarly coloured specimens, the feet are of a deep rust-red, the yellowish red hue which suggested the name being only found in some specimens. Of all the *Antechini* yet discovered, the present is the most common; I observed it to be very abundant both in New South Wales and in South Australia, and remarked that specimens from both these countries presented little or no difference either in size or colour. Like most of the other species of the genus, this little animal inhabits the hollow branches of the large *Eucalypti*. I frequently saw it running over the fallen logs by the creek sides of the plains of Adelaide, and remarked that in New South Wales it affected similar localities, and exhibited similar actions and habits. Its progression over the boles of trees is effected by a succession of very quick jumps like those of the Common Squirrel, and it passes round and beneath the branches with equal facility. Besides being conspicuous for its rusty coloured feet, this species is distinguished by the colouring of the face, back of the head, shoulders, and upper part of the back being dark grey with yellowish hairs interspersed, giving those parts a freckled appearance, while the lower part of the back and the thighs are more rufous. I could not observe any difference in the colouring of the sexes or of the young: in the relative size of the sexes, on the contrary, considerable difference exists, the adult female being always smaller than the male of the same age.

Fur moderately long and soft; general colour of the upper surface grey, tinted with fulvous on the lower part of the back; sides of the body washed with rusty yellow; under surface of the body and feet rusty yellow; chin, throat and chest whitish; tail black, freckled with yellow towards the base above, and rusty yellow beneath; tail clothed with short hairs, lengthened into a small tuft at the point.

The figures are of the natural size.



ANTECHINUS FULIGINOSUS, *Gould.*

Gould & Richter, del. et lith.
Hullmandel & Walton, Imp.

ANTECHINUS FULIGINOSUS, *Gould.*

Sooty Antechinus.

Antechinus fuliginosus, Gould in Proc. of Zool. Soc. 1852.
Twoor-dong, Aborigines of King George's Sound.

This species of *Antechinus*, which is a native of Western Australia, may be easily distinguished from the other members of the genus by its very dark colouring, a feature pervading both the upper and under surface of the animal. Up to this time, that is, after fourteen years' close attention to the natural productions of Australia, I have never seen an example of this species from any other than the western part of that country; there, however, it is very abundant, both at King George's Sound and in the vicinity of Perth. I am indebted to the researches of the late Mr. Gilbert for the following account, which, however, brief as it is, will I hope be read with interest by every true lover of zoology:—

"This is so much like the *Antechinus albipes*, that I considered it to be the same animal, until, by hunting for it myself, I found that it not only differs in habits, but is of a somewhat larger size and very much darker colour. Its favourite resorts are newly burnt spots, especially those adjacent to swamps and moist meadows. Among the clumps of the burnt stumps of coarse grass it burrows out the earth, and fills the cavity with short pieces of fine twigs and grass in the form of a round heap about two or three inches in height, the top being in most instances level with the surface of the surrounding earth; this structure is from six to twelve inches in diameter and from ten to fifteen in depth; in the top are several holes leading to galleries situated about half way down, which run horizontally among the roots of the surrounding scrub, and into one or other of which the animal escapes while the upper or loose portions of the sticks and grass are being removed. These structures are so precisely similar to the nests formed of pieces of grass and twigs of the same form and placed in similar situations by a small species of black ant, that I had passed hundreds without detecting them to be different, until the natives pointed them out to me as the nests of this animal, the only difference being the entrance-holes at the top and the absence of ants in the interior. I endeavoured to keep this species in captivity, but rarely succeeded in preserving it alive for more than a couple of days. It is exceedingly active in its habits, and when at rest the general contour of its body is short and ball-like; the eyes are black and prominent; the lower lip shows distinctly to the gape, and is of a pale lemon-yellow; it utters the singular hissing-like noise common to most of the Marsupials. It feeds at night, and appears to prey upon insects generally, as the stomachs of those I examined contained insects of various kinds."

The whole of the upper surface dark greyish brown, interspersed with numerous longer black hairs, giving it a fuliginous or sooty hue; face of a lighter tint; the whiskers and a narrow mark round the eyes black; sides of the chest sooty grey, separated down the centre by a narrow line of buffy grey extending from the chin to the insertion of the fore legs; under surface pale greyish white; fore feet and the hinder tarsi and feet white, slightly tinted with buff; tail dark reddish brown, becoming greyish beneath; ears inclined to silvery grey.

	inches.
Length from the nose to the root of the tail	$3\frac{1}{4}$
,, of tail	$3\frac{1}{4}$
,, ,, arm and hand	$\frac{1}{2}$
,, ,, tarsi and toes	$\frac{5}{8}$
,, ,, face from the tip of the nose to the base of the ear . .	1
,, ,, ear	$\frac{7}{16}$

The figures are of the natural size.

ANTECHINUS ALBIPES.

Gould & Richter, del. et
Hullmandel & Walton Imp.

ANTECHINUS ALBIPES.

White-footed Antechinus.

Phascogale albipes, Waterh. in Proc. of Zool. Soc., Part X. p. 48.
Phascogale (*Antechinus*) *albipes*, Waterh. Nat. Hist. of Mamm., vol. i. p. 421.
Otäm-in, Aborigines of Perth.

The accompanying Plate represents the *Phascogale* (*Antechinus*) *albipes* of Mr. Waterhouse, which appears to be almost universally distributed over the whole of the southern coast of Australia, from Swan River to New South Wales. I possess specimens collected by Mr. Gilbert in the vicinity of Perth, in the Swan River settlement, and others procured by him on the Darling Downs in New South Wales, while the specimen from which Mr. Waterhouse took his description had been sent from the intermediate district of Adelaide in South Australia. Some little difference is observable in specimens from the eastern and western coasts, particularly in the size of the ear, that organ being of a larger and rounder form in the individuals from New South Wales than in those from Western Australia; still this character is too slight to be regarded as indicative of anything but a mere local variety. I find the following notes respecting this animal among Mr. Gilbert's letters to me from Western Australia:—

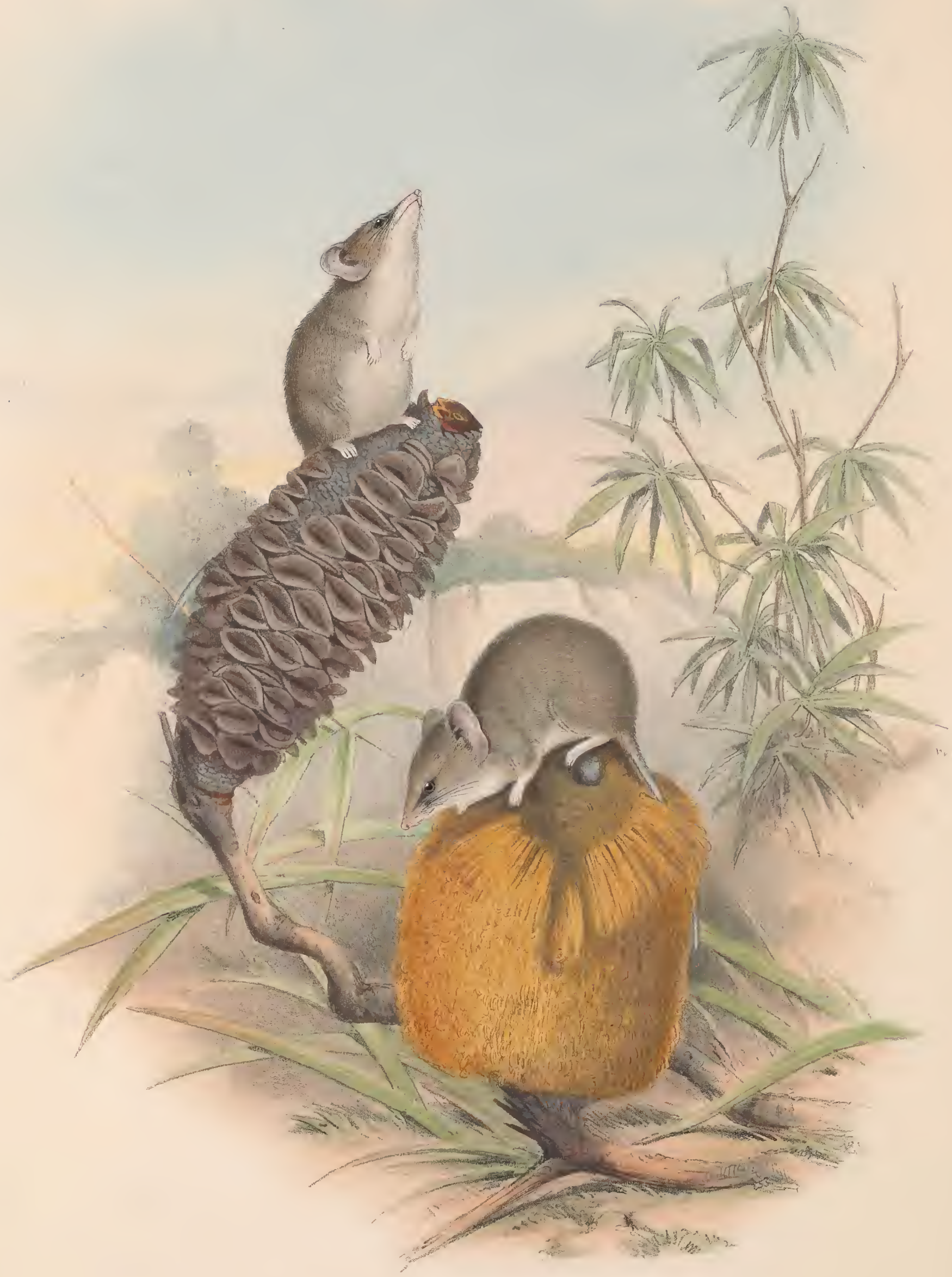
"This species inhabits the dead stumps of the grass-trees (*Xanthorrhœa*). It makes no nest, but merely scrapes together a few of the dry fibrous parts: more than a single pair are rarely seen at one time. The stomachs of those I examined contained the remains of coleoptera. The length of the animal before skinning was seven inches from the tip of the nose to the extremity of the tail; the tail being three and three-eighths. This species is to be found among the grassy lands of the Toodyay district, as well as among the dense groves of *Xanthorrhœa* surrounding the swamps in the vicinity of Perth." When writing from Darling Downs in New South Wales he remarks: "This animal here inhabits clumps of grass in scrubby places: it may be readily distinguished from all the other members of the genus by its very large ears, the general lightness of its fur, and its long, slender tail."

Mr. Waterhouse's remarks on this species are as follows:—

"The White-footed Antechinus was discovered by the late J. B. Harvey, Esq., a very zealous corresponding member of the Zoological Society: in size and colouring it greatly resembles the Field Mouse of Europe; its form is more robust than any of the other *Antechini*, its feet are more slender, and a greater portion of the palm of the hind foot is clothed with fur.

"The fur both on the upper and under parts of the body is of a deep slate-grey colour next the skin; on the upper parts the hairs are of a very pale yellow colour near the point, and black at the point; those on the under surface are white at the point; the eyes are encircled with black; the large ears are clothed throughout with minute hairs, chiefly of a pale hue, but dusky on the outer surface near the anterior margin; the tail is clothed with very small hairs of a dirty white colour on the under, and partly black and partly yellow-white on the upper surface."

The figures are of the natural size.



ANTECHINUS MURINUS, *Waterh.*

J. Gould and H.C. Richter, del et lith.

Hullmandel & Walton imp.

ANTECHINUS MURINUS.

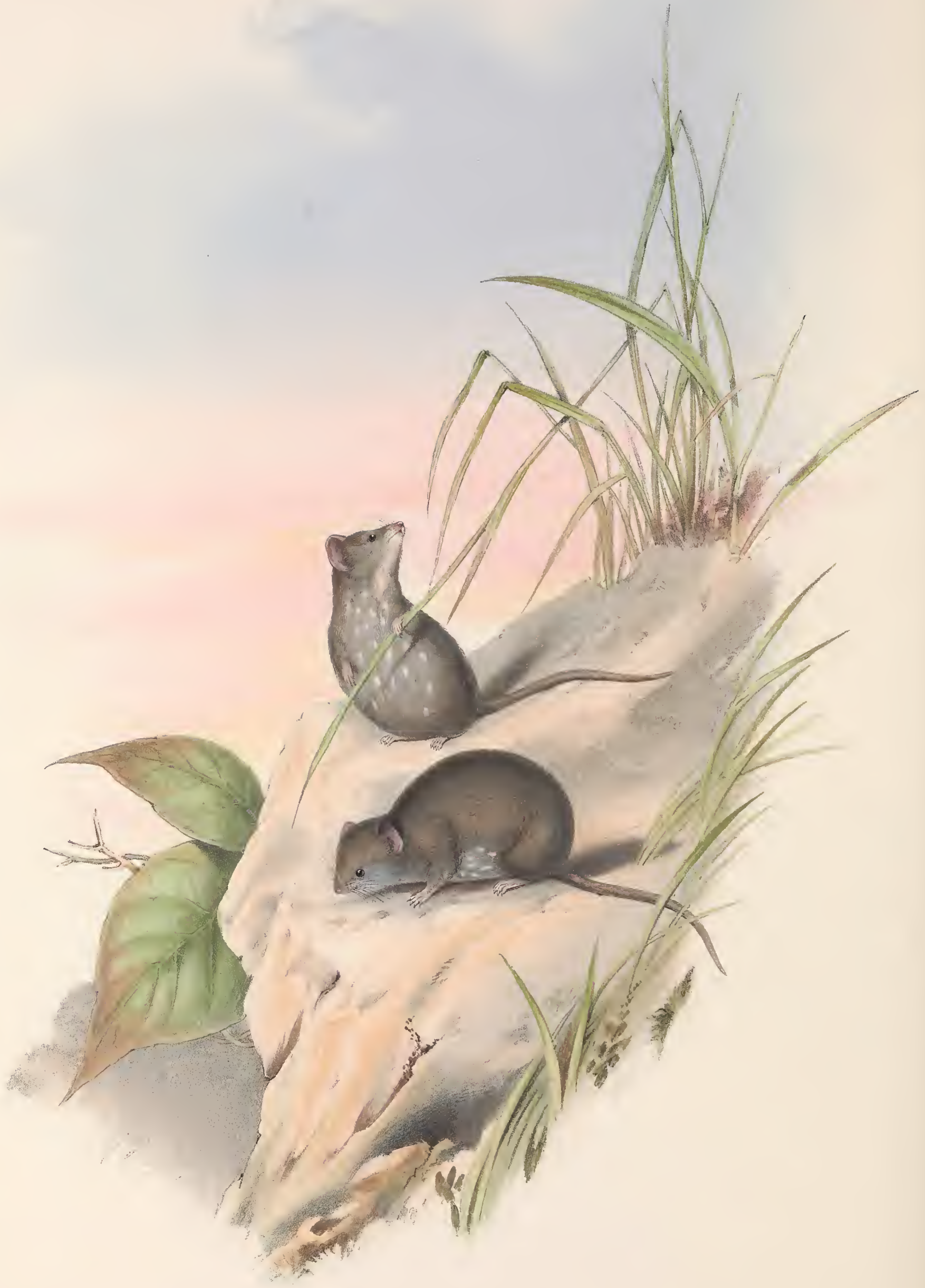
Murine Antechinus.

Phascogale murina, Waterh. in Proc. of Zool. Soc., Part V. p. 75.—Ib. Nat. Lib., Marsupialia, p. 143. pl. 10.
Phascogale (*Antechinus*) *murina*, Waterh. Nat. Hist. of Mamm., p. 425.

The subject of the present Plate is another of the little Marsupials described by Mr. Waterhouse, of which my own collection contains two specimens from New South Wales, and which, on comparison with the original in the Museum of the Zoological Society of London, from which Mr. Waterhouse took his description, presents little or no difference. "The *A. murinus*," remarks Mr. Waterhouse, "is considerably smaller than *A. albipes*; its general colouring is paler, and its tail is uniformly white. The tarsi are almost entirely covered with hair on the under side, there being only a very narrow naked space running backwards from the digital pads, which are covered with small tubercles." With respect to the tail being entirely white, as remarked by Mr. Waterhouse, this does not appear to be a constant character, the tail of one of my specimens being wholly white, while in another it is washed with brown, particularly on the upper surface; and I am led to believe that the white tail is characteristic of immaturity, and not of the adult state. It must be admitted that it is a species, the distinctness of which from *A. albipes* is not very apparent. I have, however, no doubt of its being different, and in confirmation of this view I may state that it was sent to me as such by Mr. Gilbert, who, when writing from the Darling Downs in New South Wales, prior to joining Dr. Leichardt's expedition from Moreton Bay to Port Essington, in which his valuable life was unfortunately sacrificed, says, "I caught this species on the banks of the river Severn; the male is much larger in all its proportions than the female, and has a darker mark around and before the eye."

Fur very soft; upper parts of the body ashy grey; under parts and feet white; tail silvery white; ears clothed with minute pale hairs, becoming brownish in front on the outer surface; eyes encircled with black; fur of the under surface grey at the base.

The figures are of the natural size.



ANTECHINUS MACULATUS.

J. Gould and H. C. Richter, del. et lith.

Hullmandel & Walton, Imp.

ANTECHINUS MACULATUS, *Gould.*

Spotted Antechinus.

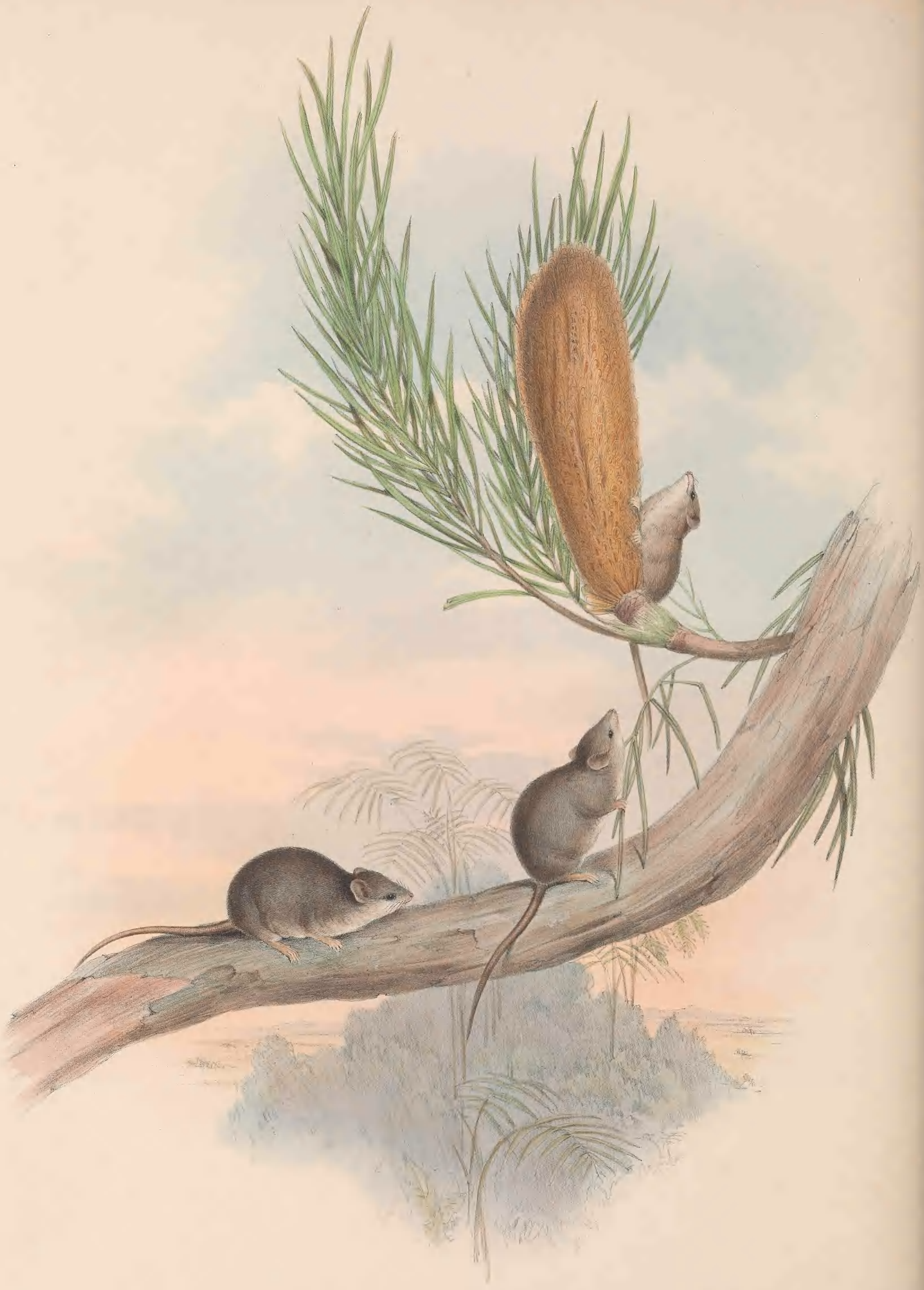
Antechinus maculatus, Gould in Proc. of Zool. Soc., Dec. 9, 1851.

The progress of civilization over the vast continent of Australia cannot fail to be the means of bringing to light many species of small quadrupeds at present entirely unknown to the zoologist; and the immense brushes which stretch along the southern and eastern coasts in particular, will, I feel confident, afford many treasures in this department of zoological science. During my short rambles in some of those extensive brushes, I frequently saw among the fallen leaves and thick herbage, many small, agile, mouse-like marsupials, which I found it impossible to procure, as they were too light to spring the ordinary traps, however lightly they might be set, and I was unprovided with any more suitable contrivances for capturing them; it must also be remembered that the difficulty of collecting them is much increased by their being all more or less nocturnal in their habits. Mr. Strange, however, from time to time sends me, among other objects, one of these little quadrupeds; and it is to him that we are indebted for our knowledge of the pretty species figured in the accompanying Plate, which was procured in the brushes near the river Clarence, a little to the southward of Moreton Bay. Contrarieties with regard to colouring and disposition of markings continually occur in the Australian Fauna, of which the present little animal offers another instance; since, contrary to the normal rule, we find it ornamented on the lower instead of the upper parts of the body.

The animal sent by Mr. Strange is a fully adult male and may be thus described :—

The fur is short, dense, and closely applied to the skin; the general tint of the upper surface is dark blackish brown, minutely grizzled with yellowish brown; lower part of the flanks and the under surface of the body dark brownish slate-grey, ornamented with oblong spots of white arranged in irregular rows in the direction of the body: there is also a streak of white down the centre of the throat.

The figures are of the natural size.



ANTECHINUS MINUTISSIMUS, *Gould.*

Gould & Richter
Hullmandel

ANTECHINUS MINUTISSIMUS, *Gould.*

Minute Antechinus.

Antechinus minutissimus, Gould in Proc. of Zool. Soc., 1852.

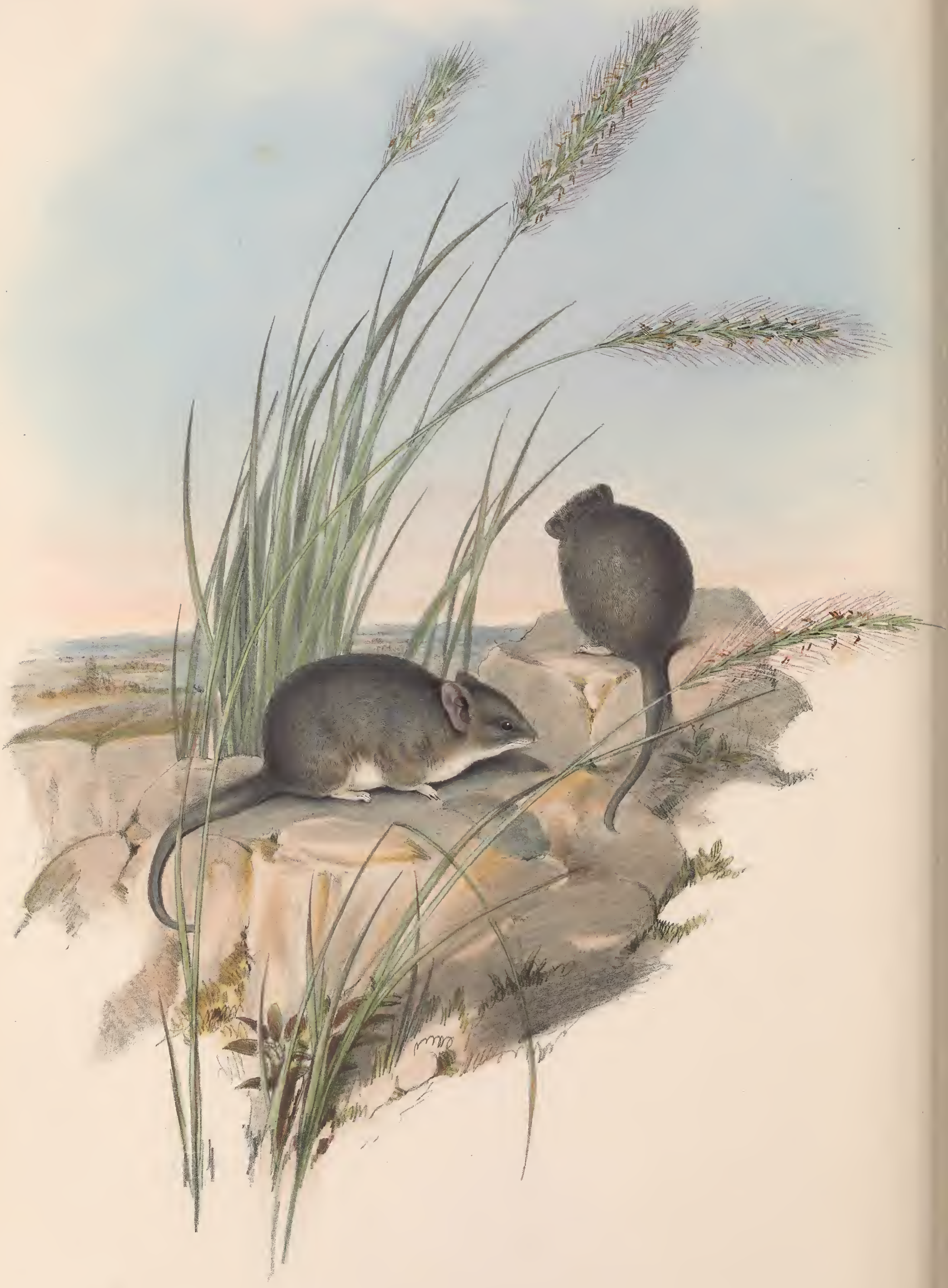
This is by far the least of the Marsupials that have as yet been discovered in Australia. The accompanying figures which were taken from fully adult specimens represent the animal of the natural size. The little *Antechini* of Australia constitute two very distinct groups or subsections; the form of one of which is characterized by a more elegant and lengthened contour, a sharper and more attenuated muzzle, larger ears and longer, more slender and mouse-like formed tarsi, such as is seen in *Antechinus albipes*, *A. fuliginosus* and *A. murinus*; and the other by a shorter and bluffer head, smaller rounded ears, and extremely short and broad tarsi, as is perceptible in *A. flavipes*, *A. maculatus*, and the present species, *A. minutissmus*. I am quite sure that this difference in structure is accompanied by an equally marked difference in the habits and actions of the animals constituting these two groups: I had many opportunities of observing the *A. flavipes* in a state of nature, and noticed that it exhibited some very curious actions while traversing the large boles and limbs of the trees, both those that were prostrate as well as those still erect: its mode of progression was more like that of the squirrel than of any other animal with which I can compare it; as it traversed the limbs in every direction by leaps, with widely spread legs, sometimes sideways, at others with the head downwards; indeed in any position in which it wished to move.

The native habitat of the *A. minutissimus* is the districts on the eastern coast of Australia, in the neighbourhood of Moreton Bay. I have specimens collected by Mr. Strange labelled with the native name of *Pimburam*.

Fur short and closely applied to the skin; the whole of the upper surface, including the tail, greyish brown, the latter being paler beneath; chin and throat pale buff; feet buffy brown; under surface of the body and legs greyish buff gradually blending with the brown of the upper surface, but the buffy tint predominating on the centre of the abdomen and vent.

	inches.
Length from the nose to the root of the tail	$2\frac{3}{8}$
„ of tail	$2\frac{3}{8}$
„ „ arm and hand	$\frac{3}{8}$
„ „ tarsi and toes	$\frac{7}{16}$
„ „ face from the tip of the nose to the base of the ear . .	$\frac{9}{16}$
„ „ ear	$\frac{1}{4}$

The figures are of the natural size.



PODABRUS MACRURUS *Gould*

Gould and H.C. Richter del et lith.

Hullmandel & Walton Imp

PODABRUS MACROURUS, *Gould.*

Large-tailed Podabrus.

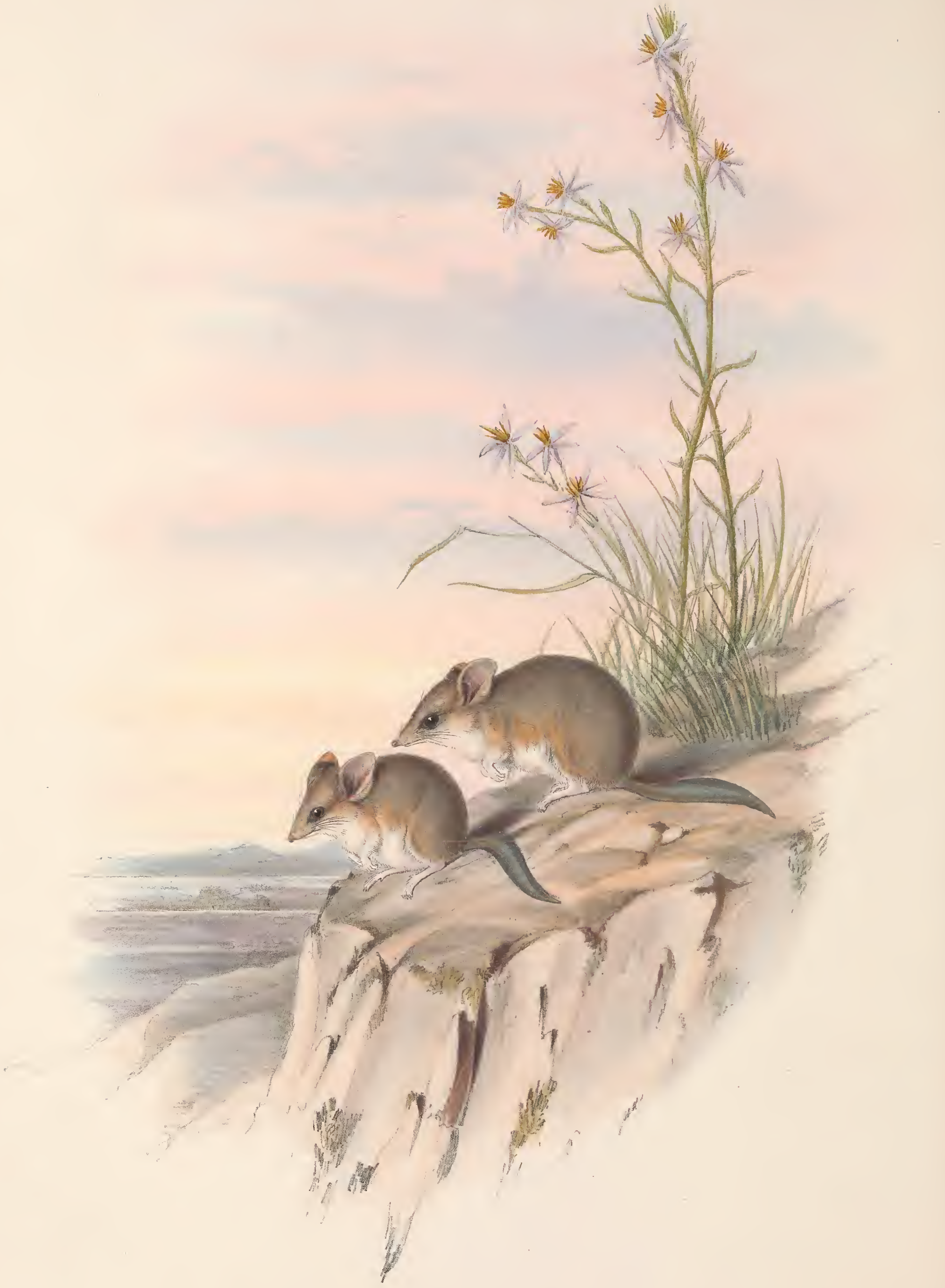
Podabrus macrourus, Gould in Proc. of Zool. Soc., Part XIII. p. 79.
Phascogale (*Antechinus*) *macroura*, Waterh. Nat. Hist. of Mamm., vol. i. p. 426.

All that I have to record respecting this new and interesting little animal, is that several specimens were procured and sent to me, accompanied with the following remarks, by Mr. Gilbert, just prior to starting on his ill-fated expedition from Moreton Bay to Port Essington.

"This is an interesting species, inasmuch as it assimilates in the large size of its tail to the little thick-tailed species (*P. crassicaudatus*) of the western coast. I found it inhabiting clumps of grass on the open plains in pairs, but I am told by an intelligent native of the Namoi that he has frequently found as many as four or five in a nest beneath a large stone, or in a dead hollow log lying on the ground. It is the *Toon-moŏ-ra-lă-ga* of the natives of the Namoi. All my specimens were obtained in the Darling Downs district. Like many others of the genus, the sexes differ very much in size; the size of the tail also varies much in different individuals, and was always very much smaller in the females."

The fur in this animal is very soft, and both on the upper and under parts of the body of a slate-grey colour next the skin; the general hue of the upper parts of the body is ashy grey, but the fur is much pencilled with black; on the sides of the body there is but little of the black pencilling, and hence the general hue is paler; and on these parts, as well as on the sides of the head, is a faint yellow tint; the under parts of the body are white, very indistinctly suffused with yellow on the mesial portion of the abdomen; between the white of the under parts and the greyish hue of the sides of the body is a narrowish space which is of an almost uniform pale yellow hue, and the same tint is observed on the outer side of the legs; the feet are white, obscurely tinted with pale yellow; on the upper surface of the head is a mark, narrow on the muzzle, but becoming expanded behind, which is almost entirely black, and immediately around the eyes the hairs are also black. The ears are of moderate size, have the posterior margin nearly straight, and are clothed internally with small pale yellowish hairs, and externally with black hairs, excepting on the hinder part, where they are pale. The tail is very thick at the base, being about $3\frac{1}{2}$ lines in diameter at this part, and becomes gradually slender to the apex; it is clothed throughout with very minute hairs, between which the scaly skin is visible; on the upper parts and sides of the tail the hairs are partly black and partly yellow, and on the under surface they are dirty white.

The figures represent the two sexes of the natural size.



PODABRUS CRASSICAUDATUS: *Gould.*

J. Gould cmd. H.C. Richter del. et lith. *Hullmandel & Walton imp.*

PODABRUS CRASSICAUDATUS, *Gould.*

Thick-tailed Podabrus.

Phascogale crassicaudata, Gould in Proc. of Zool. Soc., Part XII. p. 105.

A SINGLE specimen only of this curious little Marsupial has as yet come under my notice. This was sent me from Western Australia by Mr. Gilbert, who procured it at the Military Station on William's River. The following notes which accompanied the specimen comprise all that is at present known respecting the animal :—

"I regret to say that I have been unable to procure any information whatever respecting the habits and economy of this very curious species. It was brought into the station by a domestic cat, which is constantly in the habit of going into the bush and returning several times during the night with a small mammal or bird in her mouth; and by this means I obtained it fortunately uninjured. The most striking and singular character of this pretty little animal is the form of the tail, which it was quite impossible to skin without making an incision throughout its entire length; when the skin was removed the fat presented precisely the same appearance as that of the tail of the Beaver. From the circumstance of none of the natives recognising it, I am induced to believe it to be a very rare species. Before it was skinned its entire length was $5\frac{5}{8}$ inches; tail, $1\frac{13}{16}$; from the nose to the ear, $\frac{7}{8}$; from the nose to the eye, $\frac{1}{2}$; ear, $\frac{3}{4}$. The eyes were black, full and prominent."

Upper surface grey with a wash of yellow, and on the sides of the body distinctly tinted with reddish buff; under parts and feet pure white; tail much swollen, especially in the middle, and clothed throughout with very minute pale hairs; ears externally dark brown, with a patch of buff at the tip; internally flesh-colour clothed with minute pale hairs.

The figures represent the animal in two positions of the natural size; the specimen from which they were drawn now forms part of the collection at the British Museum.

The beautiful little flowering plant (*Calectaria cyanea*) represented in the drawing is very common in many parts of Western Australia.

SARCOPHILUS URSINUS.

J. Gould and H.C. Richter, del et lith.

Hullmandel & Walton, Imp.

SARCOPHILUS URSINUS.

Ursine Sarcophilus.

Didelphis ursina, Harris in Linn. Trans., vol. ix. p. 176. pl. 19. fig. 2.
Dasyurus ursinus, Geoff. Ann. du Mus., tom. xv. p. 305.—Temm. Mon. de Mamm., tom. i. p. 69.—Waterh. Nat. Lib. *Marsupialia*, p. 128.
Diabolus ursinus, Gray in App. to Grey's Journ. of Two Exp. to N.W. and W. Australia, p. 400. No. 12.—List of Mamm. in Brit. Mus., p. 97.
Dasyurus (*Sarcophilus*) *ursinus*, Waterh. Nat. Hist. Mamm., vol. i. p. 448.
Devil and *Native Devil* of the Colonists of Van Diemen's Land.

The Ursine Sarcophilus was one of the first of the native quadrupeds encountered by the early settlers in Van Diemen's Land, from whom its black colouring and unsightly appearance obtained for it the trivial names of Devil and Native Devil. It has now become so scarce in all the cultivated districts, that it is rarely, if ever, seen there in a state of nature; there are yet, however, large districts in Van Diemen's Land untrodden by man; and such localities, particularly the rocky gullies and vast forests on the western side of the island, afford it a secure retreat. During my visit to the continent of Australia I met with no evidence that the animal is to be found in any of its colonies, consequently Tasmania alone must be regarded as its native habitat.

In its disposition it is untameable and savage in the extreme, and is not only destructive to the smaller kangaroos and other native quadrupeds, but assails the sheep-folds and hen-roosts whenever an opportunity occurs for its entering upon its destructive errand.

Although the animal has been well known for so many years, little or nothing more has been recorded respecting it than that which appeared in the ninth volume of the Linnean Society's Transactions from the pen of Mr. Harris, who states:—

"These animals were very common on our first settling at Hobart Town, and were particularly destructive to poultry, &c. They, however, furnished the convicts with a fresh meal, and the flesh was said to be not unlike veal. As the settlement increased, and the ground became cleared, they were driven from their haunts near the town to the deeper recesses of the forests yet unexplored. They are, however, easily procured by setting a trap in the most unfrequented parts of the woods, baited with raw flesh, all kinds of which they eat indiscriminately and voraciously; they also, it is probable, prey on dead fish, blubber, &c., as their tracks are frequently found on the sands of the sea-shore.

"In a state of confinement they appear to be untameably savage, biting severely, and uttering at the same time a low yelling growl. A male and a female which I kept for a couple of months chained together in an empty cask, were continually fighting; their quarrels began as soon as it was dark (as they slept all day), and continued throughout the night almost without intermission, accompanied by a kind of hollow barking not unlike that of a dog, and sometimes a sudden kind of snorting, as if the breath was retained a considerable time and then suddenly expelled. They frequently sat on their hind parts, and used their fore paws to convey food to their mouths. The muscles of the jaws were very strong, as they cracked the largest bones asunder with ease."

Mr. Gunn remarks, that notwithstanding their comparatively small size, they are so fierce and bite so severely, that they are a match for any ordinary-sized dog.

The fur is coarse, moderate in length, and black, excepting on the head, tail and under parts of the body; a broad white band usually crosses the chest, and extends backwards on either side, more or less, over the base of the fore leg; and a second crosses the back near the root of the tail; the nose, the ears and the soles of the feet are of a fleshy pink.

Much diversity exists in the colouring of different individuals; in fact, scarcely two are found precisely alike; some being uniformly black, while others are crossed with bands of pure white; some having a white patch on the chest only, while others have a band of white stretching round the neck; and others again patches of the same hue across the fore or hind legs, or both.

Mr. Waterhouse states that a very fine specimen, which died in the menagerie of the Zoological Society, measured from the tip of the nose to the root of the tail 23 inches 9 lines; from the root to the tip of the tail 11 inches, and round the body at the chest 20 inches.

The drawing on the accompanying Plate was made by Mr. H. C. Richter, from a fine living specimen in the menagerie of the Zoological Society, and represents the animal about two-thirds of the natural size.

DASYURUS MACULATUS.

DASYURUS MACULATUS.

Spotted-tailed Dasyurus.

The Spotted Martin, Phillip's Voy. to Bot. Bay, p. 276.—Martin, Cat., pl. 46.
Viverra maculata, Shaw, Gen. Zool., vol. i. pt. ii. p. 433.
Mustela Novæ-Hollandiæ, Meyen.
Dasyurus macrourus, Geoff. Ann. du Mus., tom. iii. p. 358.—Peron et Lesueur, Voy. aux Terr. Australes, pl. 33.—Temm. Mon. de Mamm., tom. i. p. 69.—Waterh. Nat. Lib. *Marsupialia*, vol. xi. p. 139. pl. 6.
——— *maculatus*, Gray, List of Mamm. in Brit. Mus., p. 98.—Waterh. Nat. Hist. Mamm., vol. i. p. 439.

The Spotted-tailed Dasyurus is universally dispersed over every portion of Van Diemen's Land suitable to its habits and mode of life; I have also received specimens from the Liverpool Range and similar districts of New South Wales; but from no other portion of Australia have I seen examples. Rocky gullies trending from the mountain ranges through primitive forests are the favourite abode of this animal, and here, like the Pole and Martin Cats of Europe, it skulks beneath large stones and in holes of the ground; it also ascends trees with the greatest facility in pursuit of birds, which, with bandicoots and other small quadrupeds, afford it an abundant supply of food. It is a strictly nocturnal animal, and, as might be supposed, a most dreaded enemy to poultry: it is consequently regarded by the settler as one of his greatest pests.

The sexes are not distinguishable in colour, neither do the young, which are from four to six in number, materially differ in this respect; the female, however, never attains the large size of the male. It is the largest species of the genus yet discovered, and differs from all its known congeners in the spotted markings of its tail.

Mr. Waterhouse having most carefully described the colour and markings of all the members of this genus, and in many instances from specimens in my own collection, I take the liberty of transcribing the following description from his valuable work:—

"The fur is harsh to the touch, and rather short; its colour varies from a very deep brown to a rich red brown; the head is always paler than the back, and sometimes assumes a yellowish hue, being much pencilled with this pale tint; other parts of the body are more or less pencilled with yellowish, and the whole under parts of the body, as well as the fore-legs and feet, are of a dirty yellow; the upper lip, chin and throat are of a more pure yellow tint; the toes of the fore feet are yellowish; the hind legs externally, and the hind feet, scarcely differ in tint from the upper parts of the body; the tail is nearly equal in length to the head and body, cylindrical, and clothed with tolerably long and harsh hairs; its general colour is the same as that of the body, or nearly so; the ears are short, clothed internally for the most part with small yellowish hairs, but at the margin the hairs are longer, and near the anterior angle they are tolerably long; on the outer side the ears are of the same colour as the crown of the head. With regard to the white spots with which this animal is adorned, they vary considerably in different individuals, and are very irregular in size and form; they are observed on the whole of the upper parts and sides of the body; some few are also visible on the under parts and on the legs; the head is usually immaculate, or presents but two or three very small spots; the spots on the tail are often large, but never numerous."

The Plate represents a male of the natural size.

DASYURUS VIVERRINUS.

J. Gould and H.C. Richter, del. et lith.

Hullmandel & Walton, Imp.

DASYURUS VIVERRINUS.

Variable Dasyurus.

The Spotted Opossum, Phillip's Voy. to Bot. Bay, p. 147. pl. 15.
Tapoa Tafa, White, Journ. of a Voy. to New South Wales, p. 285 and pl.
Didelphis Viverrina, Shaw, Gen. Zool., vol. i. pt. ii. p. 491. pl. 111.
——— *guttatus*, Desm. Nouv. Dict. d'Hist. Nat.
Dasyurus Viverrinus et *D. Maugei*, Geoff. Ann. du Mus., tom. iii. pp. 359, 360.—Temm. Mon. de Mamm., pp. 71, 72. pl. 7. figs. 1–8, skull and lower jaw.—Watcrh. Nat. Hist. Mamm., vol. i. pp. 442, 444.—Ib. Nat. Lib. *Marsupialia*, pp. 133, 135, pl. 7.—Cat. of Mamm. in Brit. Mus. p. 97.

That the specific terms *Viverrinus* and *Maugei* have reference to one and the same animal, I had abundant opportunities of ascertaining during my residence in Van Diemen's Land; where not unfrequently litters came under my notice in which the prevailing colour of some of the young was black, and in others grey: to the former the old specific term of *Viverrinus* was applied, and to the latter the more modern one of *Maugei*.

The habits and economy of the present species are very similar to those of the Spotted-tailed Dasyurus; it also inhabits almost exclusively the same countries—Van Diemen's Land and New South Wales. During the daytime, hollow trees, holes in the rocks, and stony places form the retreats of this pretty animal; as night approaches, it becomes alert and active, and seeks for its living prey, which consists of small quadrupeds and birds without restriction to any particular species.

I believe that six will be found to be the normal number of the young, since that was the number contained in a litter I obtained in Van Diemen's Land, of which three were black, and three grey-coloured animals: the former, I am assured, are not, however, so regularly met with, and must be considered the variety. Mr. Waterhouse remarks, in his "Natural History of the Mammalia"—

"As no individuals presenting an intermediate condition of colouring are found, I at first suspected that the difference might be sexual; but such is not the case, since I have seen male specimens, both of the black and grey varieties. The former vary only from brown black to black; the under parts of the body and the feet are generally brownish. The fur on the back is grey next the skin, and that on the abdomen is also grey, but of a paler hue; the white spots on the body vary in size, some being very small, and others more than half an inch in diameter; on the head there are a few small white spots; the tail is bushy, being provided with long hairs, averaging on the basal portion about an inch in length, but of double that length at the point; on the under surface they are, however, comparatively short; in length the tail is about equal to the body; the ears are tolerably large and somewhat attenuated at the apex; they are clothed with short black hairs, which are most abundant on the outer surface, but are also plentiful on the inner surface at the point and near the anterior angle, in which latter part the hairs are considerably longer than elsewhere; the back of the ear is of a pale pink colour in the living animal, as is also the naked tip of the nose and the soles of the feet, the latter being also destitute of hair, but covered with small fleshy tubercles."

In the light-coloured animals:—"The general colour of the fur is greyish, but much suffused with yellow; each hair of the ordinary fur on the upper parts of the body is of a pale grey colour at the root, pale yellow near the point, and black at the point, and the coarser interspersed hairs have their visible portions almost entirely black; on the feet and under parts of the body the hairs are of an uniform yellowish white tint; the sides of the face are almost of an uniform pale yellow; the ears are for the most part rather sparingly clothed with pale hairs; at their base externally is a white spot; the tail is bushy, of the same general hue as the body at the base, but becomes gradually paler towards the opposite extremity, and is terminated with white or dirty yellow-white hairs."

The figures represent both states of the animal of the natural size.

J. Gould and H. C. Richter del et lith.

DASYURUS GEOFFROYI.

Hullmandel & Walton, Imp.

DASYURUS GEOFFROYI, *Gould.*

Geoffroy's Dasyurus.

Dasyurus Geoffroyi, Gould in Proc. of Zool. Soc., part viii. p. 151.—Waterh. Nat. Lib. *Marsupialia*, p. 132.—Ib., Nat. Hist. Mamm., vol. i. p. 437.—Cat. of Mamm. in Brit. Mus., p. 98.

No other species of the present genus is so widely distributed over the continent of Australia as the *Dasyurus Geoffroyi*, which inhabits the whole of the southern portion of the country from Moreton Bay on the east to Swan River on the west. Unlike the *D. Viverrinus* and *D. maculatus* which frequent the country lying between the mountain ranges and the sea, the present animal appears to be exclusively confined to the regions on the interior side of the hills, the specimens I have seen having been procured on the Liverpool Plains in New South Wales, the Murray Scrub in South Australia, and beyond the ranges of Swan River on the western coast. I have stated of the other members of this genus that they are nocturnal in their habits, but that the present is not strictly so is shown by my having encountered one at midday while silently wandering in the Murray Scrub in South Australia, which, squirrel-like, ran up to the topmost branches of a neighbouring gum-tree, whence I immediately dislodged it with my gun in order to obtain a knowledge of the species.

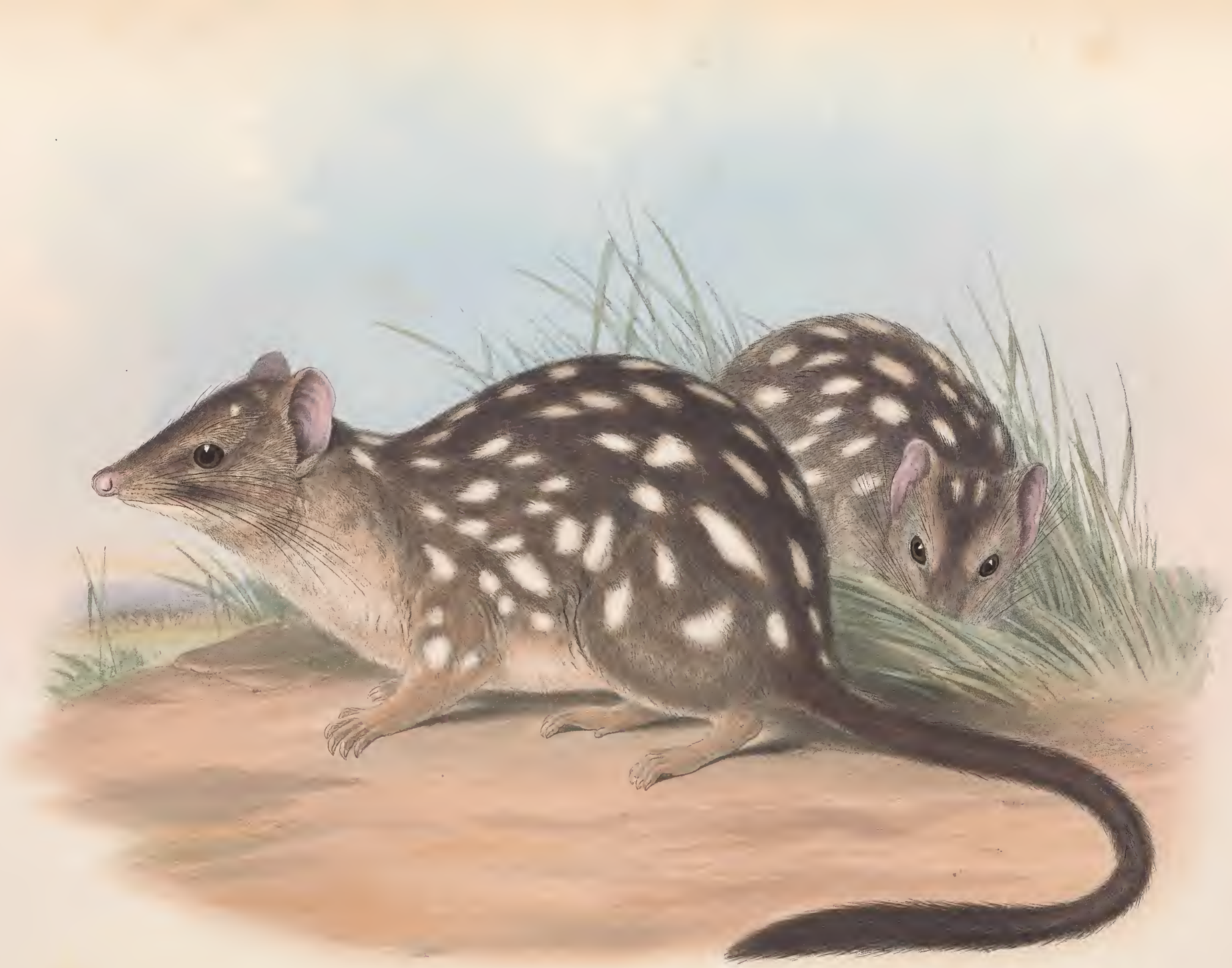
I believe that the *Dasyurus Geoffroyi* is never subject to those variations of colour so conspicuous in *D. Viverrinus*.

Its brown tail clothed with much shorter hairs than in any of its congeners is a character by which it may at all times be distinguished from either of them.

I have named this species in honour of M. Geoffroy de St. Hilaire, the eminent French naturalist, in token of respect for his valuable labours in the field of science.

"The fur is moderately long, rather soft, and on the upper part of the body of greyish hue, but much suffused with yellow, and pencilled with black; and these parts moreover, as well as the sides of the body, are adorned with numerous irregular white spots; the head has a few small white spots only, and is often of a greyer hue than other parts, but the muzzle is somewhat tinted with brownish, and in front of the eye is a dusky patch; the ears are dusky brown and clothed externally with minute blackish brown hairs; internally with longish pencilled black and grey hairs, at or near the anterior margin; but towards the apex, and on the hinder parts, the hairs are minute and brownish; the under parts of the body are white, or very nearly so; the fore feet are brownish, sometimes brownish white; the hind feet are nearly white, or greyish suffused with yellow; the tail is yellowish at the base, but much pencilled with black, the ends of the hairs being of that colour; the black gradually increases towards the tip of the tail, and usually about one-third is entirely black."

The Plate represents the two sexes of the natural size.



J. Gould. and H.C. Richter, del. et lith.

DASYURUS HALLUCATUS.

Hullmandel & Walton, Imp.

DASYURUS HALLUCATUS, *Gould.*

North Australian Dasyurus.

Dasyurus hallucatus, Gould in Proc. of Zool. Soc., part x. p. 41.—Waterh. Nat. Hist. Mamm., vol. i. p. 434.
Cat. of Mamm. in Brit. Mus., p. 98.

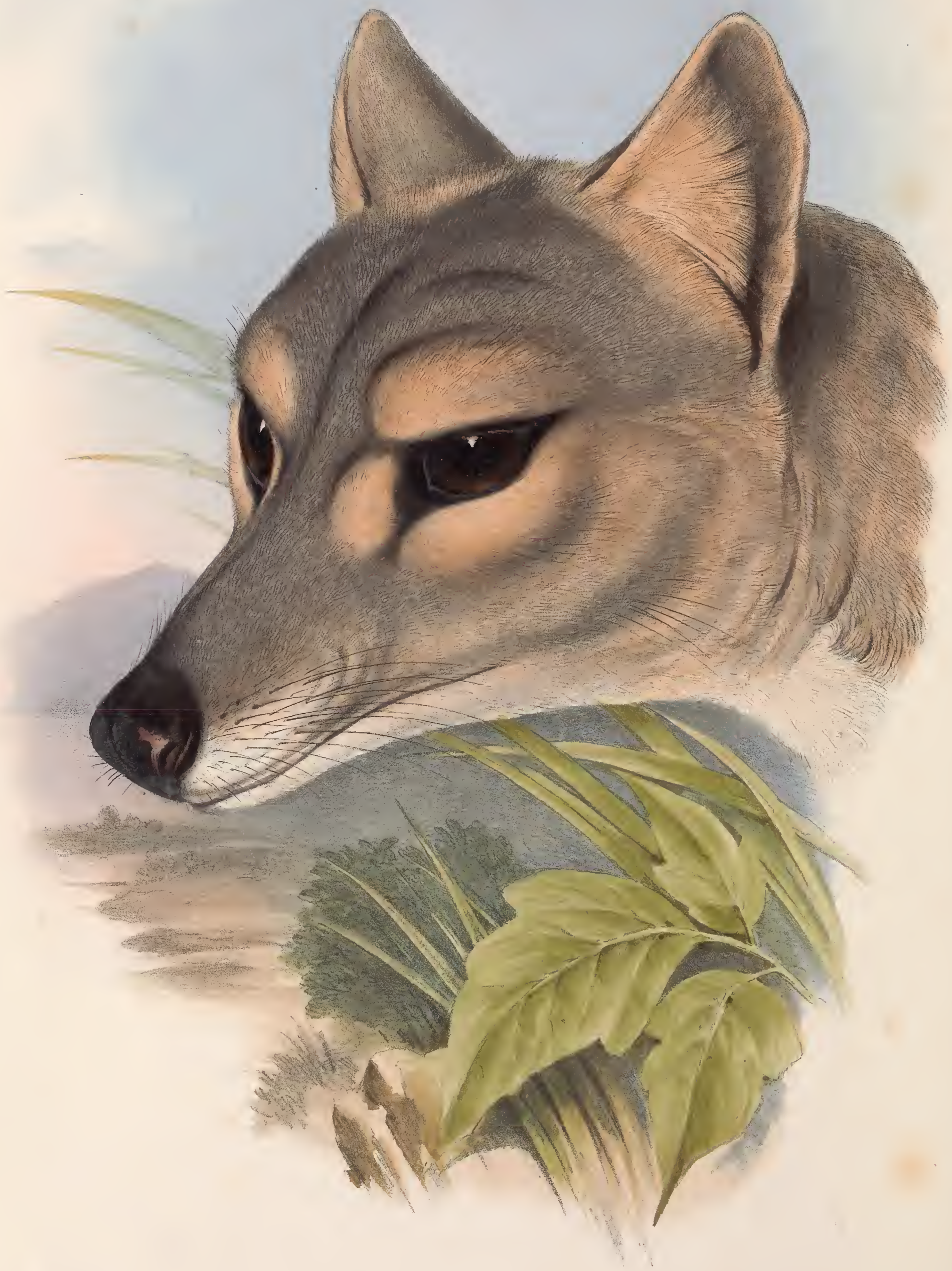
The small number of specimens of the *Dasyurus hallucatus* that have come under my notice renders it unsafe for me to affirm that it is or is not subject to the variations in colour which are observable in *D. Viverrinus*; but I have reason to believe that such is the case. All the examples that have yet been sent to Europe have been procured in the extreme northern portion of the Australian continent, and the greater number of them from the Port Essington Settlement on the Cobourg Peninsula.

Mr. Waterhouse having instituted a very careful examination and comparison of this animal with the other members of the genus, I cannot do better than give his remarks verbatim from his "Natural History of the Mammalia," above referred to.

"This is the smallest species of the true Dasyures, being a trifle less than *D. Viverrinus* or *D. Geoffroyi*; with the latter animal it might be confounded, having like it a thumb to the hind feet; upon a close examination, however, I discovered several characters by which it might be easily distinguished. It is of smaller size than *D. Geoffroyi*, of a darker colour; with the ears of a paler colour and clothed with pale hairs; the longer hairs which cover the root of the ear externally are whitish; the toes of the hind foot are longer, since I found them to be seven lines in length in *hallucatus*, and only six and a quarter in a specimen of *Geoffroyi*, which was of the same sex and of considerably larger size; and, lastly, I find the whole sole, both of the fore and hind feet in *D. Geoffroyi*, covered with minute but distinct fleshy tubercles, as is also the case in *D. Viverrinus*; while in *D. hallucatus* I could scarcely perceive a trace of tubercles; and the fleshy pads at the base of the toes and elsewhere, on which the tubercles were most distinct in *Geoffroyi*, are covered with numerous oblique or transverse grooves; the pads, moreover, at the base of the toes, were much narrower and proportionately longer."

"The fur is less dense and harsher than in *D. Geoffroyi*; the upper parts of the body dusky brown, inclining to black, but pretty freely pencilled with yellowish, and having numerous, irregular and moderate-sized white spots, which extend likewise on the sides of the body; on the crown of the head are a few very small white spots; the under parts of the body are white, but suffused with yellowish; most distinctly so about the throat; the cheeks, a large patch above the eye, and the sides of the body are greyish; ears pinkish flesh colour, thinly clothed with small pale-coloured hairs; immediately at the base externally the hairs are longer and dense, and of a yellowish white colour, and the part of the head immediately adjoining the root of the ear has similar pale hairs; the tail is immaculate, cylindrical, clothed throughout with longish harsh hairs, but by no means bushy; the basal third is brownish, but considerably pencilled with black, and the remaining two-thirds almost entirely black; the feet are brownish, and the region of the pouch is clothed with very dark red hairs appearing as if stained with blood."

The figures are of the natural size.



H. C. Richter, del. et. lith.

THYLACINUS CYNOCEPHALUS.

Hullmandel & Walton, Imp.

THYLACINUS CYNOCEPHALUS.

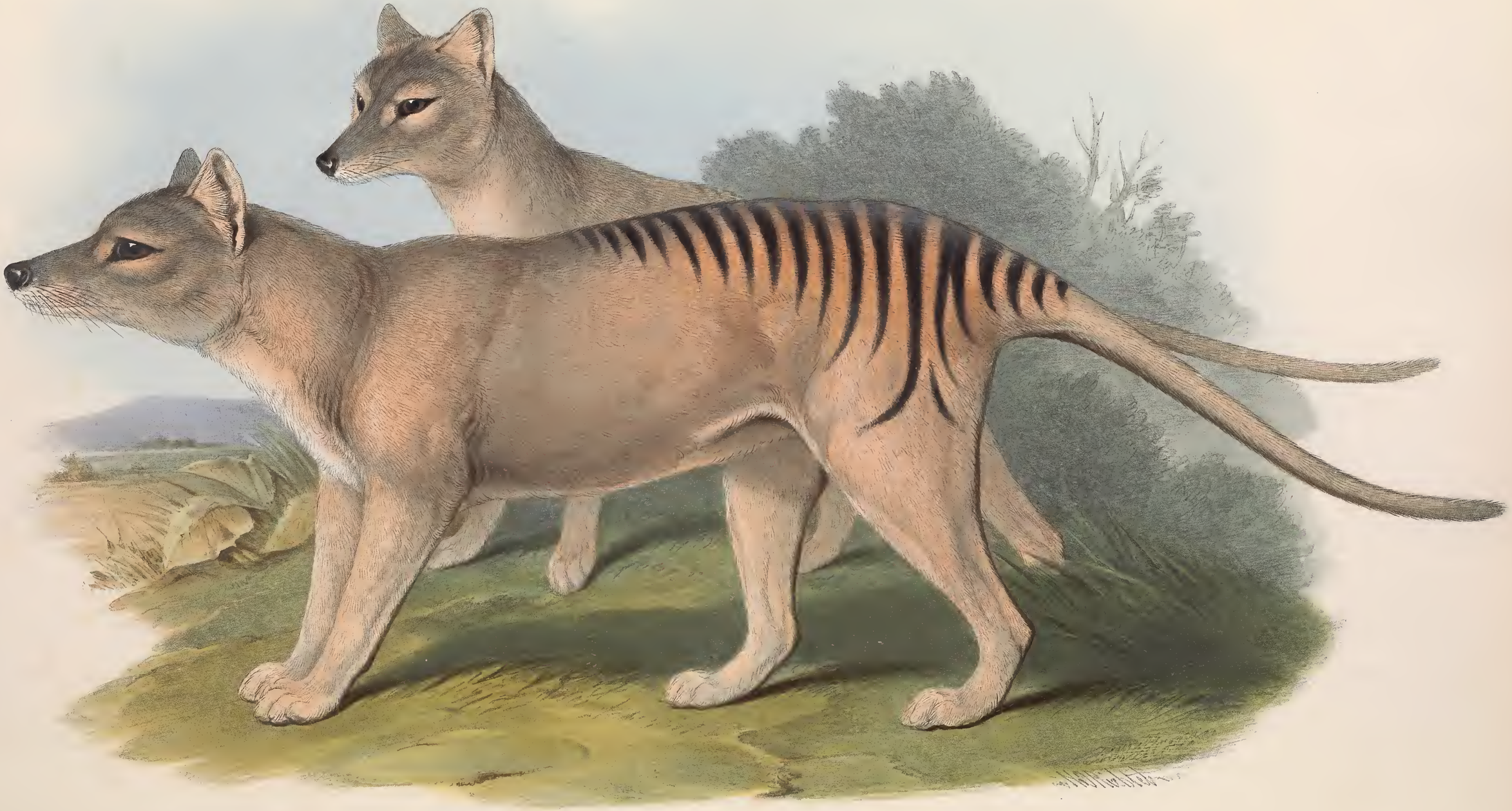
Thylacinus.

HEAD, OF THE SIZE OF LIFE.

WHEN the comparatively small island of Tasmania becomes more densely populated, and its primitive forests are intersected with roads from the eastern to the western coast, the numbers of this singular animal will speedily diminish, extermination will have its full sway, and it will then, like the Wolf in England and Scotland, be recorded as an animal of the past: although this will be a source of much regret, neither the shepherd nor the farmer can be blamed for wishing to rid the island of so troublesome a creature. A price is already put upon the head of the native Tiger, as it is called; but the fastnesses of the Tasmanian rocky gullies, clothed with impenetrable forests, will, for the present, preserve it from destruction.

I trust my readers will duly estimate the life-sized head, taken from the living animal.

For all that is known respecting the *Thylacinus cynocephalus*, the reader is referred to the account given with the reduced figures.



H·C·Richter, del. et lith.

THYLACINUS CYNOCEPHALUS.

Hullmandel & Walton, Imp.

THYLACINUS CYNOCEPHALUS.

Thylacinus.

Didelphis cynocephala, Harris, Trans. Linn. Soc., vol. ix. p. 174. pl. 19.
Dasyurus cynocephalus, Geoff. Ann. du Mus., tom. xv. p. 304.
Thylacinus cynocephalus, Fisch. Syn. Mamm., p. 270.—Wagn. in Schreb. Saug. Supp., 109-110 Heft, p. 19.—Waterh. Nat. Lib. (Marsupialia), vol. xi. p. 123. pl. 5.—Ib. Nat. Hist. Mamm., vol. i. p. 456. pl. 16. fig. 2.
Thylacinus Harrisii, Temm. Mon. de Mamm., vol. i. p. 63. pl. 7. figs. 1-4.
Peracyon cynocephalus, Gray, List of Mamm. in Brit. Mus., p. 97.
Tiger, Hyæna, Zebra-Opossum, Zebra-Wolf, and *Dog-headed Opossum* of the Colonists.

The circumstance of a fine pair, male and female, of the *Thylacinus cynocephalus* being now living in the Gardens of the Zoological Society in the Regent's Park, enables me to give the best figure of the animal that has yet appeared; and so great is the interest which attaches to this singular species, that I have been induced to give a representation of its head of the natural size, in addition to that of the entire animal on a reduced scale. Tasmania, better known as Van Diemen's Land, is the country it inhabits, and so strictly is it confined to that island, that I believe no instance is on record of its having been found on the neighbouring continent of Australia. It must be regarded as the most formidable, both of the Marsupialia and of the indigenous mammals of Australia; for although too feeble to make a successful attack on man, it commits sad havoc among the smaller quadrupeds of the country, and among the poultry, and other domestic animals of the settler; even sheep are not secure from its attacks, which are the more difficult to be guarded against, as the habits of the animal being nocturnal, they are always made at night. The destruction it deals around has, as a matter of course, called forth the enmity of the settler, and hence in all cultivated districts the animal is nearly extirpated; on the other hand, so much of Tasmania still remains in a state of nature, and so much of its forest land yet uncleared, that an abundance of covert still remains in which the animal is secure from the attacks of man; many years must therefore elapse before it can become entirely extinct; in these remote districts it preys upon *Halmaturus Billardieri* and *H. Bennetti*, *Bandicoots*, *Echidnæ*, and all the smaller animals.

In confinement it is excessively shy, and on being alarmed dashes and leaps about its cage in the most violent manner, uttering at the same time a short guttural cry resembling a bark; but whether this sound is also emitted in a state of nature, has not been observed. Mr. Ronald C. Gunn, who has had better opportunities than any other scientific man of observing the animal in its native wilds, states that it is common in the more remote parts of the colony, and that it is often caught at Woolnooth and the Hampshire Hills. He has seen some so large and powerful, that a number of dogs would not face one of them. Its attacks on sheep are usually made by night, but it also prowls about in the day-time, when, perhaps from its imperfect vision by day, its pace is very slow.

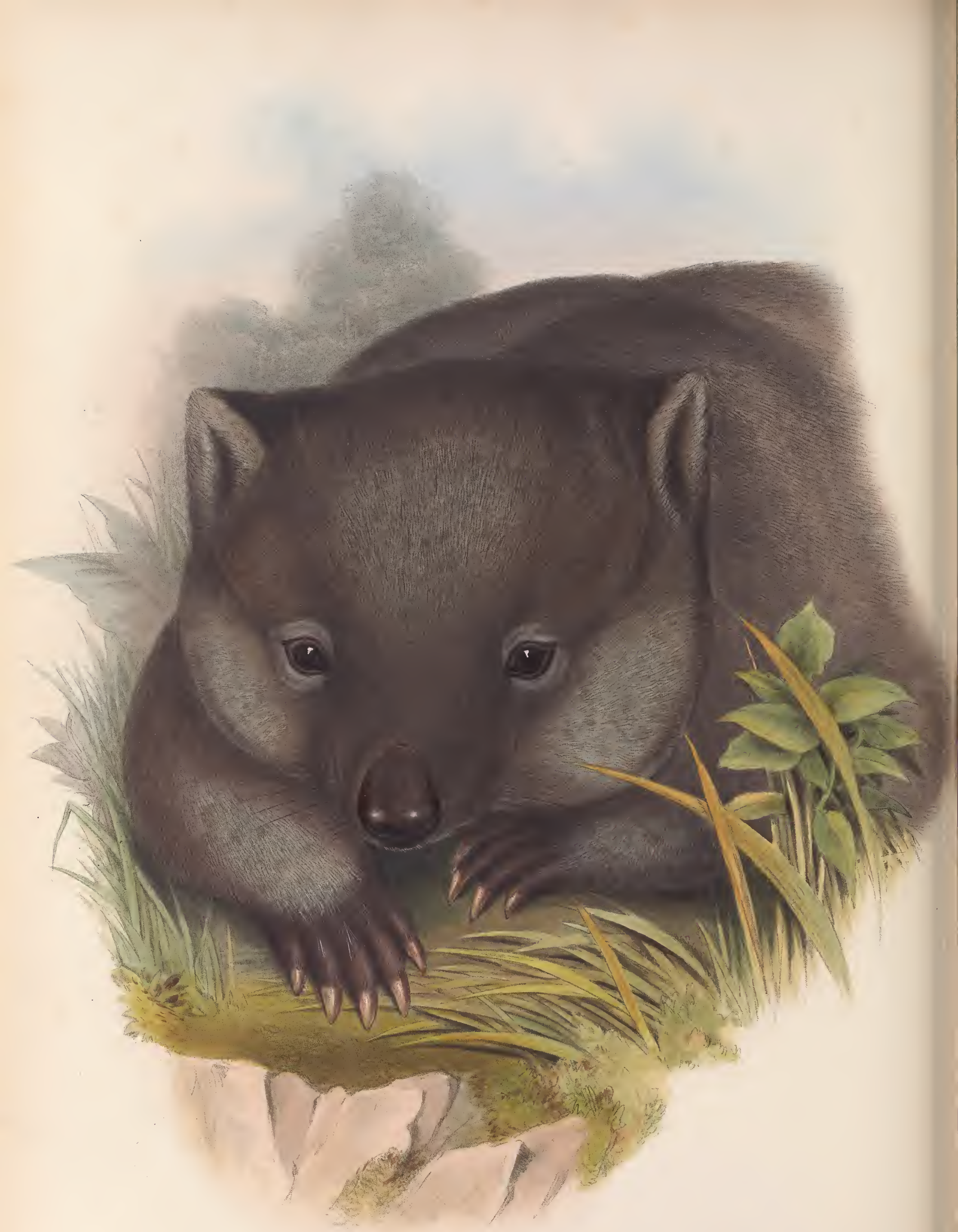
Mr. Harris, to whom we are indebted for our first knowledge of the animal, states that it dwells among caverns and rocks in the deep and almost impenetrable glens in the neighbourhood of the highest mountains of Van Diemen's Land. The specimen from which his description was taken, was caught in a trap baited with kangaroo's flesh; it remained alive but a few hours, having received some internal hurt while being secured; it appeared exceedingly inactive and stupid, and, like the Owl, kept almost continually moving the nictitating membrane with which the eye is furnished: the remains of an Echidna were found in its stomach.

In a letter lately received from Mr. Gunn by D. W. Mitchell, Esq., Sec. Zool. Soc., dated Launceston, Nov. 12, 1850, the following note occurs respecting the specimens in the Society's menagerie:—

"I feel little doubt but that the Thylacines will do well and very probably breed; the number of young is four at a litter—at least I have seen four in the female's pouch, but there may often be fewer. They inhabit the summits of the western mountains (alt. 3500 feet), where, occasionally, snow falls for many months of the year, where the ground is sometimes covered with snow for weeks, and where frosts are severe; therefore I can imagine nothing in the climate of London likely to injure them very materially."

The fur is short, and closely applied to the skin, though of a somewhat woolly texture, owing to each of the hairs of which it is composed being waved; the general tint is greyish brown, but faintly suffused with yellowish; on the under parts of the body of a paler hue than the upper; the fur of the back is of a deep brown colour next the skin, and each hair, excepting those which form the transverse black bands, is yellowish brown towards and dusky at the point; on the abdomen the hairs are of a paler brown at the root, and brown white externally; the black bands are usually about fourteen in number; they commence immediately behind the shoulders and are at first narrow and confined to the back, but, proceeding towards the tail, they become gradually broader and are more extended on the sides; those on the haunches are longest and often forked at their extremities; the general tint of the head is rather paler than that of the body, and the region of the eye is of a whitish hue, but a dark spot is observable at the anterior angle of the eye, and a narrow dark line runs over the eye; the muzzle is dusky, the edge of the upper lip white; the eye is large, full, and of a blackish brown; long black bristles spring from the upper lip, a few also occur on the cheeks, and above the eyes; the limbs externally and the feet scarcely differ in colour from the body; the tail is clothed at the base with a somewhat woolly fur like that of the body, crossed by three or four black bands, but about the commencement of the second fourth of the tail the hairs become short and harsh, closely applied to the skin, brown on the upper surface and pale brown beneath; on the under surface of the apical portion of the tail the hairs are comparatively long, as well as at the point where they are blackish.

The animals are figured in life-like positions, but necessarily much reduced; the figure of the head represents that of the male of the natural size.



PHASCOLOMYS WOMBAT, *Per. et Les*

J.Gould. and H.C.Richter, del. et lith. *Hullmandel & Walton, Imp*

PHASCOLOMYS WOMBAT, *Pér. et Les.*

Wombat.

HEAD, OF THE SIZE OF LIFE.

I WISH it to be understood that, an interval of eighteen years having passed away between the commencement and termination of the present work, there may be some instances in which opinions expressed in years gone by now require modification. When I published the reduced figures of this animal, I remarked that it was uncertain whether there was more than one species of the genus *Phascolomys*. I now, in 1863, feel confident that there are three, if not four, quite distinct Wombats—one inhabiting Tasmania, or Van Diemen's Land, and certainly two, if not three, the opposite portion of the Australian continent.

The life-sized portrait given on the opposite Plate was taken from a Van Diemen's Land animal. It will be seen that it is very dark in colour—a feature common, I believe, to most of the specimens in that island; I have, however, heard of lighter-coloured examples being occasionally seen, but none have come under my own observation. It will be observed that, independently of the difference of colour, it is a small animal when compared with *P. latifrons*. I would call the attention of Professor M'Coy and others who have opportunities of studying the Wombats in their native country to the importance of investigating their history, since it is to them that the mammalogists of Europe must look for accurate information on the subject: and this should be done speedily; for, like the Badger in England, these large and singular Marsupials will soon become scarce.

My figure was taken from an individual which lived for many years in the menagerie of the Zoological Society of London.

PHASCOLOMYS WOMBAT, *Per et Les.*

J.Gould and H.C. Rechter, del. et lith. *Hullmandel & Walton, Imp.*

PHASCOLOMYS WOMBAT, *Per.* et *Les.*

Wombat.

Phascolomys Wombat, Peron et Lesueur, Voy. aux Terres Australes, Atlas, tab. 28.—Desm. Mamm., part i. p. 276.—Waterh. in Jard. Nat. Lib. Mamm., vol. x. p. 300.—Ib. Nat. Hist. of Mamm., vol. i. p. 246.—Gunn in Proc. of Roy. Soc. of Van Diem. Land, vol. ii. p. 85.
———— *fossor*, Sevastianoff in Mém. de l'Acad. Imp. de St. Pétersb., tom. i. p. 444.
———— *wombatus*, Leach, Zool. Misc., vol. ii. p. 101. pl. 96.
———— *fusca*, Desm. Dict. des Sci. Nat., tom. xxv. p. 500. tab. G 44. fig. 1.
———— *Bassii*, Less. Man. du Mamm., p. 229.
———— *ursinus*, Gray, List of Mamm. in Coll. Brit. Mus., p. 95.
Didelphis ursina, Shaw, Gen. Zool., vol. i. part ii. p. 504.
Wombatus fossor, Geoff.
Opossum hirsutum, Perry, Arcana.
Amblotis fossor, Ill. Prod., p. 77.
Perameles fossor, Peron.
Womback, Bewick's Quadr., 6th Edit. p. 522.
Wombat, Collins's Account of New South Wales, vol. ii. p. 153, and plate at p. 157.
Badger, of the Colonists.

The Wombat may be regarded as one of the most curious of the Australian Mammals, ranking as it does, in respect to its anomalous structure and appearance, with the Koala and Ornithorhynchus. In no other part of the world is the form to be found, and it is difficult to say of which of the great groups of placental animals it is the representative in its own class—the *Marsupiatæ*. I obtained several examples in Van Diemen's Land, but failed in procuring continental specimens, which I regret, because it leaves the question as to there being more than one species of this form still undecided; nor can this point be determined until specimens from South Australia have been sent to Europe, or until comparisons have been made in that country by a naturalist competent to set the question at rest. Professor Owen informs us that a skull in the Collection of the Royal College of Surgeons, sent from South Australia, offers sufficient differences from skulls from Van Diemen's Land to convince him that there are at least two species; and when such a statement is made by so high an authority, the doubt that exists on the subject is much diminished. Mr. Waterhouse also states, that in his opinion the continental species will prove to be distinct from the animal found in Van Diemen's Land and the islands in Bass's Straits. I may mention also that His Excellency Sir George Grey has placed in my hands a pencil drawing of the head of a specimen killed in South Australia, to which, from the great breadth of the head, the name of *latifrons*, proposed by Professor Owen for the continental animal, might apply. There appears, therefore, good reasons for concluding that the continental animal is really distinct; but the question still remains an open one, and it is much to be regretted that both skins and skeletons have not been sent home, for its proper elucidation. After what has been stated, it is almost superfluous to say, that my figure was taken from a specimen procured in Van Diemen's Land, where the animal, particularly in certain districts, is extremely common. I met with it myself in the neighbourhood of Port Arthur, in the sterile districts behind Mount Wellington, and in many other situations where a similar character of country prevails. It is also found in the islands in Bass's Straits, where the specimen first described, in "Collins's Voyage," vol. ii. p. 153, was procured. In its habits it is nocturnal, living in the deep stony burrows, excavated by itself, during the day, and emerging on the approach of evening, but seldom trusting itself far from its stronghold, to which it immediately runs for safety on the appearance of an intruder. The natives state, however, that it sometimes indulges in a long ramble, and, if a river should cross its course, quietly walks into the water and traverses the bottom of the stream until it reaches the other side; but I am unable to confirm this statement from personal observation. In its disposition it is quiet and docile in the extreme, soon becoming familiar with and apparently attached to those who feed it; as an evidence of which, I may mention that the two specimens which are now (1855), and have been for a long period, living in the Gardens of the Zoological Society in the Regent's Park, not only admit the closest inspection, but may be handled and scratched by all who choose to make so intimate an acquaintance with them. The following notes are from the pens of various authors who have written on the Wombat; the earliest of whom was Mr. Bass, in "Collins's Voyage" above referred to.

"The *Wombat*," says Mr. Bass, "is a squat, thick, short-legged, and rather inactive quadruped. Its figure and movements strongly remind one of those of a Bear; its pace, too, is hobbling or shuffling, and not unlike the awkward gait of that animal. In disposition it is mild and gentle, but it bites hard and becomes furious when provoked, and then utters a low cry between a hissing and a whizzing sound, which

cannot be heard at a greater distance than thirty or forty yards." Mr. Bass chased one of these animals, lifted it off the ground and laid it along his arm, as if carrying a child. It made no noise, nor any effort to escape, not even a struggle. Its countenance was placid and undisturbed, and it exhibited no discomposure, although in the course of a mile walk it was frequently shifted from arm to arm, and sometimes laid over the shoulder; when, however, he proceeded to secure it by tying its legs, while he left it to cut a specimen of a new wood, it became irritated, whizzed, kicked and scratched most furiously, and snapped off a piece from the elbow of Mr. Bass's jacket with its powerful incisors. Its temper being now ruffled, it remained implacable all the way to the boat, ceasing to kick and struggle only when quite exhausted.

Mr. G. Bennett in his "Wanderings," speaking of one of these animals, kept in a state of domestication at Been in the Tumat country, states that "it would remain in its habitation till dark; it would then come out and seek for the milk-vessels, and should none be uncovered, it would contrive to get off the covers and bathe itself in the milk, drinking at the same time. It would also enter the little vegetable garden attached to the station in search of lettuces, for which it evinced much partiality. If none could be found, it would gnaw the cabbage stalks, without touching the leaves. Although this animal is very numerous in the more distant parts of the colony, it is difficult to procure from the great depth to which it burrows."

"The specimen dissected by Sir Everard Home," says Mr. Waterhouse, "and which was brought from one of the islands in Bass's Straits by Mr. Brown, the eminent botanist, lived as a domestic pet in the house of Mr. Clift for two years. This animal was a male, measured two feet and two inches in length, and weighed about twenty pounds. The observations made by Sir Everard Home on the habits of this animal whilst in confinement, correspond pretty closely with those already given. 'It burrowed in the ground whenever it had an opportunity, and covered itself in the earth with surprising quickness; it was very quiet during the day, but constantly in motion in the night; was very sensible to cold; ate all kinds of vegetables, but was particularly fond of new hay, which it ate stalk by stalk, taking it into its mouth, like a Beaver, by small bits at a time. It was not wanting in intelligence, and appeared attached to those to whom it was accustomed, and who were kind to it. When it saw them it would put up its fore paws on their knees, and when taken up would sleep in the lap. It allowed children to pull and carry it about, and when it bit them, it did not appear to do it in anger or with violence.'"

This animal, like almost every other of the Australian quadrupeds, is eaten by the natives, but as an article of food it must give place to the Kangaroo and its affines. I partook of it myself, but always found its flesh tough, with a musky flavour, and not altogether agreeable.

Mr. Bass remarks that the size of the two sexes is nearly the same, but that the female is somewhat the heavier, and such appears to be the case; the weight, whenever ascertained, being always in favour of the female.

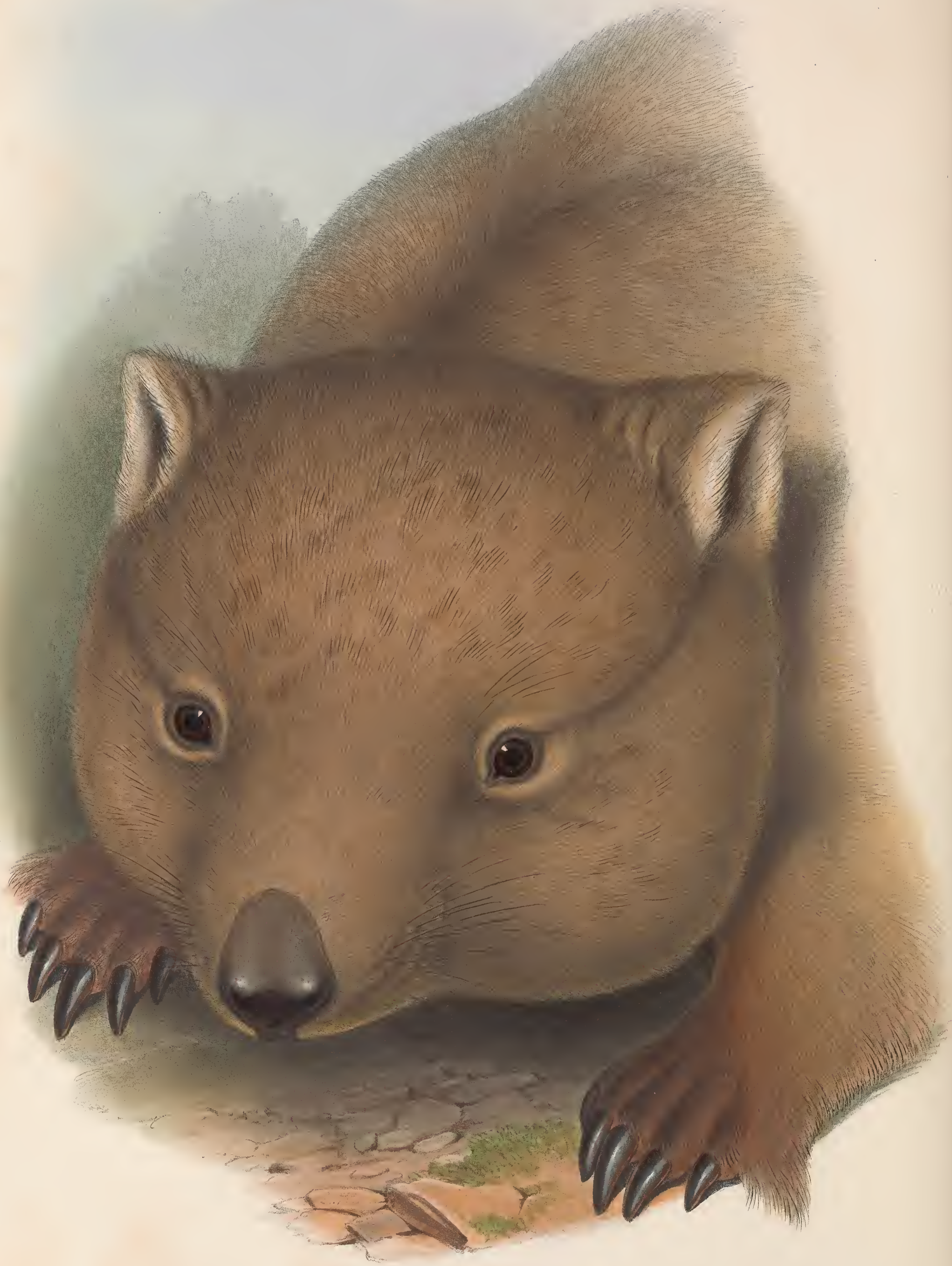
In Mr. Gunn's paper on the Mammals indigenous to Tasmania, published in the "Proceedings of the Royal Society of Van Diemen's Land," above referred to, that gentleman states that—"The Wombats of Tasmania differ much in colour in different localities, some being dirty black, and others of a silvery grey. They are found on the tops of the mountains, and thence to the sea-coasts; and are very numerous in some localities, 234 having been killed in less than a year upon a farm, at present occupied by me, on the St. Patrick's River."

For the details of the internal structure of this curious animal, I must refer my readers to the "Leçons d'Anatomie Comparée" of the celebrated Cuvier, and to the writings of our equally well-known countrymen, Sir Everard Home, in the "Philosophical Transactions" for 1808, and Professor Owen, in the "Proceedings of the Zoological Society" for 1836. The original memoir of the latter author, on *Phascolomys latifrons*, will be found in the "Proceedings" of the same Society for 1845.

The general hue of the tolerably long and very coarse fur of this animal is grey-brown; next the skin, the hairs of the ordinary fur of the upper surface are dusky brown, with the exposed portion of a dirty white, but the longer and coarser hairs are black at the point; on the under surface the hairs are dusky at the root, and dirty white for the remainder of their length, the general hue being paler than that of the upper surface; the muffle is naked and black; the small pointed ears are well clothed with hairs; the legs are short and strong, and the feet broad, naked beneath, and covered with minute, round, fleshy tubercles; the claws are large; those of the fore feet solid, or not concave beneath, slightly curved and depressed; those of the hind feet are curved, slightly compressed, and concave beneath; the hairs of the moustaches are numerous, strong and black, as are also some long bristly hairs which spring from the cheeks; the tail is a mere tubercle, and is hidden by the fur.

"The skeleton," says Mr. Waterhouse, "presents certain peculiarities well worthy of attention: the number of its ribs, and consequently of its dorsal vertebræ, is unusually large, being fifteen, whilst twelve or thirteen are usually found in the Marsupialia; the body of the atlas vertebra remains permanently cartilaginous; the humerus, besides having the inner condyle perforated, has an opening between the condyles; and the patella, or knee-bone, is wanting."

The Plates represent the head of the natural size, and the entire animal considerably reduced.



PHASCOLOMYS LATIFRONS, *Owen.*

J.Gould and H.C.Fischter, del. et lith

Hullmandel & Walton, Imp

PHASCOLOMYS LATIFRONS, *Owen.*

Broad-fronted Wombat.

HEAD AND FORE FEET, OF THE SIZE OF LIFE.

For many years the skull of a distinct species of Wombat, from the southern portion of Australia, has formed part of the collection at the Royal College of Surgeons of England, in Lincoln's Inn Fields. To the animal to which this skull belonged Professor Owen applied the name of *Phascolomys latifrons*. On the receipt by the British Museum of a skin of an apparently second species of Wombat from Victoria or Adelaide, I came to the conclusion that it was the skin of the animal characterized by Professor Owen,—a point which could have been easily determined had the skull been sent with the skin, but unfortunately it was destitute of this very important appendage: in other words, the skull at the College of Surgeons arrived without the skin, and the skin at the British Museum without the skull. I have little doubt, however, of my having applied the term *latifrons* to the right animal.

The accompanying head was taken from the skin in the British Museum, above alluded to, and is of the size of life; it will be seen that it differs very considerably in colour from the *P. Wombat* so common in Tasmania.

PHASCOLOMYS LATIFRONS, *Owen*

J.Gould and H.C.Richter del et lith.

Hullmandel & Walton, Imp.

PHASCOLOMYS LATIFRONS, *Owen.*

Broad-fronted Wombat.

Phascolomys latifrons, Owen in Proc. of Zool. Soc., part xiii. p. 82.—Waterh. Nat. Hist. of Mamm., vol. i. p. 252.

When I attempted to write the history of the *Phascolomys Wombat* in the preceding page of this work, no authenticated specimen from the continent of Australia existed in our museums, and I then stated that the question of there being more than one species of this form must remain in doubt for the present, this remark having special reference to the species characterized from a skull by Professor Owen, under the name of *latifrons*; but during the present year, the skin of a large Wombat from the southern parts of the continent of Australia has arrived in this country, unfortunately "sans teeth, sans skull, sans everything" that could have settled the question as to there being one or two species; if, however, we may judge from the skin, much difference exists between the island and continental animals. In size, this skin, which is now in the British Museum, far exceeds all others I have seen; in colour too it is equally distinct; for while most of the specimens from Tasmania are either black, brown, or greyish brown, that from Victoria is of a light sandy buff or isabelline colour. I cannot then do otherwise than give a figure of this skin, which I presume to be an example of Professor Owen's *Phascolomys latifrons*. Surely some of the collectors in South Australia or Victoria will forward specimens to Europe, and not leave zoologists still in doubt respecting the existence or non-existence of a second species.

"Of the Broad-fronted Wombat," says Mr. Waterhouse, "all that is known is a skull sent from South Australia to Professor Owen. This skull presents so many marked differences when compared with that of the *Phasc. Wombat*, that no doubt can be entertained of the existence of two distinct species of Wombats. I have sought in vain, however, amongst the specimens of Wombats contained in our museums, for an animal which might be identified with Professor Owen's new species. In none have I found the incisor teeth presenting the broadest surface in front, a peculiarity in which the *P. latifrons* differs from *P. Wombat*, where the broadest part of the incisor is at the side. The new species differs moreover in having the upper incisors distinctly broader than the lower, whilst in the Common Wombat the upper and lower incisors are very nearly equal in width, when viewed in front. The following points of distinction presented by the skull of *P. latifrons*, when compared with that of *P. Wombat*, are for the most part pointed out in some notes from the pen of Professor Owen, who has kindly placed them at my disposal:—

"'The skull of *Phasc. latifrons* is rather smaller and broader in proportion to its length; the upper incisors have a semi-oval, transverse section; the convex enamelled surface directed more forward, and longitudinally substriated. The lower incisors narrower, trihedral, with the enamelled outer surface flat. The first lower molar tooth relatively larger, the last relatively smaller. The lower jaw is shorter, more suddenly curved behind, and has the symphysis deeper; the intermaxillary part of the skull is higher in proportion to the width, and less convex externally; the palate is less contracted between the foremost molars, and the palatine portion of the intermaxillaries is wider and very concave. The nasal bones are broader, forming the whole upper surface of the anterior third of the skull. The interorbital part of the cranium is much broader, and presents a well-marked supraorbital ridge and postorbital processes, both of which are almost obsolete in *Phasc. Wombat*. The temporal fossæ are not bounded, as in the last-mentioned animal, by two nearly parallel ridges, but are continued by a convex tract to the upper surface of the cranium; and the supratympanic depression is much larger.'"

This, like most other Australian quadrupeds, forms an article of food, its flesh being brought to market for the supply at least of the Celestial part of the mixed population of that country, as will be seen by the following extract from the "Ovens and Murray Advertiser":—

"A Novelty.—We happened a few days ago to walk through one of the Chinese camps, and were attracted by a crowd of mixed people standing outside the shop of a Celestial butcher who lives in Joss-house-street, main encampment. Taking a place among the assemblage, we beheld, tethered to the door-frame, a full-grown Wombat, which was ever and anon turned and hauled about by some one of the bystanders. One Chinaman, more curious than the rest of his fellows, put the animal through its 'facings;' and after spending some time in stroking down its back, examining its hair and pinching its sides, he lifted the round plump body of the Wombat on its fore legs, and viewed it all over. The act was received by his countrymen as a capital joke, setting them all laughing, accompanied by a sing-song sonorous 'yabber' that we did not understand. When it had subsided, we moved out of the heterogeneous group, and observed on an adjoining table pieces of strange-looking meat. We made inquiry, and learned that the flesh was pieces of Wombat offered for sale by the Chinese victualler."

The accompanying Plates represent the head of the natural size, and the entire animal much reduced.

PHASCOLOMYS LASIORHINUS, *Gould*

H.C.Richter, del et lith.

Walter & Cohn, Imp.

PHASCOLOMYS LASIORHINUS, *Gould.*

Hairy-nosed Wombat.

HEAD, OF THE SIZE OF LIFE.

THIS full-sized representation of the head of this new and highly interesting species of Wombat has been executed partly from a fine drawing sent to me by Professor M'Coy, of Melbourne, and partly from an example now in the Gardens of the Zoological Society. This living animal exhibits a fleshy muzzle, partially covered with fine white hairs, through which the pink flesh-tint shows very conspicuously. Mr. Bartlett, the superintendent, informs me that, after carefully comparing Professor M'Coy's drawing with the Society's animal, he has no doubt of its having been made from an example identical in species.

For further particulars respecting the *Phascolomys lasiorhinus*, the reader is referred to the interesting notes by Mr. Angas and Professor M'Coy, which will be found in the next page.

PHASCOLOMYS LASIORHINUS, *Gould*

J Wolf and H C Richter del et lith. *Walter & Cohn Imp.*

PHASCOLOMYS LASIORHINUS, *Gould.*

Hairy-nosed Wombat.

The arrival in this country of two or three living examples of a species of Wombat with the very remarkable character of a hairy muzzle has naturally excited as much interest among our own naturalists as its recent discovery had done among those of Australia. Both Mr. Angas and Professor M'Coy have forwarded lengthened papers respecting it for publication in the 'Proceedings of the Zoological Society of London,' and both those gentlemen were of opinion that the new Wombat was identical with the *P. latifrons* of Owen, who many years since had applied that specific term to a skull in the Museum of the Royal College of Surgeons in Lincoln's Inn Fields, but of which no skin had ever been received; and notwithstanding what I have said in my account of the preceding species, I should have considered that Mr. Angas and Professor M'Coy were correct in their conclusion, had not one of the animals sent to this country died, and thus afforded an opportunity of comparing its skull with that in the College Museum above mentioned. On this being done, it was found that the two skulls did not agree; and I believe I am at liberty to say that Mr. Flower, who has charge of the collection, is of opinion that they could never be considered as belonging to the same species. Under these circumstances, I had no alternative but to give the Hairy-nosed Wombat a distinctive specific appellation; and, at the suggestion of Dr. Sclater, I have assigned to it that of *lasiorhinus*. This course, however, will not prevent me from giving the remarks of my friends M'Coy and Angas, which indeed will have the more interest as descriptive of this new and extraordinary animal.

"I have lately," says Mr. Angas, "had an opportunity of examining a living full-grown male example of a Wombat, in the Botanical Gardens in Adelaide, which, on comparing it with adult specimens of the Tasmanian Wombat, I find to be quite distinct from that species."

"The fur of the latter is very rough and coarse, of a dark grizzly grey; ears quite small, blackish brown outside, whitish internally; nose nearly black, and more pointed than that of the former, giving to the face an expression slightly resembling the 'Koala,' whereas the other presents a bold, bull-dog-like aspect from the greater expansion of his face and width of nostrils. The general aspect of *P. Wombat* is more bear-like: in standing, it arches its back considerably, and does not hold its head so erect; the expression of the eye, too, is decidedly fierce, and lacks the good-natured twinkle of the South Australian species.

"The specimen in the Adelaide Botanical Gardens was caught some twelve months since near the Gawler River, about thirty miles north of Adelaide. It is kept in an enclosure, where it is secured with a strong chain and collar to prevent its escape by burrowing; it is perfectly docile, and never attempts to bite like the Common Wombat. It is fed on bran and weeds, and drinks freely of water. The only sound it emits is a short, quick grunt when annoyed; it sleeps a good deal during the day, rolled up almost into a ball, with its flesh-coloured nose buried between its fore paws; and appears impatient of heat and rain, as in its wild state it is entirely a burrowing animal, living in large holes in the limestone districts, and only leaving its habitation towards dusk for the purpose of obtaining food. It is fond of lying on its back like a bear, will burrow three or four feet into the soft ground of its enclosure, and scratches alternately with its fore paws. When worried, it presents its hind quarters to the enemy, and, suddenly turning round, makes a charge at his legs, evidently for the purpose of throwing him down; otherwise it is perfectly harmless. He runs fast for a short distance in a sort of gallop, but soon tires, and is easily caught. Although in some parts of the colony, especially on Yorke's Peninsula and about Port Lincoln, the holes of these Wombats are very numerous, yet the animals are but rarely seen. Many of the oldest colonists have informed me that they never saw a Wombat alive. The blacks on the Murray describe two kinds of Wombats: one (evidently *P. latifrons*) they speak of as 'big yellow fellow,' the other as being smaller and dark; they also say that the impressions of their feet in the sand-tracks leading to their burrows bear a striking resemblance to those of the footprints of a young child. The flesh they describe as being like pork, and excellent eating. They are extremely difficult to obtain, on account of their great timidity. The usual plan is to make a screen of boughs in the vicinity of their haunts, behind which the natives conceal themselves. If not killed on the spot, they will scramble to their holes, whence it is utterly impossible to dislodge them."—Proc. of Zool. Soc. 1861, pp. 268–271.

The following is Professor M'Coy's account of the animal examined by him in Melbourne:—

"As the description given by Mr. Angas in the 'Proceedings of the Zoological Society' for June 1861, of what he supposed to be the living *P. latifrons*, and as the first skin of this Wombat could only be identified with that species by an examination of the bones of the skull, which Mr. Angas had not seen, I felt much doubt as to the identity of his species and that of Professor Owen; and when, a few weeks ago, the Acclimatization Society of Melbourne received two specimens of a Wombat from South Australia of an

entirely different species from that of Tasmania or Victoria, I gladly embraced the opportunity of determining the species in the only way in which it could for the first time be done from the skin, namely, from an examination of the skull; and in this way I am able to furnish a description of the external characters of what I believe to be the *Phascolomys latifrons*. Mr. Angas not noticing the extraordinary character of the hairy muffle, I am quite uncertain as to what his species may really be. His differs from mine also in having the feet of the same colour as the body, instead of a rich brown.

"The two specimens examined were quite alike; both were males. Their general size and shape is somewhat like that of *P. Wombat*, but the body is considerably longer and narrower in proportion; the neck is also so much more slender that the animal may easily be confined by a dog-collar round the neck, which cannot be done with *P. Wombat*, from the neck being nearly as thick as the head. The head, instead of being broader, is narrower and deeper in proportion to the length of the body; the forehead is much more elevated across the eyes, forming a very obtuse but distinct angle with the line of the nose; but the most extraordinary difference in the character of the head is produced by the great width and flatness of the nose, which is covered with dense coarse white hair, and is much wider than high, instead of being narrow, black, naked, and longitudinally ovate. Another marked peculiarity is the great comparative length of the ears, which are long and elliptically pointed, differing remarkably from the very short rounded ears of *P. Wombat*. The general outline, too, of *P. latifrons* is rendered remarkably different by the broad, flat, oblique form of the body behind the crest of the hips, and the hair forming two circular rosettes on that part, uniting to form a short transverse crest across the back by meeting the ordinary hair of the back coming down in the opposite direction. The claws are shorter and broader than those of *P. Wombat*. The tail, also, instead of being a mere tubercle, is slender and cylindrical.

"The fur is totally unlike the coarse, harsh, densely adpressed fur of *P. Wombat*, being soft, and in length, texture, and feel resembling more nearly that of an English wild rabbit. It is closer on the feet and toes than on the legs, differing thus from the long bristly covering of the toes of *P. Wombat*.

"Upper part of head, back, sides, and legs brownish grey; a semicircular spot under the nostrils, one in front of the eye, a broad spot on the chin, the back of the ears, and the feet dark brown; the crest of the lower part of the back is dusky brown; the tail is blackish and naked; the under part of the body is whitish or dull grey, and the sides under the head ochraceous or yellowish; whiskers black, with a few white hairs; hairs on muffle silvery-whitish grey.

"From Mr. Angas omitting to notice the broad, white *hairy muffle*, and from the narrowness of the head and great width of the nostrils, I supposed the species I have above described would prove to be the *Phascolomys platyrhinus* of Owen, which seems to have been overlooked by most subsequent writers, but an examination of the skull proved the above-given description to belong truly to the *P. latifrons*; possibly Mr. Gould and Mr. Angas may have had *P. platyrhinus* under their eyes."

It will be remarked that both Professor M'Coy and Mr. Angas consider the animal they respectively describe to be the true *P. latifrons* of Owen; and from an examination of examples received from South Australia, I have no doubt that the remarks of both gentlemen refer to one and the same animal: the omission of the hairy muzzle by Mr. Angas may have arisen from the hairs having been eroded in consequence of confinement, as is the case to a certain extent with the animal in our Gardens. With regard to the *P. platyrhinus* I may mention, that on a further examination of the skull in the Museum of the College of Surgeons to which that name has been applied, it so much resembles several skulls of *P. Wombat*, that it is questionable if it be really distinct.

While writing these remarks, another *Phascolomys* has just arrived at the Zoological Society's Gardens in the Regent's Park, which certainly differs from all the rest, its colour being uniform jet-black, even to the plated bare shield on the nose. It is allied to the *P. lasiorhinus* in its long pointed ears, which at once separates it from *P. Wombat* and the animal I have figured as *P. latifrons*. For this new species I propose the name of *P. niger*. Its native locality is unknown: can it be the dark animal spoken of by the blacks to Mr. Angas as inhabiting the Murray scrub?

In concluding these remarks, I must express a hope that mammalogists will adopt the names I have applied to the four species of Wombat. I admit that there is still some little difficulty as to the identity of the *P. latifrons* of Owen, whether it be or be not a species still unknown to us, or whether it be the animal I have figured under that name. I must also in fairness state that the skull of *P. lasiorhinus* sent to the Museum of the Royal College of Surgeons for comparison appeared not to be fully adult; at the same time it exhibited so many striking differences from the skull to which the name of *P. latifrons* was assigned, that no anatomist would for a moment consider them to be identical; and we can scarcely suppose that the progress of age would produce so great a change in the character of the skull that ultimately they would be alike.

My figures were taken from a drawing made by Mr. Wolf, from the animal in the Zoological Society's Gardens, which was received from South Australia.