No. III. of Part II.] [Price 8s.

THE

ZOOLOGY

OF

THE VOYAGE OF H.M.S. BEAGLE,

UNDER THE COMMAND OF CAPTAIN FITZROY, R.N.,

DURING THE YEARS

1832 to 1836.

PUBLISHED WITH THE APPROVAL OF
THE LORDS COMMISSIONERS OF HER MAJESTY'S TREASURY.

Edited and Superintended by

CHARLES DARWIN, ESQ. M.A. Sec.G.S.
CORRESPONDING MEMBER OF THE ZOOLOGICAL SOCIETY,
AND NATURALIST TO THE EXPEDITION.

MAMMALIA,

BY GEORGE R. WATERHOUSE, ESQ.
CURATOR OF THE ZOOLOGICAL SOCIETY OF LONDON., ETC. ETC.

LONDON:
SMITH, ELDER AND CO. 65, CORNHILL.
MDCCCXXXVIII.

V. *Nov.*

STEWART AND MURRAY, OLD BAILEY.

© The Trustees of the Natural History Museum, London

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

The principal dimensions of the above animals are as follows: —

	Specimen from Buenos Ayres		Maldonado.		Valparaiso.		East Falkland.		East Falkland.		Keeling Island.	
	In.	Lines.	In.	Lines.	In.	Lines.	In.	Lines.	In.	Lines.	In.	Lines.
Length from nose to root of tail .	9	9	9	3	8	6	8	9	9	0	8	3
of tail	Imperfect		6	0	6	6	Imperfect		6	0	6	6
of tarsus	1	7	1	7	1	7	1	7	1	7	1	7

Upon comparing the skull of the Valparaiso variety with that of a British [illegible] I could perceive no difference. A skull from West [illegible] of the Keeling Island specimen [illegible] have not had an opportunity of

Preparing for Publication, in One Vol. 8vo.

WITH THE APPROVAL OF THE LORDS COMMISSIONERS OF HER MAJESTY'S TREASURY.

GEOLOGICAL OBSERVATIONS

(WITH NUMEROUS MAPS AND SECTIONS)

MADE DURING THE VOYAGE OF H. M. SHIP BEAGLE,

UNDER THE COMMAND OF CAPT. FITZROY, R.N.

ON THE

VOLCANIC ISLANDS

OF THE ATLANTIC AND PACIFIC OCEANS;

AND ON

CORAL FORMATIONS;

Together with a Brief Notice of the Geology of the Cape of Good Hope, and of Parts of Australia.

BY CHARLES DARWIN, ESQ., M.A.

SECRETARY TO THE GEOLOGICAL SOCIETY OF LONDON.

SMITH, ELDER AND CO., CORNHILL.

MAURUS.

[illegible] London, for February, 1837, p. 20.

[illegible]; *auribus parvulis, pallidè fuscis:*

animal nearly resembles that of [illegible] nature: the general colour of [illegible]-black, arising from the longest tips of those which are next in [illegible] tip, are white, and this white [illegible] are in their ordinary position: [illegible], and are tolerably uniform: the [illegible] a deep gray colour, with a faint [illegible] he ears are small, of a brown-[illegible] white, or very pale brown colour, and [illegible] ished with minute brown hairs: the small, scattered, bristly hairs of the tail are of an uniform brownish-black colour. The hairs of the moustaches are black at the base, and grayish at the apex.

	In.	Lines.		In.	Lines.
Length from nose to root of tail . .	11	3	Length of ear	0	6½
of tail	7	6	from nose to ear	2	2
of tarsus	1	8			

Habitat, Maldonado, La Plata, (*June.*)

© The Complete Work of Charles Darwin Online

The principal dimensions of the above animals are as follows: —

	Specimen from Buenos Ayres		Maldonado.		Valparaiso.		East Falkland.		East Falkland.		Keeling Island.	
	In.	Lines.	In.	Lines.	In.	Lines.	In.	Lines.	In.	Lines.	In.	Lines.
Length from nose to root of tail .	9	9	9	3	8	6	8	9	9	0	8	3
of tail	Imperfect		6	0	6	6	Imperfect		6	0	6	6
of tarsus	1	7	1	7	1	7	1	7	1	7	1	7

Upon comparing the skull of the Valparaiso variety with that of a British specimen of *Mus decumanus*, I could perceive no difference. A skull from West Falkland did not differ, neither did the dentition of the Keeling Island specimen above noticed. A perfect specimen of this last I have not had an opportunity of examining.

2. Mus (decumanus *var.*?) maurus.

Mus maurus, *Waterh.* in Proceedings of the Zoological Society of London, for February, 1837, p. 20.

M. pilis suprà purpurescenti-nigris; subtùs plumbeis; auribus parvulis, pallidè fuscis: caudâ corpus ferè æquante.

Description. — The character of the fur of this animal nearly resembles that of *Mus decumanus;* it is, however, of a harsher nature: the general colour of the upper parts and sides of the body is purple-black, arising from the longest hairs being of this colour, and likewise the tips of those which are next in length; the latter, however, excepting at the tip, are white, and this white is not entirely hidden, even when the hairs are in their ordinary position: on the head the hairs assume a brownish hue, and are tolerably uniform: the limbs, and under parts of the body, are of a deep gray colour, with a faint purple-brown wash: the under fur is gray: the ears are small, of a brown-white, or very pale brown colour, and furnished with minute brown hairs: the small, scattered, bristly hairs of the tail are of an uniform brownish-black colour. The hairs of the moustaches are black at the base, and grayish at the apex.

	In.	Lines.		In.	Lines.
Length from nose to root of tail . .	11	3	Length of ear	0	6½
of tail	7	6	from nose to ear	2	2
of tarsus	1	8			

Habitat, Maldonado, La Plata, (*June.*)

© The Complete Work of Charles Darwin Online

This rat is very closely allied to *Mus decumanus*, and I think may possibly prove an extraordinary local variety of that animal. Having but one skin, and no skull, I am unable to satisfy myself on this point. Its size, as will be seen by the admeasurements, exceeds that of the common rat, or, rather, it exceeds ordinary specimens of that animal, for I have seen *some* which were equal to it.

"It was killed near Maldonado, where it frequented holes in the sand hillocks near the shore. It is likewise found on the island of Guritti. If ships are ever infested with these monstrous rats, the above-mentioned localities are very likely places to have received colonies by such means. An old male weighed fifteen ounces and three quarters. The ears of this rat, when alive, were of a pale colour, which made a singular contrast with the black fur of its body."—D.

3. Mus Jacobiæ.

Mus decumanoïdes,* *Waterh.* in "Catalogue of the Mammalia preserved in the Museum of the Zoological Society of London."

M. suprà fuscus, griseo-lavatus, subtùs albus: pedum pilis sordidè albis; caudâ corpore cum capite paulò longiore; auribus mediocribus: pilis perlongis in dorso crebrè inter cæteros commixtis.

Description.—The general tint of the upper parts of this rat, is grayish-brown, (very nearly resembling that of *Mus decumanus*); the longest hairs, which on the hinder portion of the back are one inch and a half in length, are black; the ordinary hairs are black at the apex, there is then, on each hair, a considerable space occupied by pale yellow, and the remaining, or basal portion, is grayish white; the under fur is gray: the hairs of the chin, throat, and under parts of the body, are white, and without any gray colour at the roots: the feet are covered with dirty grayish hairs: the tail, which is slender, is very sparingly furnished with minute black hairs, both above and beneath: the ears are of moderate size, of a brownish flesh colour, and, to the naked eye, appear to be destitute of hair. The hairs of the moustaches are most of them black at the base, and grayish at the apex.

* The MS. name of *M. decumanoïdæ*, which I had applied to this animal, has been changed, in consequence of my having seen a different species, with the same name attached, in the museum of the India House.

© The Complete Work of Charles Darwin Online

	In.	Lines.		In.	Lines.
Length from nose to root of tail . .	7	6	Length of ear	0	$7\frac{1}{2}$
of tail	7	6	from nose to ear	1	$7\frac{1}{2}$
of tarsus	1	$4\frac{1}{4}$			

Habitat, James Island, Galapagos Archipelago, Pacific Ocean, (*October.*)

This species is scarcely equal in size to a full grown common black rat, (*Mus Rattus*), the head is rather shorter in proportion, the tarsi are smaller, and the tail is longer. In the character of the fur, and length of the hairs, it *very* closely resembles that species: the ears are larger than in *M. decumanus*, and about equal to those of *M. Rattus*. In having the hairs of the under parts of the body of an uniform colour, (i. e. not gray at the base,) it resembles the *Mus Tectorum* of Savi; but the large size of that animal, the greater length of the fur, and its colouring, all serve to distinguish it from the present species, which I may here observe, is truly an old world form, and very distinct from another species, also from the Galapagos, which is hereafter described.

"It is very common in James Island, but is not found on all the islands, if on any other in the Archipelago. Although its appearance is so like that of the common rat, yet its habits appear to be rather different: it is less carnivorous, and does not appear to be so strongly attached to the habitations of man. This island was frequented, about one hundred and fifty years since, by the vessels belonging to the Bucaniers; so that the common rat might easily have been transported here. And if a very peculiar climate, a volcanic soil, and strange food, can together produce a race, or strongly marked variety, there is every probability of such change having taken place in this case."—D.

4. Mus (Rattus *var.?*) insularis.

M. suprà grisescenti, colore subtùs dilutiore; tarsis purpureo-nigris: caudâ corpus cum capite æquante: auribus mediocribus: vellere molli.

Description.—No. 1. The general colour of this animal is what might be termed black, there is, however, an obscure purple-brown hue on the upper parts of the body, and the sides and under parts have a grayish tint, the hairs covering the feet above are of an uniform deep purple-brown, almost black. All the hairs of the body are gray at the base: the hairs of the moustaches are long and numerous, and of a black colour, having one or two white hairs intermixed: the ears are of moderate size, and very sparingly furnished with

© The Complete Work of Charles Darwin Online

minute dark hairs: the tail is long and slender, and has small, scattered, bristly hairs, of a brown-black colour.

	In.	Lines.		In.	Lines.
Length from nose to root of tail	7	0	Length of ear	0	7
of tail	6	6	from nose to ear	1	6
of tarsus	1	3½			

No. 2. Hairs along the centre of the back chiefly black, and but obscurely annulated, near the apex, with deep yellow: towards the sides of the body, and over the haunches, the hairs are more distinctly annulated, and on the sides of the body they are of a pale yellow at the apex: on the under parts the hairs are gray, tipped with dirty yellowish white: the feet are of the same deep purple-brown hue as in the specimen first described.

Habitat, Ascension Island, Atlantic Ocean, (*July.*)

These two animals not only differ in the colour of the fur, one being of a grizzled brownish colour, and the other black, but there is a considerable difference in the texture of the fur. In the black specimen, the fur is very soft and glossy, and the long hairs, which are abundant, are very slender. In the brown specimen, the fur is of a harsher nature, the long hairs are not so abundant, but longer, and less slender. On the other hand, they agree in size, dentition, the length of the head, tarsus, and ears, and differ but in a trifling degree (about three lines,) in the length of the tail.

Upon comparing the Ascension Island specimens with *M. Rattus,* I find that, although in size they are about one third less, yet the teeth precisely agree, not only in form, but in size. The relative proportions of the head, ears, and tarsi, also agree. Besides the general colouring of the fur, they both differ in having the hairs of the feet uniformly purple-black, those in *Mus Rattus* being much paler, and even whitish, on the toes. In the character of the fur, there is much difference. The long silky hairs, which are so conspicuous in *Mus Rattus,* are replaced, in the black specimen, by hairs which are scarcely to be distinguished from the ordinary fur; and in the other specimen, although rather longer and more distinct, they are short, compared with those of the black rat.

" The specimen which has a black, and glossy fur, frequents the short coarse grass near the summit of the island, where the common mouse likewise occurs. It is often seen running about by day, and was found in numbers, when the island was first colonized by the English, a few years since. The other, and browner coloured variety, lives in the out-houses near the sea-beach, and feeds

© The Complete Work of Charles Darwin Online

chiefly on the offal of the turtles, slaughtered for the daily food of the inhabitants. If the settlement were destroyed, I feel no doubt that this latter variety would be compelled to migrate from the coast. Did it originally descend from the summit? and, in the case just supposed, would it retreat there? and, if so, would its black colour return? It must, however, be observed, that the two localities are separated from each other by a space, some miles in width, of bare lava and ashes. Does the summit of Ascension, an island so immensely remote from any continent, and the summit itself surrounded by a broad fringe of desert volcanic soil, possess a small quadruped, peculiar to itself? Or, more probably, has this new species been brought, by some ship, from some unknown quarter of the world? Or, I am again tempted to ask, as I did in the case of the Galapagos rat, has the common English species been changed, by its new habitation, into a strongly marked variety?"—D.

Mr. Darwin seems to have foreseen the difficult problem which these two rats have furnished, and although I have spent much time in studying the Muridæ, I must confess I have been exceedingly puzzled by the animals in question. It appears as if the brown, and black rats, (*M. decumanus*, and *M. Rattus*,) and likewise the common mouse, (*M. Musculus*,)* all of which follow man in his peregrinations, and which, to a certain degree, are dependent upon man, and may therefore be termed semi-domestic animals; like *really* domestic animals, are subject to a greater degree of variation than those species which hold themselves aloof from him.

Upon the whole then I have determined to describe the two Ascension Island specimens as one species, and as varieties of the *Mus Rattus*, but with a mark of doubt, since I do not possess sufficient materials for a rigorous examination, having, in fact, but one skin of each variety, and neither skull nor skeleton. I have also applied the name of *insularis*, to designate this variety or species, whichever it may be, for, supposing it be not a distinct species, it is so marked a variety, that a name for it is desirable.

* The great Bandicoot rat of India, (*Mus giganteus*, of Hardwicke,) ought, perhaps, to be added to the species above enumerated; and I strongly suspect several catalogued species will prove but varieties of this animal.

© The Complete Work of Charles Darwin Online

5. Mus Musculus.

Mus Musculus, *Auctorum.*

Of this species, there are six specimens in Mr. Darwin's collection; two were found "living in the short grass, near the summit of the Island of Ascension, where the climate is temperate."—D. Two others were procured "on a small, stony, and arid island, near Porto Praya, the capital of St. Jago, in the Cape de Verde Islands,—climate very hot and dry. Excepting during the rainy season, which is of short duration, these little animals can never taste fresh water, nor does the island afford any succulent plant."—D. A specimen was also procured "on a grassy cliff, on East Falkland Island, at the distance of a mile from any habitation. It is singular that so delicate an animal should be able to subsist under the cold, and extremely humid climate, of the Falkland Islands, and on its unproductive soil."—D. These specimens are all of them rather less than full grown individuals of the same species procured in England; in other respects, they do not differ.

The sixth specimen, which is from Maldonado, is considerably less than British specimens of the common mouse, and is of a richer and brighter colour, the head is smaller, the muzzle shorter in proportion, whilst the tarsi are even longer than in a large specimen of *M. Musculus.* These points of dissimilarity induced me to believe it was a distinct species, and to apply to it the specific name of *brevirostris.** Upon re-examination, with the advantage of more experience, and consequently a better knowledge of the characters of these animals, I have changed my opinion. The teeth indicate that it is not an adult specimen, and agree perfectly with those of *M. Musculus*, both in form and size. "Common in the houses of the town of Maldonado, and its habits are similar to those of *Mus Musculus.*"—D.

* See Proceedings of the Zoological Society for February 14th, 1837, p. 19.

© The Complete Work of Charles Darwin Online

6. Mus longicaudatus.

Plate XI.

Mus longicaudatus, *Bennett*, Proceedings of the Committee of Science and Correspondence of the Zoological Society of London for January, 1832, p. 2.

M. pallidè flavescenti-fuscus; corpore subtùs albo, levitèr flavo lavato; pedibus albis; tarsis permagnis; caudâ perlongâ; auribus parvulis.

Description.—Fur long and soft; general colour pale yellow-brown, the hairs of the ordinary fur being fulvous near the apex, and the longer hairs brown. On the sides of the body, cheeks, and external side of limbs, the fulvous hue prevails. The inner side of the limbs and the under parts of the body are white, but have an indistinct yellowish hue. All the hairs of the body are of a deep gray colour at the base. The ears are small, well clothed with hairs; those on the inner side are chiefly yellow; externally, on the fore part they are brown, and posteriorly whitish. The feet are of a flesh-colour, and furnished above with white hairs; the tarsi are but sparingly provided with minute hairs on the upper side, and are naked beneath: they are of unusually large size. The fore feet are of moderate* size, and furnished with a very large carpal tubercle. The tail is very nearly double the length of the body, if the latter be measured in a straight line; it is of a brownish flesh-colour above, paler beneath, and sparingly furnished with minute bristly hairs; those on the upper surface being brown, and on the under side white. The hairs of the moustaches are long, of a black colour, and grayish at the apex.

	In.	Lines.		In.	Lines.
Length from nose to root of tail . .	3	9	Length of tarsus (claws included) . .	1	1
of tail	5	3	of ear	0	4
from nose to ear . . .	0	10½			

Habitat, Chile.

* As I shall have occasion to use the terms *moderate, long, short, large*, &c. it may be well to state that I take the common mouse, (*Mus Musculus*,) as my standard of comparison. The ears, feet, tail, length of the fur, general proportions, &c. are in that animal what I term moderate.

© The Complete Work of Charles Darwin Online

The most conspicuous characters of the present species consist in the immense length of the tail, and the great size of the hinder feet. * It is about equal in size to *Mus Musculus;* its form, however, is somewhat stouter; in colour it is much paler and brighter. The head is larger in proportion; the ears are smaller, and more densely clothed with hair; the fore feet are rather larger, and the fleshy tubercle on the under side of the wrist is also larger. The thumb nail is flattened, and rounded at the tip, as in *Mus Musculus*, but is longer, and more distinct than in that animal.

The skull of *M. longicaudatus*, (Plate 34, Fig. 1,) is considerably larger than that of the common mouse, but in form scarcely differs from it; its upper surface is rather more convex, and the interparietal bone proportionately less. The length of the skull is 1 inch; breadth, 6½ lines; distance between the fore part of the incisor, and the first molar of the upper jaw, 3½ lines. The dentition is figured in Plate 34, Figs. 1. *b* and 1. *c*.

The above account is drawn up from the same specimen as that from which Mr. Bennett took his description, and which was brought from Chile by Mr. Cuming, who states that the animal in question lives in trees, and constructs its nest with grass.

In Mr. Darwin's collection, I find an animal which agrees in all the more important characters with the one above described, but differs in being of a deeper colour, (approaching more nearly, in this respect, to the common mouse,) and in having the tail a trifle shorter. The skull is about ¾ of a line shorter, but its proportions agree precisely: the proportions of the feet, and the general form of the animal, also agree. This specimen is likewise from Chile, (Lat 37° 40′,) and, according to Mr. Darwin, "overran the wooded country south of Concepcion, in swarms of infinite numbers. Captain FitzRoy, on his return from visiting the wreck of H. M. S. Challenger, had the kindness to bring me this specimen. So destructive was this little animal, that it even gnawed through the paper of the cartridges belonging to the people who were wrecked."—D.

* A long tarsus is generally accompanied by a proportionately long tail. I presume that those Mice which have long tarsi are in the habit of making great leaps, and that in these leaps, the tail serves to steady and balance the body.

© The Complete Work of Charles Darwin Online

Mus elegans.

Plate XII.

Mus elegans, *Waterh.*, Proceedings of the Zoological Society of London for February 1837, p. 19.
Eligmodontia typus, *F. Cuvier*, Annales des Sciences Naturelles for March 1837. Tom. 7. p. 169. Pl. 5.

M. suprà flavus, vellere pilis fuscescentibus adsperso, his ad latera, et prope oculos rarioribus; pilis pone aurem utramque, labiis, corpore subtùs, pedibusque niveis; auribus magnis; caudâ capite corporeque paulo longiore; tarsis longis subtùs pilis obsitis.

Description.—Fur very long and soft; general colour of the upper parts of the body pale brownish yellow; the lower portion of the cheeks, and the under parts of the body pure white: the hairs of the ordinary fur of the back are gray at the base, pale ochre near the apex, and brown at the apex; the longer hairs are brownish. On the sides of the body where the longer hairs are less numerous, the pale ochre colour prevails; the hairs on this part as on the back are deep gray at the base, but at a short distance from the apex they are white; nearer the tip shaded into yellow, and at the tip brownish: the limbs externally are of a pale yellow colour. The hairs of the throat and chest are pure white to the root, those on the belly are obscurely tinted with gray at the root. The feet are of a pale flesh-colour, and furnished with white hairs; the fore feet are of moderate size; the thumb nail is small and rounded, and the carpal tubercle is covered with hairs; the tarsi are long, and the white hairs extend over the whole of the under parts; the under side of the toes, however, are but sparingly furnished. There appears to be but one large tubercle on the under side of the tarsus, and this, which is situated near the base of the toes, is thickly covered with silvery-white hairs. The tail is long, pale brown above, and pale flesh-colour beneath; above, it is furnished with minute brown hairs, and on the under side with white hairs. The ears are rather large, of a pale flesh colour, tolerably well clothed with hairs, which are of a pale yellow colour on the inner side, and white on the outer side—excepting on the fore part, where they are brown. A small tuft of white hairs springs from the base of the ear posteriorly. The hairs of the moustaches are moderate; black at the base, and grayish at the apex.

© The Complete Work of Charles Darwin Online

	In.	Lines.		In.	Lines.
Length from nose to root of tail	3	7	Length of tarsus	0	10
of tail	3	9	of ear	0	6
from nose to ear	1	0			

Habitat, Bahia Blanca, (*September.*)

Upon comparing the skull (Pl. 34, fig. 2, *a.*) of *M. elegans* with that of *M. Musculus*, the most evident points of distinction consist in the greater proportionate length of the nasal and frontal bones, and the slenderness of the zygomatic arch in the former animal. Length of skull 11 lines, width 6 lines, distance between front molar and outer side of incisors of upper jaw $3\frac{3}{8}$ lines, length of nasal bones $4\frac{3}{8}$ lines.

The dentition is figured in Pl. 34, figs. 2. *b*, and 2. *c*.

"Whilst bivouacking one night on shore, amongst some sand hillocks, this mouse, with its tail singed, leapt out of a bush which was placed on the fire. Its hind legs appeared long in proportion to the front, and it did not appear to be very active in endeavouring to make its escape."—D.

Mus elegans is about equal in size to *M. Musculus;* the head is larger in proportion than in the latter, the ears are slightly larger, the tail is longer, and so are the tarsi. The large ears, long tail, and comparatively large size of the feet, combined with the greater size of the animal itself, will render it easy to distinguish this species from *M. gracilipes* and *M. bimaculatus*. From the last mentioned animal it moreover differs in having the head larger in proportion, the fur longer, and the colouring of the upper parts of the body somewhat darker. The white fur is almost confined to the under parts of the body, and there is but a small tuft of white hairs behind the ears, whereas in *M. bimaculatus*, the white fur extends considerably on the sides of the body, the outer side of the limbs are white, and there is a large and conspicuous white spot behind each ear.

In *M. elegans* the whole sole of the tarsus and the carpal tubercles are covered with hair. In *Mus bimaculatus* the hinder *half* of the tarsus only is covered with hair, and in *M. gracilipes* both the hinder half is covered, and there are some scattered hairs extending almost to the two tubercles, which are situated at the base of the longer toes.

The genus *Eligmodontia* of M. F. Cuvier, founded upon a species of mouse from Buenos Ayres, possesses nearly the same characters as the subgenus *Calomys*, established by me in the Proceedings of the Zoological Society for February 1837, and which included the animal above described, and two other species (*M. bimaculatus* and *M. gracilipes*). M. Cuvier's genus is distinguished by there being only one large tubercle on the under side of the tarsus, and in having the carpal pad covered with hair as well as the pad of the tarsus. In

© The Complete Work of Charles Darwin Online

these characters our present animal agrees, as it does also in size and in the relative proportions of the tail and tarsus, circumstances which induce me to believe they are identical.

In *M. bimaculatus* and *M. gracilipes* there are six naked tubercles on the under side of the tarsus, and the carpal pad is also naked. In having, however, the tarsus hairy beneath,* in dentition and in colouring, they agree so closely with *M. elegans* that I think they cannot be separated generically.

Mus bimaculatus.

Plate XII.

Mus bimaculatus, *Waterh.*, Proceedings of the Zoological Society of London for February 1837, p. 18.

M. vellere pallidè ochraceo, pilis nigricantibus adsperso, his ad latera rarioribus; rostri lateribus, notâ magnâ pone aurem utramque, artubus, corporeque subtùs niveis; auribus mediocribus; caudâ, quoad longitudinem, corpus fere æquante; tarsis ad calcem pilis argenteo-candidis obsitis.

Description.—Upper parts of the body of a very pale ochre colour, the longer hairs, however, are black, and at the apex grayish, and where they are numerous, as on the back and upper surface of the head, they give greater depth to the colouring; the cheeks and sides of the body are of an almost uniform pale, but bright yellow; the sides of the muzzle, the lower half of the cheeks, the lower portion also of the sides of the body, and the whole of the under parts, are pure white—each hair being uniform in colour to the root, and not, as is usually the case, *gray* at the root. There is likewise a large patch of pure white hairs behind each ear. The feet and tail are of a pale flesh-colour, and furnished with white hairs, with the exception of those on the upper surface of the latter, which are pale brown. The ears are also pale flesh-colour, clothed internally with yellow hairs; externally on the fore part, the hairs are brownish, and on the hinder part, white—they are rather large, and so are the feet. The tail is about equal to the body in length. The hairs of the moustaches are numerous and slender, and most of them are black at the base, and gray at the apex. The hinder half of the tarsus

* In *Mus leucopus* of North America the tarsus is hairy beneath, and in the character of the teeth this animal also agrees with the species above mentioned.

© The Complete Work of Charles Darwin Online

beneath is covered with minute silvery-white hairs; beside the ordinary tubercles, the anterior portion of the sole of the foot and the base of the toes beneath, are crowded with small rounded warts, which are much more numerous and conspicuous than in the common mouse.

	In.	Lines.		In.	Lines.
Length from nose to root of tail . .	3	1	Length from nose to base of ear . .	0	$8\frac{3}{4}$
of tail	1	11	of tarsus (claws included) . .	0	8
from nose to eye . . .	0	$4\frac{1}{2}$	of ear	0	$4\frac{1}{2}$

Habitat, Maldonado, La Plata, (*June.*)

The skull of this animal, is rather shorter and broader than that of *Mus Musculus*, the upper surface is more arched, the zygomatic arch is much more slender, and the nasal bones are rather broader. In the convexity of the upper surface, and the slenderness of the zygomatic arch, this skull very nearly resembles that of *M. gracilipes;* this latter, however, has the zygomatic arch more convex, projecting more suddenly on the anterior part, and the interparietal bone smaller. Length of skull 10 lines, width $5\frac{1}{3}$, length of nasal bones 4 lines, distance between the outer side of the incisors, of the upper jaw, and the first molar $2\frac{2}{3}$ lines. See Plate 34, fig. 3. *a.*

The dentition is figured in Plate 34, figs. 3. *b* and *c.*

This mouse is rather less than *M. Musculus*, the tail is much shorter in proportion, the fur is longer and softer, and the ears are more distinctly clothed with hair.

The pale and delicate yellow colour of the upper parts of the body, and the pure white of the under parts, renders the present species conspicuous amongst its congeners. I may further remark that the white colour which in the Muridæ (when it occurs) is usually confined to the under part of the body, or extends but slightly on the sides, is in the present animal extended considerably on the sides of the body, and occupies an equal portion with the yellow of the upper parts. The name *bimaculatus* is applied to this animal on account of the two conspicuous white patches, which are situated behind the ears.

In affinity as well as in appearance it most nearly approaches to *Mus gracilipes* and *M. elegans;* with no other species of the genus Mus, here described, can it be confounded, since these only have the tarsus hairy beneath.

The principal points of distinction between the present animal and *Mus elegans*, are noticed in the account of that species.

"This mouse, when alive, had a very elegant appearance. A countryman, who brought it me, found six of them living together in one burrow."—D.

© The Complete Work of Charles Darwin Online

Mus gracilipes.

Plate XI.

Mus gracilipes, *Waterh.*, Proceedings of the Zoological Society of London, for February 1837, p. 19.

M. suprà flavo-lavatus; pilis pone aurem utramque, labiis, corporeque subtùs, albis; pedibus parvulis, gracilibus, carneis, suprà et ad calcem pilis albis tectis; caudâ gracili, pilis albis instructâ, quoad longitudinem corpus ferè æquante; auribus mediocribus; vellere mediocri et molli, pilis omnibus ad basin plumbeis.

Description.—General colour very pale yellowish brown, a tint produced by the admixture of black and pale fawn colour; the hairs of the ordinary fur being of the latter tint near the apex, and dusky at the apex, whilst the longer hairs are black. The feet, tail, under parts of the body and the sides of the muzzle, are pure white. All the hairs of the body, (which are soft, and of moderate length), are deep gray at the base. The ears are of moderate size, well clothed with hairs, of which those on the inner side are yellowish, and those on the outer, are brown on the anterior part, and white on the posterior. A small tuft of white hairs springs from the neck immediately behind the ears; this tuft is hidden when the ears are folded back. The tail is slender and short, (being not quite equal to the body in length) of a pale flesh-colour, and sparingly furnished with minute white hairs. The feet are very small and slender, and the naked parts are of a pale flesh-colour. The sole of the foot is covered with hairs; the toes beneath, and the tubercles (which are as in *Mus Musculus*), however, are naked. The hairs of the moustaches are of moderate length, and of a blackish colour, some of them, however, are grayish white.

	In.	Lines.		In.	Lines.
Length from nose to root of tail . .	2	10	Length from nose to ear . . .	0	$8\frac{1}{4}$
of tail	1	7	of tarsus (claws included) . .	0	$6\frac{1}{2}$
from nose to eye	0	$4\frac{1}{3}$	of ear	0	$4\frac{1}{2}$

Habitat, Bahia Blanca, (*September.*)

This species slightly exceeds the harvest mouse (*Mus messorius*) in size, its ears are considerably larger in proportion, and the tail is shorter. Compared with the common mouse (*Mus Musculus*) it is smaller, the tail is more slender, and shorter, and the feet are likewise more slender and proportionately much smaller; the ears are more distinctly clothed with hairs.

© The Complete Work of Charles Darwin Online

The principal points of distinction between this and the two preceding species are pointed out in the account of *M. elegans*.

Upon comparing the skull of *M. gracilipes* (Pl. 34, fig. 4. *a*.) with that of *Mus Musculus*, the most striking differences consist in its shorter and broader form, the upper surface being more arched, the interparietal bone has a relatively smaller antero-posterior diameter, the occipital region is more convex, and continued more gently and gradually into the upper region of the skull. The zygomatic arch, which is unusually slender, is more dilated (especially on the anterior part) thus giving a squareness to the general form. The nasal bones are not so much attenuated posteriorly. The length of the skull is $8\frac{7}{8}$ lines, the greatest width is $5\frac{1}{8}$ lines, and the distance between the outer side of the incisors and the front molar is $2\frac{3}{4}$ lines.

The dentition is figured in Plate 34, figs. 4. *b* and 4. *c*.

"This specimen was given me by Mr. Bynoe, the surgeon of the Beagle, who caught it amongst some long dry grass."—D.

Mus flavescens.

Plate XIII

Mus flavescens, *Waterh.*, Proceedings of the Zoological Society of London, for February 1837, p. 19.

M. suprà colore cinnamomeo, lateribus capitis, corporisque, æquè ac pectore, auratis; gulâ abdomineque flavescenti-albis: pedibus sordidè albis: auribus mediocribus rotundatis, pilis flavis obsitis: caudâ, corpore, capiteque longiore, suprà fuscâ, subtùs sordidè albâ: tarsis longis.

Description.—Fur long and moderately soft; general colour of the upper parts bright brownish yellow; on the sides of the head and body bright yellow; towards the rump of a deeper hue, and inclining to orange; under parts pale yellow, or yellow-white; chest yellow. The fur both of the upper and under parts of the body deep plumbeous at the base. Feet flesh colour, covered above with white hairs: tarsi long, naked beneath. Ears small, tolerably well clothed with hairs; those on the inner side yellow, but many of them blackish at the base; on the outer side, the hairs are blackish on the fore part and yellow on the hinder part. The hairs of the ordinary fur of the back are of a deep rich yellow colour at the tip, and the longer hairs are blackish. The tail is long, deep brown above and whitish beneath; the hairs of the

© The Complete Work of Charles Darwin Online

moustaches are rather short and slender, and of a brownish colour. Thumb nail small and rounded.

	In.	Lines.
Length from nose to root of tail	3	9
of tail	4	1½
from nose to ear	1	0

	In.	Lines.
Length of tarsus	1	0½
of ear	0	4½

Habitat, Maldonado, La Plata, (*June.*)

This species is slightly larger than the common mouse; the head is rather larger in proportion; the ears are rather smaller and more distinctly clothed with hair; the tail and tarsi are much longer in proportion. Its bright yellow colouring and proportions distinguish it from any of the species described in this work. Of this animal I do not possess the skull, nor of the teeth do I possess more than the first and second molars of the upper jaw, and the second and last of the lower jaw. These are figured in Plate 34, figs. 5. *a*, and 5. *b*.

Mus Magellanicus.

Plate XIV.

Mus Magellanicus, *Bennett*, Proceedings of the Zoological Society of London for December 1835, p. 191.

M. suprà fuscus, subtùs cinerescenti-albus, pallidè flavo lavatus; auribus mediocribus pilis fuscis obsitis; caudâ corpus caputque æquante; tarsis longis, pilis sordidè albis obsitis.

Description.—Fur very long and moderately soft, general colour deep brown; the hairs of the ordinary fur are gray, tipped with yellowish brown; the longer hairs are black; the sides of the body are yellowish; the under parts are gray-white with a faint yellowish tint, each hair being gray tipped with yellowish white. The ears are rather small, well clothed with hairs; those on the inner side are blackish tipped with yellow, and on the outer side they are blackish on the fore part and dusky on the hinder part. The fore feet are of moderate size, the thumb nail is short and rounded; the tarsi are rather long; both fore and hinder feet are of a brownish colour, and covered above with dirty gray hairs. The tail rather exceeds the head and body in length; it is brown above and dirty white beneath. The hairs of the moustaches are numerous and long, of a brownish colour at the apex and black at the base.

© The Complete Work of Charles Darwin Online

	In.	Lines.		In.	Lines.
Length from nose to root of tail . .	4	3	Length of tarsus	1	1
of tail	4	2	of ear	0	5
from nose to ear	1	0½			

Habitat, Port Famine, Strait of Magellan.

This mouse is larger than *Mus Musculus;* the tail is rather longer in proportion; the tarsi much longer; the ears are not quite so large in proportion to the head, (which greatly exceeds that of *Mus Musculus* in size,) and they are densely clothed with hair. The fur is longer. In colour, the animal here described is rather darker than the common mouse. I have one specimen however before me which *very nearly* agrees in this respect.

The dentition is figured in Plate 34, figs. 6, *a.* and 6, *b.*

From the attention which Mr. Darwin bestowed upon the Muridæ of the southern parts of South America, I presume his collection affords materials for a tolerably complete monograph of the species of that portion of the globe. The species above described, however, does not occur in Mr. Darwin's collection, but is here introduced in order to make the work more complete, and that I might more clearly point out the distinctions which exist between it and other species here described, the account given by Mr. Bennett in the Proceedings being very short.

Mus arenicola.

Plate XIII.

Mus arenicola, *Waterh.*, Proceedings of the Zoological Society of London, for February 1837, p. 18.

M. suprà fuscus, subtùs cinerescenti-albus, pallidè flavo tinctus; auribus mediocribus rotundatis, pilis flavis fuscisque obsitis; caudâ quoad longitudinem corpus æquante; pedibus cinerescenti-albis: tarsis mediocribus.

Description.—Fur long, moderately soft; general colour deep brown; sides of the body with a very obscure yellowish hue; under parts dirty gray with a faint yellow tint. All the fur deep gray at the base; the hairs of the upper part of the body obscurely annulated with yellowish brown near the apex, and dusky at the apex; the longer hairs are black. Feet brownish, covered above with brown-white hairs; tarsi short. Tail short, blackish above, brown-white beneath. Ears small, well clothed with hairs; those on the

© The Complete Work of Charles Darwin Online

Mus tamidus.

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

Mus Braziliensis.

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

Mus micropus.

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

Mus grseo-flavus.

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

Mus xanthopygus.

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

Mus Darwinii.

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

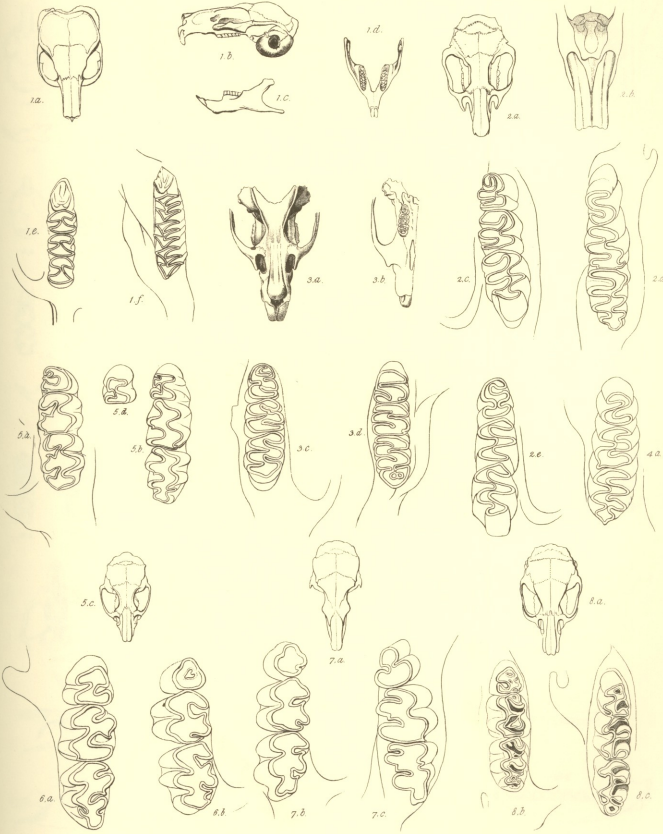
Mus Galapagoensis.

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online



G.B.Waterhouse. & C.M.Curtis Del.

J.Swaine sc.

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

© The Complete Work of Charles Darwin Online

(c) The Complete Work of Charles Darwin Online

NOW PUBLISHING IN PARTS, ROYAL 4TO.

UNDER THE AUTHORITY OF THE LORDS COMMISSIONERS OF HER MAJESTY'S TREASURY.

ILLUSTRATIONS OF
THE ZOOLOGY OF SOUTH AFRICA:

Consisting chiefly of Figures and Descriptions of the Objects of Natural History collected during an Expedition into the Interior of South Africa, in the years 1834, 1835, and 1836, fitted out by "The Cape of Good Hope Association for Exploring Central Africa."

TOGETHER WITH

A SUMMARY OF AFRICAN ZOOLOGY,

AND AN INQUIRY INTO THE GEOGRAPHICAL RANGES OF SPECIES IN THAT QUARTER OF THE GLOBE.

BY ANDREW SMITH, M.D.

SURGEON TO THE FORCES, AND DIRECTOR OF THE EXPEDITION.

Prospectus.

THE Cape of Good Hope is now acknowledged to be one of the greatest avenues as yet opened for the researches of the Naturalist. Our Colony in that part of Southern Africa is the key to a large portion of an extensive continent which is still but very partially explored; and the field to which it admits the scientific traveller is rich to exuberance in the variety and novelty, both of animal and vegetable life.

Stimulated by the prospect of Discovery in a quarter so fertile in interest, "*The Cape of Good Hope Association for Exploring Central Africa*" was established in 1833; and in 1836, an Expedition fitted out by that body, consisting of thirty-four persons, and directed by Dr. Smith, after an absence of nineteen months, and penetrating as far as 29° 28′ South latitude, returned to Cape Town laden with a variety of curious and important specimens in Natural History, &c.

Previously to this period little information has been furnished, in a shape calculated to enable the public to form accurate ideas of the various animated beings by which these regions are inhabited. The splendid publication of Le Vaillant, no doubt, should be mentioned as forming an exception, *pro tanto;* but this includes only a portion of the Birds of the most southern extremity of the country, and a work therefore extensive enough to comprehend the various departments of Zoology is still a desideratum.

The Members of *The Cape of Good Hope Association for Exploring Central Africa* found themselves, on the return of the recent Expedition, in a situation to supply at least some portion of the existing deficiencies; but their funds, even if it had been possible to divert them to such an object, were altogether inadequate to defray the expense of laying the result of their labours before the world. Under such circumstances, it was decided that Dr. Smith, the director of the Expedition, should be authorised, on his arrival in England, to wait upon Lord Glenelg, for the purpose of making him acquainted with the position and views of the Society, in the hope that Government might be induced to assist in the publication of their materials.

This hope has not been disappointed. At the recommendation of the Secretary of State for the Colonial Department, the Lords Commissioners of Her Majesty's Treasury have been pleased, by a pecuniary grant, to enable the Society to publish the result of its labours, without infringing upon the funds raised solely for the purposes of discovery; and in a form which, while it places the work within reach of most of the friends and promoters of science, will not, it is hoped, be found inconsistent with the interest and importance of the subject.

The materials for the work now offered, under such patronage, to the public, will consist of pictorial illustrations of between three and four hundred subjects of the animal kingdom, all of which have been collected to the south of 23° 28′ South latitude; and will comprise,

First, and principally, unknown animals;

Secondly, animals known, but not yet figured; and

Lastly, such as have been imperfectly figured; but of which the Association is in possession of accurate drawings.

The Entomological portion of the work will be from the pen of W. S. Macleay, Esq., who has kindly undertaken that department. The rest of the descriptions will be furnished by Dr. Smith, who will add a summary of African Zoology, and an inquiry into the Geographical ranges of species in that quarter of the Globe.

Conditions of Publication.

The Work will appear periodically; and it is estimated that the whole will be completed in about thirty-four parts, price, on an average, Ten Shillings each. As it will be necessary that the plates be published promiscuously, they will be arranged in five divisions, viz. MAMMALIA, AVES, PISCES, REPTILIA, and INVERTEBRATÆ. The plates of each of these divisions will be numbered independently, and the letter-press descriptions left unpaged, so that on the work being completed, they may be arranged either agreeably to the general classified order which will accompany the last number, or according to the particular views of the purchasers.

The whole of the Plates will be engraved in the highest style of Art, from Drawings taken expressly for this Work, and beautifully coloured after Nature.

THE FIRST FOUR PARTS ARE NOW READY.