

**Article XIII.—ON A COLLECTION OF MAMMALS
FROM THE ISLAND OF TRINIDAD, WITH DE-
SCRIPTIONS OF NEW SPECIES.**

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This paper is based on a collection of about 200 specimens made by the junior author during the months of March and April, 1893. With few exceptions the species herein recorded were secured in the south central part of the island, at a point twelve miles north of the southern coast and seven miles south-east of Princetown. Here, at the border of the forest which reaches to the coast, is situated a Government rest-house. Collecting was confined to within a radius of a mile of this rest-house. Points where small streams entered the forest proved the best collecting grounds. Here in close proximity were water, the dense low growth of bordering balisiers (*Heliconia*), and the forest itself. All the species secured near the rest-house doubtless might be taken in a short time within a radius of one hundred feet in a locality of this nature. The indigenous species secured here are doubtless all forest inhabiting.

The collection of small Rodents is of special interest as containing the results of perhaps one of the first attempts at systematic trapping of small mammals with the most approved traps. The collector, however, was handicapped by entire ignorance of the habits or even of the kinds of mammals which might be found, and also by the fact that birds were the first object of his efforts. Furthermore, at least one-third of the animals trapped were destroyed by predatory mammals or ants.

We believe, therefore, that, prolific as the field has proven, further collecting in the same region would add many species among the smaller Rodents.

A future paper in this Bulletin will give a report on the birds collected, and more fully describe the localities visited and the faunal affinities of the island.

Very little has been hitherto written especially upon the mammals of Trinidad, and very few specimens known to have

been collected on the island appear to be extant in museums. Ledru¹ gave a list of ten species as early as 1810. De Verteuil, in his 'Trinidad,'² devotes a number of pages to the mammals (pp. 85-89 and 361-365), and gives also a vague nominal list of the species (pp. 360, 361). The list, however, is so indefinite that it is impossible to determine the number of species it is intended to include, while the nomenclature adopted is too erroneous to merit serious consideration. His remarks on the habits and distribution of many of the larger species are of interest.

The first serious attempt to give a scientific catalogue of the mammalian fauna of the island is Mr. Oldfield Thomas's 'A Preliminary List of the Mammals of Trinidad,'³ published early in the present year. "The present list," says Mr. Thomas, "is only written to form a basis on which a complete scientific list of the mammals inhabiting Trinidad may be founded, and to show members of the Society how extraordinary little is definitely known of the mammals of the Island." He accordingly urges upon the attention of the members of the Trinidad Field Naturalists' Club the importance of collecting specimens for transmission to the British Museum for scientific determination. Mr. Thomas's list includes 52 species, of which 27, or more than one-half, are Bats, and 8 only are Rodents, one of these being mentioned only generically. Mr. Thomas believes that this large number of Bats represents less than half of the species actually occurring on the island, and calls special attention to the Rodentia as likely to afford species "which are as yet absolutely unknown." Mr. Thomas's foresight in respect to these groups is well vindicated by the present collection, which adds one species to the list of Bats, and raises the number of known Trinidad Rodents from 7 to 19. The number of known indigenous Muridæ is raised from one to eight, six of which it has been considered advisable to describe as new. It is not probable that any of them are strictly confined to the island, but doubtless occur on adjoining portions

¹ Voyage aux Iles de Ténériffe, la Trinité, etc., I, 1810, p. 256.

² Trinidad: Its Geography, Natural Resources, Administration, Present Condition, and Prospects. By L. A. A. de Verteuil, M. D. P., etc. One vol., 8vo., 1858. We are able to cite only the second edition, published in 1884, which, so far as the natural history matter is concerned, appears to be textually the same as the first.

³ Journ. Trinidad Field Naturalists' Club, I, No. 7, April, 1893, pp. 158-168.

of the mainland. Some of them are obviously related more or less closely to species described from western and southern Brazil, though it is hardly probable that any of them will prove strictly identical. While a large number of species of Muridæ have been recorded from Ecuador, Peru, Chili, southern Brazil and the more southern parts of the continent, the literature of the subject contains very few references to specimens from northeastern South America, so that Mr. Thomas's pertinent remarks on our ignorance of the Muridæ inhabiting Trinidad will apply with equal force to a large area of the adjoining portions of the mainland.

1. **Mycetes**, sp.—A Howling Monkey was not uncommon in the forests about two miles from the rest-house. At this distance their howling or, better, roaring chorus, in the early morning could frequently be heard. No specimens were secured, but it is probable, as Mr. Thomas remarks, that the species is *M. seniculus*.

2. **Saccopteryx bilineata** (*Temm.*).—Two specimens, male and female adult.

3. **Saccopteryx leptura** (*Schreber*).—Five specimens, two males and three females.

In both of these species the females are larger than the males, as shown by the following measurements :

<i>S. bilineata</i> ,	♂,	forearm, 46 ;	third metacarp., 45 ;	tarsus, 21.6.
"	♀,	" 51.8 ;	" 49.5 ;	" 23.9.
<i>S. leptura</i> ,	♂,	" 36.8 ;	" 36 ;	" 15.7.
"	♂,	" 36 ;	" 35.6 ;	" 15.3.
"	♀,	" 39.6 ;	" 38.1 ;	" 17.8.
"	♀,	" 41.9 ;	" 39.6 ;	" 17.3.

All of the specimens show the two faint whitish dorsal stripes, but in addition to its smaller size *S. leptura* is paler colored throughout, including all of the membranes, and the wing membrane is attached at the ankle joint instead of slightly above it, as in *S. bilineata*.

In the gloomy depths of the forest *S. leptura* was frequently seen coursing for insects during the day.

4. **Noctilio leporinus** (*Linn.*).—Two specimens, male and female adult. Both have a distinct fulvous line down the middle of the back.

The cave on Monos Island in the first Boca from which so many of these remarkable bats have been secured, seems now to be deserted by them. The specimens above mentioned were taken from a large cave-like fissure in the Huevos Boca to which the collector was piloted by Mr. Morrison. Their stomachs contained the partially digested remains of fish; confirmation, if confirmation be needed, of the now well-known fish-eating habits of this species. At a recent meeting of the Trinidad Field Naturalists' Club (*cf.* Journal, Vol. I, p. 204), the president of the Club, H. Caracciolo, Esq., described the manner in which these bats captured their prey, "by throwing it up with their interfemoral membrane. Simultaneously they bend their heads towards their tails to seize the fish as it is thrown from the water." In support of this observation Dr. A. Woodlock said (*l. c.*), "that early one morning, at Monos, he distinctly saw the bats in this act." Is it not possible that the much lengthened, curved, acute toe-nails of this species are of assistance to it in catching or hooking fish?

5. **Molossus rufus** *Geoffr.*.—The 25 specimens representing this species show a wide variation in coloration. The specimens representing the extreme color phases were preserved as skins, the others in alcohol. The general coloration varies from deep rich chestnut to blackish seal brown. The ventral surface is a little lighter than the dorsal. Measurements of six adult females and four adult males indicate only a slight sexual difference in size, as follows: Six females, forearm 49.8 (48.3–50.8) mm.; third metacarpal, 49.8 (48.3–50.8); tibia, 18.6 (18.3–18.8); free portion of tail, 25.6 (21.6–27.7). Four males, forearm, 51 (50.8–51.3); third metacarpal, 50.3 (49.3–50.8); tibia, 20.3 (19.8–20.6); free portion of tail, 27.9 (26.9–28.3).

This was by far the most common species of bat observed, and was the only one regularly seen at evening coursing for insects about the rest-house clearing. A colony of about thirty bats of this species, with evidently a few of *M. obscurus*, occupied the

attic of a neighboring house. Their retreat was invaded and nineteen specimens secured. A short stick was the only weapon necessary to effect a capture, for while their abode was large and light, and access to the outer air was easy, not one took wing but all endeavored to escape by running. Some ran up the rafters to hide beneath the peak of the house; others ran across the floor, going so rapidly that it was difficult to strike them. When at rest they seemed to prefer sticking to a vertical surface rather than hanging after the usual manner of bats. Of the nineteen specimens taken seventeen were females and two males. Sixteen of the females contained a single foetus each.

6. *Molossus obscurus* Geoffr.—This species is represented by a single specimen preserved in spirits. It is an adult female, and contained a single half-grown foetus. The specimen measures as follows: forearm, 38 mm.; third metacarpal, 38; tibia, 13.2; free portion of tail, 17.8.

A comparison of the measurements of this fully adult female with those given above of *M. rufus* would seem to indicate that these two forms are specifically distinct.

This specimen was found with the colony of *M. rufus* first mentioned. There were evidently other individuals in the same colony, but their smaller size enabled them to secrete themselves in holes from which it was not possible to dislodge them.

7. *Chæronycteris intermedia*, sp. nov.

Similar in size and general proportions to *Chæronycteris minor*, but with the calcaneum one-half shorter, tibia longer, thumb shorter. Also different in coloration.

Above snuff-brown, the fur slightly paler basally, not "light grayish brown," as in *C. mexicana* and *C. minor*. Below slightly paler than above, about the color of the basal portion of the hairs above. Ears, feet and membranes blackish, naked, except that the fur extends on both surfaces of the wing membranes as far as the elbows, and also along the basal third of the forearm bones on both surfaces. Calcaneum conspicuously shorter, instead of "conspicuously longer," than the foot. Thumb shorter, tibia longer, than in *C. minor*.

Type, No. 4783, ♀ ad., Princetown, Trinidad, March 28, 1893, coll. of Frank M. Chapman.

The present species is based on three specimens, a skin and skull, and two examples in alcohol.

The genus *Charonycteris* is now for the first time recorded from Trinidad. The present species, while agreeing with *C. minor* from Surinam in size, appears to differ from it decidedly in coloration, particularly of the underfur, and in the shortness of the thumb, in the greater length of the tibia, and in the calcaneum being much shorter, instead of much longer than the hind foot.

While agreeing in the relative length of the calcaneum with *C. mexicana*, it is widely dissimilar in size, as well as in other features, it being very much smaller in all parts, as shown by the following comparative measurements:

	Sex.	Forearm.		Third Metacarp.		Tibia.		Foot.		Calc'um.		Thumb.	
		mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.
6072 <i>C. intermedia</i> ¹ ...	♀	34.5	1.36	34.5	1.36	12.2	.48	8.6	.34	6.6	.26	5.6	.22
4781 " " 2...	♂	33.5	1.32	33.5	1.32	12.7	.50	8.1	.32	6.1	.24	5.1	.20
6105 " " 2...	♂	35.5	1.40	13.5	.53	9.1	.36	6.1	.24	5.8	.23
6104 " " 2...	♂	35.5	1.40	13.5	.53	9.1	.36	6.1	.24	5.8	.23
<i>C. minor</i> ³		34.3	1.35	34.3	1.35	11.4	.45	8.1	.32	11.2	.44	7.1	.28
<i>C. mexicana</i> ³		43.2	1.70	40.6	1.60	15.7	.62	10.6	.42	6.6	.26	8.9	.35

In dental and cranial characters *C. intermedia* appears to agree with *C. mexicana* and *C. minor*. The position of the lower pre-molars as shown in Dobson's plate (Cat. Chirop., Pl. xxvii, Fig. 6, 6a) does not agree, however, with his description given in the text (l. c., p. 510).

8. *Artibeus*, sp. nov.?—A large *Artibeus*, not referable to either *A. planirostris* or *A. perspicillatus*, is represented by a single skin, the skull unfortunately having been stolen by the rest-house cat. It differs in coloration and in the distribution of the fur on the wing-membranes, from any of the currently recognized species of *Artibeus*. The forearm measures 63 mm.; the third metacarpel, 61, and the tibia, 25.4. Color above and below light brown, much lighter on the head and anterior half of the body, the hairs nowhere tipped with gray. A broad white stripe above and a faint whitish line below each eye.

9. *Lutra insularis* F. Cuv.—An adult female (No. ⁶⁰⁴²/₄₇₆₅), fully mature but not aged) gives the following measurements:

¹ Measurements from skin

² Measurements from alcoholics.

³ Measurements from Dobson, Cat. Chirop., pp. 510, 511.

Total length, 1060 mm.; head and body, 610; tail vertebrae, 450; hind foot, 103; ear from crown, 20. Skull: basal length,¹ 98; interorbital breadth, 19.5; Pm.4, 9. These cranial measurements somewhat exceed those given by Mr. Thomas (l. c.) for two specimens of *L. felina*. In the absence of proper material for comparison we provisionally adopt the name above given.

The Otter is apparently a rare animal in Trinidad. Hunters were either ignorant of its presence or said that they had met with it on very few occasions.

10. *Sciurus æstuans hoffmanni* Peters.—A series of ten specimens prove to be much nearer subspecies *hoffmanni* from Costa Rica, both in size and coloration, than to the true *æstuans* of Brazil, although clearly intermediate between the two, as respects both size and coloration.

The measurements of this series are as follows: Total length, 371 (348–390) mm.; head and body, 197 (182–208); tail vertebrae, 174 (145–208); hind foot, 47 (43–52); ear, 19. The skulls of six specimens average 50 mm. in total length and 28.7 in greatest zygomatic breadth, as against respectively 53 and 31 in three skulls of *hoffmanni* from Costa Rica. The coloration is much nearer that of *hoffmanni* than it is to Santarem and Chapada examples of *æstuans*.

This species is very common. It lives in the forests, particularly in those which are bordered by cacao groves, to the fruit of which they do much damage. Its voice bears an unmistakable resemblance to that of *Sciurus hudsonius*, but its vocabulary is more limited, and it is far less noisy than that species.

***Nectomys palmipes*, sp. nov.**

Similar in general external and cranial features to *N. apicalis* Peters, but much smaller and darker, with a relatively much shorter tail.

Adult.—Pelage soft, full, glossy. General color above pale yellowish brown; the middle of the dorsal region, from the nose to the tail, strongly blackish; the sides grayish buffy brown, sparingly varied with black-tipped hairs; the top of the head, from the muzzle to behind the eyes, blackish varied with gray. Below, whitish with a wash of pale buff, strongest over the middle of the

¹ These measurements are in conformity with those given by Mr. Oldfield Thomas, P. Z. S., 1889, p. 200.

ventral region, the fur grayish plumbeous beneath the surface. The line of demarcation between the coloration of the dorsal and ventral surfaces very indistinct. Ears oval, evenly rounded above, flesh colored at base, dusky apically, sparsely haired. Limbs externally grayish brown, the feet scaly, so thinly haired as to be nearly naked. Palms and soles scaly, the latter 5-tuberculate. Tail a little shorter than head and body, blackish, nearly unicolor, heavily furred for the basal half-inch or more, the rest scantily clothed with short bristly hairs, which form a very slight pencil at the tip.

Measurements, average of six adults (four males and two females) taken before skinning: Total length, 402 (380-433) mm.; head and body, 206 (189-223); tail, 196 (175-210); hind foot, 46.5 (44-48); ear from crown, 18.6 (16-20). The females are considerably smaller than the males.

Young.—Above uniform mouse-gray, varying to mouse-brown, over the whole dorsal region; sides with a wash of buff, very slight in the quarter-grown specimens, becoming stronger as the animal increases in age; ventral surface clear gray, in older specimens whitish gray.

Skull similar to that of *N. apicalis*,¹ especially in regard to the size and form of the interparietal, in which it differs notably from *N. squamipes*. An adult male skull measures as follows: Total length,² 47; basal length, 38; greatest zygomatic breadth, 24; mastoid breadth, 16.3; least interorbital breadth, 3.6; length of nasals, 18.3; length of interparietal, 4.3; width of same, 8.9; distance from incisors to first molar, 11.9; length of crown surface of upper molar series, 6.9; length of lower jaw (point of incisors to posterior border of condyle), 26.9; height at condyle, 13.5.

Type, No. $\frac{5928}{888}$, ♂ ad., Princetown, Trinidad, April 10, 1893, coll. Frank M. Chapman.

This species is based on a series of 12 specimens, 7 of which are adult and five in various stages of immaturity, the youngest about one-fourth grown.

The adults vary somewhat in coloration, chiefly in the intensity of the yellowish brown above, the amount of black over the middle of the dorsal region, and in the degree of buffy suffusion below, which varies from a slight tinge to a strong wash. The skulls of course vary in size and proportions with age, but in the

¹ As figured by Peters, Abhandl. Akad. Wissensch. zu Berlin, 1860, p. 148, pl. ii.

² In this paper "total length," unless otherwise stated, is the distance from the most projecting part of the skull in front—anterior border of nasals or premaxillaries, as the case may be—to the most projecting part of the skull behind—occipital plane or occipital condyles, as the case may be; "basal length" is the distance from the inner base of the incisors to the posterior border of occipital condyles. The length of the lower jaw is taken from the tip of the incisors to the posterior edge of the condyle, unless stated otherwise. In all instances measurements are taken with callipers in a straight line between the extreme points mentioned.

fully adult there is little variation. The nasals end in an acute V-shaped point, which projects beyond the fronto-maxillary suture. The interparietal is convex posteriorly, nearly straight or slightly convex on its anterior border, with the transverse about twice the antero-posterior extent, or rather less.

In cranial characters this species is much more nearly related to *N. apicalis* Peters, from Guayaquil, than to *N. squamipes* (Brants); the very largest skulls about equal the dimensions given by Dr. Peters for that of *N. apicalis*. It also resembles *N. apicalis* in its 5-tuberculate soles, but differs from it in its darker coloration, smaller size, and relatively much shorter tail, which is considerably shorter than the head and body, instead of considerably longer as in *N. apicalis*. The tip of the tail is not white, as was the case in the type of *N. apicalis*.

N. palmipes differs from *N. squamipes* in having the soles 5-tuberculate instead of 6-tuberculate, and in the very different form of the interparietal, which in *N. squamipes* is very much narrower antero-posteriorly, and transversely much more extended.

Mr. Thomas gives "*Holochilus squamipes* Bts." from Trinidad (presumably=*Nectomys squamipes* Peters), but that species is unrepresented in the present collection.

All the specimens secured were taken in the low, dense growth near a small stream.

12. *Tylomys couesi*,¹ sp. nov.

Of the size and general coloration of *T. nudicaudatus*, but with the tail uniform dusky, somewhat hairy and slightly tufted, instead of particolored and naked as in *T. nudicaudatus* and *T. panamensis*.

Above nearly uniform cinnamon brown, everywhere punctated with black, through the presence of longer black-tipped hairs overtopping the general pelage. Below white, with a slight tinge of yellow, the white extending to the base of the fur. Line of demarcation between the color of the dorsal and ventral surfaces well defined. Edges of the feet and toes soiled whitish. Whiskers very long, black, the longest measuring 70 mm. Ears large, naked, dusky. Tail rather longer than head and body, black from base to tip, nearly naked basally, but scantily clothed with short blackish hairs, increasing in

¹ Named for Dr. Elliott Coues, in recognition of his important contributions to North American mammalogy.

length and abundance toward the tip, where they conceal the annulations, and form a well-defined pencil at the tip. Hind feet short and broad, with naked soles.

Measurements (from the fresh specimen): Total length, 460 mm.; head and body, 208; tail to end of vertebræ, 252; pencil at tip, 11; hind foot, 35; ear from crown, 24.

Type and only specimen, No. $\frac{5856}{4888}$, ♂ ad., Princetown, Trinidad, April 6, 1893, coll. Frank M. Chapman.

This specimen is in apparently rather worn pelage. The coat is very short but thick and soft, and the underfur very woolly, particularly on the ventral surface. Probably in fresh pelage the color would be brighter and more yellowish rufous.

The skull is that of a true *Tylomys*, and presents the following measurements: Total length, 44.5 mm.; basal length, 38; greatest zygomatic breadth, 23.4; greatest mastoid breadth, 14.7; least interorbital breadth, 6.4; length of nasals, 16.5; distance from incisors to first molar, 12.7; length of upper molar series, 6.6; distance from posterior border of palatal floor to end of pterygoid hamuli, 8.9; length of lower jaw (tip of incisors to posterior border of condyle), 27; height of condyle, 12; length of lower molar series, 6.7.

This species has a close general resemblance in coloration to the *T. nudicaudatus* Peters of Guatemala and Costa Rica, but it has a hairy, relatively much longer, and very differently colored tail.

The single specimen was taken in the forest, at the entrance to a hole which penetrated beneath the roots of a tree.

13. *Oryzomys speciosus*, sp. nov.

Pelage short (about 9 mm. long on the back), thick, soft, cottony below. Color above yellowish rufous, darker reddish brown over the middle of the back, where there are intermixed a few longer black-tipped hairs; paler and more yellowish along the sides. Below, pure white to the base of the fur. Ears of medium size, rather narrow, evenly rounded on their posterior upper border, dusky brown, well clothed with very short brownish hairs, which have a slight reddish cast. Fore limbs yellowish like the sides of the body, as far as the base of the toes, the toes lighter, buffy white; palms yellowish flesh-color. Hind limbs yellowish, like the flanks, as far as the base of the toes; toes very scantily haired, yellowish gray; soles dusky, 6-tuberculate. Tail considerably

longer than head and body, the basal half inch heavily furred and colored, below as well as above, like the rump, forming a basal, furred, yellowish brown ring; rest of the tail uniform pale brown, annulations very narrow and indistinct, the scales minute, practically naked except near and at the tip, where it is thinly clothed with short dusky hairs, forming a minute, scarcely appreciable pencil. Under a lens the whole tail is found to be haired, but so scantily as not to appreciably obscure the annulations. Whiskers scanty, black.

Measurements, from the fresh specimen: Total length, 261 mm.; head and body, 124; tail vertebræ, 137; hind foot, 24; ear from crown, 14.

Skull, in general features, much like that of *O. palustris*; it is, however, heavier and larger, with a heavier raised supraorbital ridge; the interparietal is also several times larger, relatively as well as absolutely; the anterior palatine foramen is shorter and much broader. Total length, 30.5; basal length, 25; greatest zygomatic breadth, 17.3; greatest mastoid breadth, 12.2; least interorbital breadth, 5.6; length of nasals, 11; length (antero-posterior axis) of interparietal, 5; breadth (transverse axis) of interparietal, 9.4; length of anterior palatine foramen, 5.6; greatest breadth of same, 2.8; distance between incisors and first molar, 7; length of crown surface of upper molar series, 4.5; length of lower jaw (point of incisor teeth to posterior border of condyle), 18.8; height at condyle, 8; length of crown surface of lower molar series, 4.8.

Type and only specimen, No. $\frac{5943}{4672}$, ♀ ad., Princetown, Trinidad, April 26, 1893, coll. Frank M. Chapman.

This species in size, proportions and coloration, strongly suggests *Hesperomys concolor* Wagner, from the Rio Curicuriari, in northeastern Brazil, with which it may prove to be identical.

14. *Oryzomys trinitatis*, sp. nov.

Pelage full, soft and rather long (13 mm. on the middle of the back). Color above bright yellowish rufous, darker, approaching chestnut, and finely varied with black-tipped hairs over the middle of the dorsal region, lighter and more strongly yellowish on the sides; nose blackish and head rather darker than back; below grayish white, the tips of the hairs being soiled whitish and the basal portion gray, showing more or less through the surface. Line of demarcation between the coloration of the dorsal and ventral surface not sharply defined. Ears rather large and quite broad, dusky, and thinly coated with very short blackish hairs. External surface of fore and hind limbs dusky yellowish brown, becoming lighter grayish brown on the toes, which are thinly haired; palms and soles naked, the former brownish flesh color, the latter more dusky and 6-tuberculate. Hind feet rather broad in proportion to their length. Tail very much longer than head and body, furred all around for the basal half inch, the fur yellowish ashy below and colored like the rump above; remainder of the tail pale dusky brown, unicolor, non-penicillate and practically naked throughout,

though clothed with very short dusky hairs, generally not readily seen without a lens.

Measurements, from fresh specimens: Total length, 271 mm.; head and body, 123; tail, 148; hind foot, 25; ear above crown, 16.

Skull similar to that of the preceding species, except that the nasals and the facial portion of the skull are much longer and the interparietal much smaller. In old skulls the supraorbital ridge is continued backward to the posterior border of the parietals. Total length, 32.5; basal length, 27.2; greatest zygomatic breadth, 17.8; greatest mastoid breadth, 12; least interorbital breadth, 6.1; length of nasals, 11.4; antero-posterior breadth of interparietal, 3.5; transverse breadth of same, 9.3; length of anterior palatine foramen, 6.4; greatest width of same, 2; distance between incisors and first molar, 8.4; length of crown surface of upper molar series, 4.5; length of lower jaw, 20.3; height at condyle, 8.6.

Type, No. $\frac{5943}{4678}$, ♂ ad., Princetown, Trinidad, April 25, 1893, coll. Frank M. Chapman.

This species is based on three specimens, a very old male and an old female, and a young adult male. The very old specimens are closely similar in all features; the younger specimen, although practically adult as regards size, is less rufous and more yellowish above and rather more whitish below, with the throat pure white to the base of the fur.

This species differs from the preceding in the character of the pelage, in coloration, especially of the lower parts, in being larger and with a relatively longer and less hairy tail, and in various cranial differences, particularly in the much shorter interparietal. What its nearest relative may be among the continental species it is impossible to decide in the absence of proper material for comparison.

15. *Oryzomys velutinus*, sp. nov.

Pelage thick, short (about 7 mm. long on the back), velvety below. General color above dark cinnamon-brown, darkest and much mixed with blackish on the middle of the back, lighter and more reddish on the sides, brighter reddish on the hinder part of the crown and posteriorly over the shoulders; anterior part of the head dusky grayish brown with only a faint tinge of reddish, and a narrow, indistinct blackish eye-ring; beneath grayish white at the surface, dusky plumbeous basally. Ears large, broadly oval, naked on both surfaces, dusky with a faint reddish cast. External surface of the limbs like the adjoining portions of the body; feet thinly haired above, yellowish gray, this color extending on the hind feet to slightly above the ankles; palms and soles naked,

the former flesh-colored, the latter dusky brown, 6-tuberculate. Tail considerably shorter than head and body, naked, very distinctly and clearly annulated in comparison with the two preceding species.

Measurements, from fresh specimens: Total length, 252 mm.; head and body, 135; tail, 118; hind foot, 28; ear from crown, 18.

Young.—Pelage very short, soft and velvety, almost plush-like on the ventral surface. Above blackish plumbeous, paler on the sides, whitish gray below. Later the back becomes nearly black, and the sides acquire a mouse-brown wash.

The skull is of the typical *Oryzomys* style, with, however, the facial portion somewhat lengthened, and the anterior palatine foramen rather short and broad, and the supraorbital ridge, even in old individuals, rather feebly developed. Total length 33 mm.; basal length, 27; greatest zygomatic breadth, 17; greatest mastoid breadth, 12.2; least interorbital breadth, 5; length of nasals, 12.7; antero-posterior breadth of interparietal, 3.8; transverse breadth of same, 10.2; distance between incisors and first molar, 7; length of crown surface of upper molar series, 4.5; length of lower jaw, 20.3; height at coronoid process, 8.6.

Type, No. $\frac{5848}{4878}$, ♂ ad., Princetown, Trinidad, April 16, 1893, coll. Frank M. Chapman.

This species is based on a series of ten specimens, three of which are fully adult, two nearly adult, and five in the blackish plumbeous pelage of the young, varying in age from sucklings to half or two-thirds grown.

The peculiar blackish plumbeous pelage of the young recalls the corresponding 'blue' stage in the genera *Sitomys*, *Neotoma* and *Nectomys*, but which is not found in the typical species of *Oryzomys*, as the genus is represented in the United States. In this species there is a slight deviation toward *Sitomys* in the relatively slightly narrowed and lengthened facial portion of the skull. The auditory bullæ, however, are unusually small, even for an *Oryzomys*, in which genus they are always much smaller than in *Sitomys*.

This species was not found associated with the other species of *Oryzomys*, but was met with in the forests, where it seemed to live beneath the roots of trees or stumps.

16. *Oryzomys brevicauda*, sp. nov.

Adult.—Pelage full, soft, and long (9.5 mm. long on middle of back). General color above yellowish brown, darker and strongly varied with black-tipped

hairs over the middle of the dorsal region, lighter, more buffy yellow on the sides; below gray, with a slight buffy wash, the basal portion of the fur dusky plumbeous. Line of demarcation between the coloration of dorsal and ventral surfaces indistinct, often passing gradually the one into the other. Ears of medium size (smaller than in either of the preceding species of this genus), low, broad and very evenly rounded above, dusky, practically naked (pulverulent) on both surfaces (under a lens the surface is shown to be covered with very minute short whitish-tipped hairs). Feet above light grayish brown, with a faint yellowish or buffy tinge, scantily haired; palms and soles naked, the former brownish flesh-color, the latter a little darker brown, 6-tuberculate. Tail about one-fourth shorter than head and body, naked (clothed scantily with hairs so minute as to be nearly invisible without a lens), indistinctly bicolor, pale brown above, lighter, almost isabella color below for the basal two-thirds, the line of demarcation between the two colors indistinct.

Young.—A very young example (probably a nursling) is uniform dusky brown above faintly washed with yellowish gray, more distinct on the head, and particularly on the sides of the head. Below similar but much paler. Inside of ears well clothed with very short yellowish dusky hairs. Nearly full-grown examples are variously intermediate between this and the fully adult phase.

Measurements (average of 10 adult males, taken in the flesh): Total length, 265 (250–280) mm.; head and body, 154 (141–161); tail, 111 (101–120); hind foot, 28 (27–30); ear from crown, 15.3 (13–18). A similar number of females average smaller, as follows: Total length, 235 (220–253); head and body, 142 (132–150); tail, 93 (86–105); hind foot, 26.6 (25–29).

The skull is that of a typical *Oryzomys* (taking *O. palustris* as the type of the genus), except as regards a few minor details, principally the form of the interparietal, which is very narrow antero-posteriorly and very broad transversely, as it is in most of the species of *Oryzomys* here described. An average adult male skull measures as follows: Total length, 32.5 mm.; basal length, 28.7; greatest zygomatic breadth, 17.3; greatest mastoid breadth, 12.5; least interorbital breadth, 5.8; length of nasals, 13.5; antero-posterior breadth of interparietal, 2.5; transverse breadth of same, 10.2; distance from incisors to first molar, 8.9; length of anterior palatine foramen, 6.9; length of crown surface of upper molar series, 4.5; length of lower jaw, 22.9; height of same at condyle, 7.6.

Type, No. $\frac{5981}{1708}$, ♂ ad., Princetown, Trinidad, April 12, 1893, coll. Frank M. Chapman.

This species is represented by a series of 38 specimens, nearly all adults, but including one nursling, and a few others slightly immature. Among the practically adult specimens the general

color above varies from strong clear yellowish brown to a darker shade, approaching yellowish chestnut. Below the color varies from pale buffy gray to quite strong buff over the middle of the ventral surface, fading to lighter on the throat and towards the anal region. This variation is, however, mainly due apparently to age, the younger adults being more buffy below and yellower above. The young, as already described, are dusky brown, with a faint wash of pale yellowish brown.

This species is very distinct from either of the preceding, both in external and cranial characters. Its heavy, comparatively coarse pelage gives it almost an Arvicoline appearance, which its relatively smaller ears and shorter tail tend to heighten. In cranial characters it most nearly approaches *O. palustris* of any of the species here described, particularly in the form of the lower jaw, which has the coronoid process longer and more decurved, and the posterior border of the mandible more deeply hollowed than is the case in any of the others. It differs from *O. palustris* in the form of the interparietal, through its great transverse breadth as compared with its antero-posterior extent; in this respect essentially agreeing with the preceding species, as it does also in the comparatively slight development of the supra-orbital ridges.

This was apparently the most abundant Rodent near the rest-house. With *O. speciosus* and *O. trinitatis* it was found in the dense, low growth which bordered small streams.

17. *Abrothrix caliginosus* (Tomes).—A series of 11 specimens of a short-tailed, *Arvicola*-like, rich chestnut-colored mouse is provisionally referred to this species. They agree with a single specimen from Costa Rica provisionally identified with this species,¹ and with Tomes's description of *caliginosus*. As, however, the type locality of *caliginosus* is Ecuador, it seems probable that a comparison of specimens from the two localities will show that the Trinidad animal may be separable.

The coloration above is dark rusty chestnut finely punctated with black, much paler and more yellowish below; ears, tail, and feet black. A series of six adults, measured before skinning,

¹ See this Bulletin, III, 1891, p. 210.

give the following dimensions: Total length, 192 (188-196) mm.; head and body, 123 (121-125); tail, 69 (65-70); hind foot, 24.6 (23-27); ear from crown, 13 (12-15). The dental and external characters agree with Waterhouse's diagnosis of his subgenus *Abrothrix*.

This species, with *Loncheres*, was the only one of the Muridæ or Octodontidæ which seemed to be diurnal in its habits. Their appearance in life suggests that of an *Arvicola*.

18. *Mus rattus* Linn.—A single specimen was captured at a neighboring cacao estate, and was the only one observed.

19. *Mus alexandrinus* Geoffr.—Common in the vicinity of houses, and on two occasions captured at a small uninhabited palmetto thatch in a forest.

20. *Mus musculus* Linn.—Common at Port-of-Spain, and probably occurs throughout the island. The presence of cats and dogs at the rest-house doubtless prevented the occurrence there of either of the three species of *Mus*.

21. *Heteromys anomalus* (Thompson).—This species was originally described by Thompson in 1815,¹ from a single specimen from the island of Trinidad. Few examples appear to have as yet fallen into the hands of naturalists, and even the people of Trinidad are almost unaware of its existence. According to Mr. Oldfield Thomas (Journ. Trinidad Field Nat. Club, I, 1892, p. 165), the type and one other specimen, the latter received in 1891, are in the collection of the British Museum. It is therefore gratifying to report that the present collection contains a series of 30 specimens, including five in alcohol. Both sexes and all ages are represented, from the suckling young to aged adults. From this material the species may be redescribed as follows:

Adult.—Above grayish dusky brown faintly washed with chestnut; below pure white to the base of the hairs. The dark color of the upper surface is sharply defined against the white of the lower surface, without any trace of the fulvous lateral line seen in most of the northern species. Outer surface of the fore and hind limbs like that of the adjoining portions of the body; inner surface white, except that the dusky color of the outer surface completely

¹ Trans. Linn. Soc. London, XI, 1815, p. 161, pl. x.

encloses the middle portion of the fore arm and a short space on the leg at and just above the ankle. Upper surface of all the feet white. Palms flesh-color, soles blackish, both entirely naked. Ears large, for a member of this genus, flesh-colored at the base, passing into blackish apically, which is the color of most of the exposed portion. Tail considerably longer than the body, sharply bicolor, dusky above and whitish below, naked and nearly tuftless at the end, the very short hairs scarcely at all concealing the annulations.

The pelage of the dorsal surface consists largely of grooved spines, almost wholly so over the greater part of the back, mixed sparingly with fine bristly hairs; on the sides of the body the spines are weaker and fewer, here, as below and on the head, the pelage consisting of rather coarse stiff hairs more or less profusely mixed with softer hairs. The whole pelage above, spines as well as hairs, is whitish basally, passing into blackish and tipped generally with very pale bay or chestnut. The flanks and limbs, however, are rather paler and grayer than the middle region of the back.

Measurements.—The average and extreme measurements of ten fully adults, taken in the flesh, are as follows: Total length, 280 (265–292) mm.; head and body, 130 (120–142); tail, 150 (135–160); hind foot, 33 (31–35); ear from crown, 14.5 (14–16).

An average adult skull measures as follows: Greatest length, 36; basal length, 28; greatest zygomatic breadth, 26; least interorbital breadth, 13.5; distance between incisors and first molar, 9.5; crown surface of upper molar series, 4.5; lower jaw, length, 20; height at condyle, 12.5.

Young.—Nursing to half or two-thirds grown young are dusky plumbeous with a slight sooty tinge, but otherwise marked as in the adult. At a more advanced stage the general color becomes a little lighter or grayer, with a faint tinge of brown. The hair on the middle of the back becomes coarser and stiffer, but well-developed spines do not appear much before the animal attains adult size.

The only other species of this genus available for comparison with the present is *Heretomys alleni*, of which the Museum has now a large series, collected in the vicinity of Brownsville, Texas. This proves so distinct from *H. anomalus* that no comparison between the two is necessary, except that it seems desirable to improve the present opportunity to elucidate further the characters of *H. alleni*.¹ The youngest specimen (about half-grown) of *H. alleni* indicates that the young, even during the suckling stage, are not greatly different in general coloration from the adults, being perhaps a little paler and more uniform gray, and

¹ See this Bulletin, III, No. 2, pp. 268–272, June, 1890.

not blackish plumbeous as in *H. anomalus*. A series of adults of *H. allenii*, measured in the flesh, give the following dimensions: Total length, 250 (238-260) mm.; head and body, 122 (112-135); tail, 128 (115-136); hind foot, 29 (28-30); ear from crown (measured from the dried skin), 10.

In general, *H. allenii* differs from *H. anomalus* in its much smaller size, in the very much smaller ears, in the tail being hairy and slightly tufted, and radically in coloration, *H. anomalus* being very much darker at all ages, and entirely lacking the fulvous lateral line seen in *H. allenii*. In fact, as recently pointed out by Mr. Oldfield Thomas (Ann. and Mag. Nat. Hist., 6th Ser., XI, 1893, p. 329), these two species belong to very different sections of the genus,¹ in respect especially to the character of the hind feet, *H. anomalus* belonging to the section having the soles naked and 6-tuberculate, and *H. allenii* to the section with the soles hairy and 5-tuberculate.

This species made its home beneath the roots of forest trees. The pouches are used to carry food. One specimen had no less than fifty-three seeds the size of peas in its pouches, while the pouches of most of the specimens captured contained a few kernels of the corn used as bait which they had stored away before springing the trap.

22. *Loncheres guianæ* Thomas.

Loncheres guianæ THOMAS, Ann. and Mag. Nat. Hist. 6th Ser. II, 1888, p. 326 (Demerara); Journ. Trinidad Field Nat. Club, I, No. 7, 1892, p. 166 (Trinidad).

This species is represented by five specimens, all females, and all taken in the mangroves at the mouth of the Caroni River. Four are adult, the other is a half-grown young one. One of the specimens was collected by Mr. Chapman, April 29, 1893, and the others, taken June 10 and 11, were collected and presented to the Museum by Messrs. F. W. Urich and R. R. Mole, of Port-of-Spain. Three of the adults are skins, with the skulls; the other two specimens are skins preserved in alcohol. The June adults all contained fœtuses, two of which are preserved in alcohol.

¹ Mr. Thomas, however, appears not to have had full-grown specimens of *H. allenii*.

These specimens are provisionally referred to this species, with the description of which they appear sufficiently to agree as regards the general external characters. There are, however, some discrepancies in respect to measurements. The dimensions of an adult female (No. $\frac{6000}{4727}$), measured in the flesh, are as follows : Total length, 456 mm. ; head and body, 231 ; tail, 225 ; hind foot, 43 ; ear from crown, 15.

Three skins measure as follows :

		Total length.	Head and body.	Tail.	Hind foot.	Ear.	
6311.	♀ ad.	430	230	200	36	7	Dry.
6312.	♀ "	410	230	180	36	7	"
6309.	♀ " ....	....	235	165 ¹	38	11	In alcohol.

Mr. Thomas's measurements of the type, from Demerara, taken from the skin, are as follows : "Head and body, 190 millim. ; tail, 167 ; [hence, total length, 357 ;] hind foot, 36.2 ; ear (contracted), 5.5."

Hence Mr. Thomas's type, though said to be adult, is a much smaller animal than either of our Trinidad specimens, if we restrict our comparisons to the skins. The measurements of the skulls of the Demerara and Trinidad specimens would seem to indicate that this discrepancy is more apparent than real, as shown by the following :

No.	Basal length.	Greatest breadth.	Length of Nasals.	Least interorb. breadth.	Dias-tema.	Length of Upper molar series.
$\frac{6000}{4727}$	50	26	17	13	11.7	11.2
$\frac{6812}{4846}$	40	23	16	11.5	10	10.5
$\frac{6811}{4844}$	43	25	17.5	13	11.5	11
Demerara	47	26	15.5	13	11.8	11.2

As noted above, Mr. Thomas has already recorded (l. c.) this species from Trinidad, this being its second known occurrence. Mr. Urich writes concerning the specimens collected by himself and Mr. Mole : "They seem to be particularly plentiful on the Caroni now, especially between the hours of five and seven in

¹ Tail imperfect—mutilated in life.

the afternoon. The stomachs of all killed contained the fruit of the mangroves, of which there is an abundance at present."

23. *Loncheres castaneus*, sp. nov.

Similar in size and proportions to *L. guianæ*, but differing from it in coloration and cranial characters.

External characters.—Thickly spinous except on the ventral surface and limbs, the spines strongly developed over nearly the whole dorsal aspect. General color above orange-tawny, more intense on the front part of the head and at the base of the tail, gradually paler on the sides, everywhere heavily lined with black; ventral surface isabella color, finely lined with dusky, the line of demarcation between the dorsal and ventral surfaces fairly well defined. Upper and under surface of the limbs respectively similar in color to the adjoining portions of the body; upper surface of hind feet paler, yellowish gray, becoming nearly clear gray on the toes. Palms and soles naked, blackish. Ears small, rounded, blackish, nearly naked. Tail (in the young) similar to that of *L. guianæ*, finely annulated, well-clothed for a short distance at the base, the remainder nearly naked, the very short, dusky yellowish hairs only partly concealing the annulations.

The dorsal pelage consists of spines mixed with hairs, the spines coarse and heavy over the median dorsal area, gradually becoming thinner and weaker on the sides of the body, passing into grooved bristly hairs on the ventral surface. The spines of the back are plumbeous at base passing into black on the apical half, without orange-rufous tipping on the anterior half or third of the dorsal region, but posteriorly subapically ringed with this color and minutely tipped with black, the orange-rufous subapical ring becoming broader and conspicuous posteriorly. On the sides of the body the spines are nearly uniform plumbeous gray to the tip. The intervening hairs are coarse and bristly, blackish basally and very broadly tipped with orange-rufous, this color usually occupying one fourth to one-third the length of the hair, but with the extreme tip often black.

Measurements.—Head and body (adult female), 245 mm.; tail,—¹ hind foot, 40; ear from crown, 16. (Measurements from the fresh specimen.) A very young specimen, in alcohol, measures as follows: Total length, 235; head and body, 110; tail, 125; hind foot, 29; ear from crown, 11.

Skull.—The skull, in size and proportions, is almost indistinguishable from that of *L. guianæ*, but differs in details, as will be presently noticed. Basal length, 43; greatest breadth, 25.5; least interorbital breadth, 13; length of nasals, 15.5; diastema, 11.5; length of upper molar series, 11.2.

Type, No. $\frac{4001}{4728}$, ♀ ad., Princetown, Trinidad, April 20, 1893, coll. Frank M. Chapman.

¹ The tail is lacking.

This species is based on three specimens, an adult female and two young males one-fourth to one-half grown. The adult specimen and the larger of the two young ones are unfortunately tailless, the entire tail having been lost apparently in early life, as happens often with the Trinidad species of *Echimys*, as noted below. The young specimen with a perfect tail shows that this member is relatively of about the same length as in *L. guianæ*.

This species differs from *L. guianæ*, apparently its nearest ally, in the general coloration being much brighter and stronger, the dorsal surface being orange-rufous heavily lined with black instead of pale yellow or yellowish gray rather sparingly lined with black, while the ventral surface is many shades darker. The cranial differences consist in the slightly narrower and shorter anterior palatine foramen; in the slenderer, narrower and posteriorly more extended nasals; in the palatal emargination being bluntly oval instead of sharply V-shaped; in the greater breadth of the basi-occipital; and in the greater slenderness of the ascending maxillary branch of the zygoma.

It is probable that the baits used in trapping were not attractive to this species. The two young specimens were trapped, but the only adult secured was caught by dogs near the banks of a small stream. It was called by the natives, Agouti Rat.

24. *Echimys trinitatis*, sp. nov.

Similar in size and proportions, and apparently in color, to *E. cayennensis* but in cranial characters and in the distribution of the spines more nearly resembling *E. semispinosus* Tomes.

Adult.—General color above rusty brown, nearly uniform except over a rather broad median dorsal area, where the rusty brown is profusely mixed with black, in some specimens the black prevailing; whole ventral surface pure white to the base of the hairs, except that occasional specimens show traces of a prepectoral dusky color. Ears narrow, rounded at top, slightly hollowed on the posterior border, nearly naked, flesh-colored, broadly margined with dusky. Tail a little shorter than the head and body, well furred for about an inch at the base, the rest practically naked, the annulations scarcely at all concealed by the very short, much scattered whitish hairs, and there is no tendency to a terminal pencil, as in *E. cayennensis*. Palms and soles naked, the latter uniform blackish, the former usually mottled flesh-color and dusky, sometimes one color prevailing and sometimes the other. Upper surface of fore feet grayish brown, becoming lighter on the toes; upper surface of hind feet dusky brown on the

inner half, gray or grayish white, varying in different specimens, to pure white on the outer half.

The spines are restricted (in a series of 10 adults) to an oval area on the middle of the back, between the shoulders and the hips, extending laterally on to the sides of the body. The spines are grayish white or whitish at base, passing gradually through gray and dusky gray to black, the exposed portion being black, except on the lateral portions of the spiny area, where the spines are often whitish nearly to the tip.

Measurements (average of five specimens measured in the flesh).—Total length, 446 mm. ; head and body, 244 ; tail, 202 ; hind foot, 50 ; ear from crown, 23. The males average somewhat larger than the females, as shown by the subjoined table.

Young.—One-third grown young (in the 2-molar stage) are blackish above, nearly pure black over the central portion of the dorsal area, paler, brownish black on the sides, where the dusky tint has a purplish or faint vinaceous tinge ; below white, with or without a dusky prepectoral collar, traces of which are sometimes present in the adult. The whole pelage is spineless and soft. When about half-grown (in the 3-molar stage) the sides become faintly tinged with pale rusty brown, and a few weak spines begin to appear in the middle of the back. At a more advanced stage the general coloration above is still dusky brown, with a blackish spiny area over the middle of the back (between the hips and shoulders), with rusty-tipped hairs more or less generally intermixed over the whole upper surface of the body.

Skull.—An average adult skull measures as follows : basal length, 48 mm. ; greatest breadth, 29 ; least interorbital breadth, 13.3 ; length of nasals, 24 ; diastema (distance between incisors and first molar), 14 ; upper molar series, 10. The nasal bones extend considerably beyond the fronto-maxillary suture, and are squarely truncate or slightly rounded on the posterior border. A series of young skulls shows the development of the molar series from two to four teeth.

Type, No. $\frac{5018}{4848}$, ♂ ad., Princetown, Trinidad, April 26, 1893, coll. Frank M. Chapman.

This species is based on a series of 21 specimens—12 adults, five young in the spineless, soft, hairy coat, and four in intermediate stages between the spineless young and the fully adult. Two of these are preserved in alcohol, the rest as skins with the skulls separate. All were taken at Princetown during March and April.

Echimys trinitatis differs from *E. cayennensis*, its nearest geographical congener, in various external characters, notably in the restriction of the spiny area to the central portion of the back, in the less hairy condition of the tail and the entire absence of a hairy pencil at the tip, and also somewhat in coloration, especially in the absence of a pale rufous patch behind the ears. In cranial

characters it differs at many points, but it may be sufficient to mention the much greater posterior extension of the nasals, which extend much beyond the fronto-maxillary suture instead of terminating considerably in front of it, as in *E. cayannensis*, in which the axis of this suture is oblique instead of transverse. In other words, the nasals and the direction of the fronto-maxillary suture are about as in *E. brevicauda*, as figured by Günther (P. Z. S., 1876, p. 749). In this respect it also much resembles *E. semispinosus* Tomes, from Ecuador, from which species, however, it differs in its very much larger and very differently shaped ears and much longer tail. It appears to resemble this latter species, however, in the restriction of the spines to the central portion of the dorsal area, in the naked and tuftless tail, and in general features of coloration.

The adults present very little variation in coloration or in external characters beyond that already noted, except that three of the adults were entirely tailless, the loss of the tail having evidently occurred in early life, leaving only a broad cicatrix where the tail joined the body. The young specimens are also quite uniform in general coloration, except that in three there is a broad dusky prepectoral collar, varying in width in different individuals, and represented in others by a broken collar, the two halves failing to meet on the median line.

The principal variations in external measurements in ten adult specimens are shown by the following table :

External Measurements.

Cat. No.	Sex.	Total length.	Head and body.	Tail.	Hind foot.	Ear.
6112 ¹	♀	442	242	200	47	22
5908 4838	♂	..	265	.. ²	50	25
5909 4839	♀	..	268	.. ²	50	..
5910 4840	♂	..	260	.. ²	55	26
5911 4841	210 ³	53	..
5912 4842	♀	404	231	173	45	21
5913 4843	♂	491	261	230	53	21
5914 4844	♀	442	242	200	47	22
5915 4845	♀	345	155	190	50	..
5916 4846	♂	450	245	205	53	21

¹ Alcoholic.

² Tail wanting.

³ Body destroyed by some predatory bird or mammal.

The skulls of course vary greatly according to age, in proportion of parts as well as in size. There is also considerable individual variation, especially in respect to the posterior extension of the nasals. These in some examples pass but little beyond the fronto-maxillary suture, while in others they extend much further. There are also minor variations in other parts, as shown by the following table of measurements of eight adult skulls :

Cranial Measurements.

	$\frac{4688}{8908}$	$\frac{4640}{8910}$	$\frac{4648}{8918}$	$\frac{4646}{8916}$	$\frac{4682}{8909}$	$\frac{4642}{8912}$	$\frac{4644}{8914}$	$\frac{4646}{8916}$
	♂	♂	♂	♂	♀	♀	♀	♀
Total length	62	60.5	61	62	61	56	56	....
Basal length.....	47.5	46	47	48	46	43	...	....
Greatest breadth...	27.5	27.5	27	....	27	26	27	27
Interorb. constrict'n.	12.5	12.5	13	12.5	13	12	12.5	12.5
Length of nasals...	22.5	22.5	21	21.5	22	19	20	20
Diastema.....	13	13	12.5	13.5	13	11.5	12.5	12
Length of upper molar series... } (crown surface)	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Length of lower molar series... }	9	9	9	9	9	9	9	9
Length of lower jaw	34	34	33	35.5	35	31	33.3	32.3
Height of do. at condyle..... }	12.5	12	11.5	13	12.5	11	12	12.5

The tendency in these animals to lose the tails renders an examination of the posterior portion of the vertebral column of the tailless examples a matter of interest. Fortunately this portion of the skeleton of two of the tailless specimens was preserved, and shows that the amputation occurs at the second vertebra behind the posterior border of the pelvis, or just behind the fifth caudal. The first four caudals are normal in size and proportions, and appear to be in a healthy condition ; the fifth caudal is abnormal, the posterior third or half having apparently been lost by absorption. A further interesting fact was noted in skinning the specimens in which the tail was still intact, namely, its easy separation at the fifth caudal vertebra, in several specimens the tail breaking at this point in the process of skinning.

The genus *Echimys* is now for the first time positively shown to be an inhabitant of the Island of Trinidad. It is true that "*Echimys*, sp." is entered in Mr. Thomas's list, but it is given

solely on the authority of Verteuil, who mentions two species, namely, "*Echymys chrysuros*" and "*Echymys rufus* (?)." What these are it is impossible to determine, as the names given are not pertinent to any Trinidad animal, and there is no other clue as to what he intended to indicate. Verteuil doubtless knew of the existence of two spiny rats in Trinidad, one of which was probably a *Loncheres* and the other possibly the present species.

This species is known by the native name of Pilori, and by some is considered excellent eating. There are popularly supposed to be two species, one with and the other without a tail. It lives in the forest, making its home in holes in the banks of streams or beneath the roots of trees. Three females contained respectively two, four, and six large embryos.

25. *Syntheres prehensilis* (Linn.).—Represented by an adult skull.

The presence of this arboreal species is made known by the nauseating odor it gives forth. This is especially noticeable in the early morning when the air is humid and before the daily trade-winds begin to blow. In walking through the forests at this time it was not unusual to encounter odoriferous strata of air proceeding from individuals of this species. So dense, however, was the parasitic vegetation on the trees in which they conceal themselves, that they were practically invisible from below.

26. *Dasyprocta aguti* (Linn.).—Represented by three adult skins and four adult skulls.

The Agouti is a very common animal in the forests near the rest-house. It is diurnal, but is more frequently met with late in the afternoon and early in the morning. It is much hunted for food, the usual method of capture being from a scaffold which the hunter erects near some favorite feeding-place. Here at a height of eight or ten feet, and distant only a few yards from the spot at which the game is expected to appear, the almost worthless guns of the negroes prove effective. The Agouti is an exceedingly shy animal. In approaching its feeding-ground it advances with the utmost caution, pausing frequently to listen. In eating it sits erect, holding its food between its front feet.

27. *Cœlogenys paca* (Linn.).—Represented by a single adult male, skin and skull.

The Lape is yearly becoming more rare in Trinidad, and will soon be confined to the less accessible parts of the forests. The fact that hunters in unearthing a Lape, which has been driven into a hole by dogs, frequently encounter the unwelcome Maperire (*Crotalus*), has given rise to the belief among some of the negroes that the hunted Lape flees to the snake's hole for protection. His passage simply arouses the reptile, which is then *en garde* for the hunters and dogs.

28. *Cariacus (Coassus) nemorivagus* (F. Cuv.).—Represented by a skull of an adult male, presented by Mr. R. S. Rowbottom, said to be the skull of one of the largest deer ever killed in the vicinity of Princetown. This skull measures as follows: Basal length (ant. border of premax. to post. border of occip. condyles), 213 mm.; greatest zygomatic breadth, 100; greatest mastoid breadth, 66; length of nasals, 62; anterior border of premaxillæ to front edge of first premolar, 68; length of molar series, 67; length of antler from frontal bone, 109.5; same from anterior base of the burr, 102.5; length of lower jaw (incisive border to posterior border of angle), 172; height at coronoid process, 83; height at condyle, 55.5; length of lower molar series, 73.5.

On the right side of this skull is the alveolus of a small upper canine (diameter 3.3 mm.); but there is no trace of a corresponding alveolus on the left side.

We provisionally follow Mr. Thomas in adopting the above name for the Trinidad deer, in the absense of the necessary material for deciding its relations to the several allied continental species.

These Deer are among the worst enemies to young cacao trees, of which they destroy thousands. Nevertheless, they are protected by a recently enacted law. In view of their abundance and the injury which they cause to agriculture it would seem inadvisable to protect deer until they are so lessened in numbers as not to prove the enemy of cacao growers.

29. Dicotyles.—Two species of this genus have long been recognized as inhabiting the island. One of the species was common near the rest-house, but no specimens were secured.

30. Cyclothurus didactylus (Linn.).—One adult female, Princetown, March 18. Measurements: Total length, 490 mm.; head and body, 216; tail, 274; hind foot, 40.

This small Ant-eater, according to popular report, is evidently not uncommon in the forests, where its food is said to consist of the white-ants or termites. Its vernacular name of "Poor-me-one," meaning poor me alone, expresses exactly the sentiment of the indescribably sweet, sad call which, heard only at night, is generally ascribed to this species. This call was frequently heard in the forests near the rest-house during moonlight nights, but the caller was identified only by the negroes' descriptions. We are now informed by Mr. Albert B. Carr, of Trinidad, at present in New York, that the call so generally supposed to be uttered by the ant-eater is in reality the note of a goatsucker, and that he has shot the bird in the act of calling.

The only specimen secured of this ant-eater was purchased alive from some negroes. It was kept alive for several days. During the day it slept holding on to a branch with the aid of its strong fore-claws and prehensile tail. It moved only when disturbed, and as soon as it was permitted relapsed into its former stupor. Just after sunset it raised its head, and, like a sleepy person, rubbed its eyes, using either the front or hind-foot for this purpose. This effort seemed to weary it, for it again rolled itself into a ball and slept. A few minutes later it re-aroused itself, and after rubbing its eyes as before, raised itself on its hind-legs and felt about in the air, uttering a low, whining snuffle and evidently seeing nothing. As darkness increased it seemed to become thoroughly awakened, and climbed slowly up and down its perch, feeling vainly for some way by which to leave it. It released its hold with its tail only when standing on all four feet, and at the first step this member was coiled around a branch as a safeguard in case of a misstep. The tail is so muscular that its grasp could be released with difficulty, while it was almost impossible to dislodge the hold of the long, curved nails of the fore-feet.

31. *Tatusia novemcincta* (Linn.).—Signs of this animal were seen in the forests, and part of one was brought by a hunter to the rest-house kitchen. Its flesh proved excellent eating.

32. *Didelphis marsupialis* (Linn.).—This species is represented by three specimens, two males and a female, taken at Princetown. They measure as follows :

	Total length.	Head and body.	Tail.	Hind foot.
♂	920	455	465	66
♂	810	385	425	55
♀	740	350	390	55

A common inhabitant of the forests. The pouch of a female contained seven young, each measuring about 50 mm. in length. Two living examples of this species were seen near the Grand Etang in the island of Granada. They were in the possession of two negro boys who had just captured them, and from whom one, an adult female, was purchased.

33. *Didelphis* (Philander) *philander* Linn.—A single, apparently full-grown male (No. $\frac{9043}{1786}$), taken March 9, is provisionally referred to this species. It differs from it, however, in its much smaller size, in the tail being hairy for only an inch and a half at the base (instead of for "from two to three inches"), and uniform grayish brown from base to tip, instead of white for its apical half, as in Brazilian examples. Measurements of the freshly-killed animal are as follows: Total length, 495 mm.; head and body, 210; tail, 284; hind foot, 34. The Trinidad animal heretofore referred to this species may prove separable from the *D. philander* of the mainland—a point further material must decide.

34. *Didelphis* (Micoureus) *murina* Linn.—Although this species has not been previously recorded from Trinidad, it appears to be at least locally common on the island, it being represented in the present collection by a series of 20 specimens, taken at Princetown.

Sixteen adult males, measured before skinning, range in size as follows: Total length, 361 (340-395) mm.; head and body, 171 (155-189); tail, 190 (175-218); hind foot, 24.4 (20-28); ear, 25 (22-29). Four females measure as follows: Total length, 324 (302-365); head and body, 148 (132-168); tail, 176 (163-197); hind foot, 22 (20-24); ear, 22 (20-23.)

In coloration the variation is chiefly in the brightness of the rufous of the upper parts, which varies from dull grayish brown to quite strong rufous brown, and in the depth of the yellowish white tint below, which varies from buff to ochraceous buff. The younger (at least the smaller) specimens of the series are duller and darker colored above than the larger, older examples.

This little Opossum was so abundant as to prove a positive source of annoyance. Traps baited with meat were sure to be preoccupied by it, while many trapped specimens of other species were partially eaten by probably this species.

LIST OF LAND MAMMALS KNOWN FROM TRINIDAD.

For convenience of reference we here add a list of the land mammals thus far recorded from the Island of Trinidad. It consists of Mr. Thomas's 'Preliminary List,' with the additions made in the present paper. The fourteen species here added are distinguished by an asterisk prefixed to the current number.

Order PRIMATES.

Family CEBIDÆ.

1. *Myctes*, sp. Probably *M. seniculus* (Linn.). Red Howler.
2. *Cebus*, sp. Sapajou. Capuchin Monkey.

Order CHIROPTERA.

Family VESPERTILIONIDÆ.

3. *Vespertilio nigricans* Wied.
4. *Thyroptera tricolor* Spix.

Family EMBALLONURIDÆ.

5. *Furipterus horrens* (F. Cuv.).
6. *Saccopteryx bilineata* (Temm.).
7. *Saccopteryx leptura* (Schreber).
8. *Saccopteryx canina* (Wied).
9. *Rhynchonycteris naso* (Wied).
10. *Noctilio leporinus* (Linn.). Fish-eating Bat.
11. *Molossus rufus* Geoff.
12. *Molossus obscurus* Geoff.

Family PHYLLOSTOMATIDÆ.

13. *Chilonycteris rubiginosa* Wagn.
14. *Pteronotus davyi* Gray.
15. *Mormops megalophylla* Peters.
16. *Lonchorina aurita* Tomes.
17. *Mycronycteris megalotis* (Gray).
18. *Phyllostoma hastatum* (Pall.).
19. *Hemiderma brevicaudum* (Wied).
20. *Glossophaga soricina* (Pall.).
21. *Anoura geoffroyi* Gray.
- *22. *Chæronycteris intermedia* All. & Chapm.
23. *Artibeus perspicillatus* (Linn.).
24. *Artibeus planirostris* (Spix).
25. *Artibeus hartii* Thos.
26. *Artibeus quadrivittatus* Peters.
27. *Vampyrops caraccioli* Thos.
28. *Chiroderma villosum* Peters.
29. *Sturnira lilium* (Geoffr.).
30. *Desmodus rufus* Wied. Blood-sucking Bat.

Order CARNIVORA.

Family FELIDÆ.

31. *Felis*, sp. Ocelot. Tiger-cat.

Family MUSTELIDÆ.

32. *Galictis barbara* (Linn.). Wood-dog.
33. *Lutra insularis* F. Cuv. Otter.

Family PROCYONIDÆ.

34. *Procyon cancrivorus* (Cuv.). Mangrove-dog.
35. *Cercoleptes caudivolvus* (Pall.). Kinkajou.

Order RODENTIA.

Family SCIURIDÆ.

36. *Sciurus æstuans hoffmanni* Peters. Squirrel.

Family MURIDÆ.

37. *Holochilus squamipes* (Brants).
*38. *Nectomys palmipes* All. & Chapm.
*39. *Tylomys couesii* All. & Chapm.
*40. *Oryzomys speciosus* All. & Chapm.
*41. *Oryzomys trinitatis* All. & Chapm.
*42. *Oryzomys velutinus* All. & Chapm.
*43. *Oryzomys brevicaudus* All. & Chapm.
*44. *Abrothrix caliginosus* (Tomes).
*45. *Mus rattus* Linn. Black Rat.
*46. *Mus alexandrinus* Geoffr. Roof Rat.
*47. *Mus musculus* Linn. House Mouse.

Family HETEROMYIDÆ.

48. *Heteromys anomalus* (Thompson). Pouched Rat.

Family OCTODONTIDÆ.

49. *Loncheres guianæ* Thos. Spiny Rat.
*50. *Loncheres castaneus* All. & Chapm. Agouti Rat.
*51. *Echimys trinitatis* All. & Chapm. Pilori.

Family HISTRICIDÆ.

52. *Syntheres prehensilis* (Linn.). Porcupine.

Family DASYPROCTIDÆ.

53. *Dasyprocta aguti* (Linn.). Agouti.
54. *Cælogenys paca* (Linn.). Lape.

Order UNGULATA.

Family CERVIDÆ.

55. *Cariacus* (*Coassus*) *nemorivagus* (F. Cuv.). Deer. Biche.

Family DICOTYLIDÆ.

56. *Dicotyles tajacu* (Linn.). Collared Peccary. Quenk.
57. *Dicotyles labiatus* Cuv. White-lipped Peccary. Quenk.

Order EDENTATA.

Family BRADYPODIDÆ.

58. *Cholæpus didactylus* (Linn.). Two-toed Sloth.

Family MYRMECOPHAGIDÆ.

59. *Myrmecophaga jubata* Linn. Great Ant-eater.
60. *Tamandua tetradactyla* (Linn.). Tamandua.
61. *Cyclothurus didactylus* (Linn.). Little Ant-eater. Poor-me-one.

Family DASYPODIDÆ.

62. *Tatusia novemcincta* (Linn.). Armadillo. Tatou.

Order MARSUPIALIA.

Family DIDELPHIIDÆ.

63. *Didelphis marsupialis* Linn. Manicou.
64. *Didelphis* (*Philander*) *philander* Linn. Manicou gros yeux.
*65. *Didelphis* (*Micoureus*) *murina* Linn. Manicou gros yeux.