STUDIES ON THE FAUNA OF SURINAME
AND OTHER GUYANAS: No. 2

NOTES ON THE PRIMATES OF SURINAME

by

A. M. HUSSON
(Rijksmuseum van Natuurlijke Historie, Leiden)

The zoological collections made by the 1948–1949 Surinam Expedition contain about 200 mammals, brought together by the zoologists Dr. D. C. GEIJSKES and Mr. P. H. CREUTZBERG. Though the collection consists mainly of species which had already been reported from Dutch Guiana, it is of considerable value, in the first place on account of the detailed data concerning the localities, biotopes, and biology, and secondly because not only the skins and skulls of the collected specimens have been preserved but as a rule also their complete skeletons.

The present paper [1]) deals with the Primates; the other groups of mammals will be treated in subsequent publications. Thanks are due to Dr. D. C. GEIJSKES, who is responsible for the notes on the biology of the species. The skeletons of the material dealt with here have recently been studied in the Leiden Museum by Mr. G. E. ERIKSON of Harvard Medical School, Boston, who intends to publish the results of his investigation in the near future.

Apart from the material of the 1948–1949 Expedition we have also studied the Primates from Surinam present in the collections of the Rijksmuseum van Natuurlijke Historie at Leiden and the Zoölogisch Museum of Amsterdam; for the opportunity to examine the latter material we are much indebted to Mr. P. J. VAN DER FEEN, curator of that museum. It is a remarkable fact that all the

[1]) SCIENTIFIC RESULTS OF THE SURINAM EXPEDITION 1948–1949. Part II, ZOOLOGY, *No. 4.* — *No. 1*: L. B. HOLTHUIS, Crustacea Decapoda Macrura, *Zoologische Mededelingen*, Rijksmuseum van Natuurlijke Historie te Leiden, *31*, 3, Nov. 1950, p. 25–37. — *No. 2*: M. BOESEMAN, The Fishes (I), *Zool. Meded. 32*, 1, June 1953, p. 1–24, 2 figs. — *No. 3*: G. C. A. JUNGE, Birds, *Zool. Meded. 32*, 4, June 1953, p. 41–42.

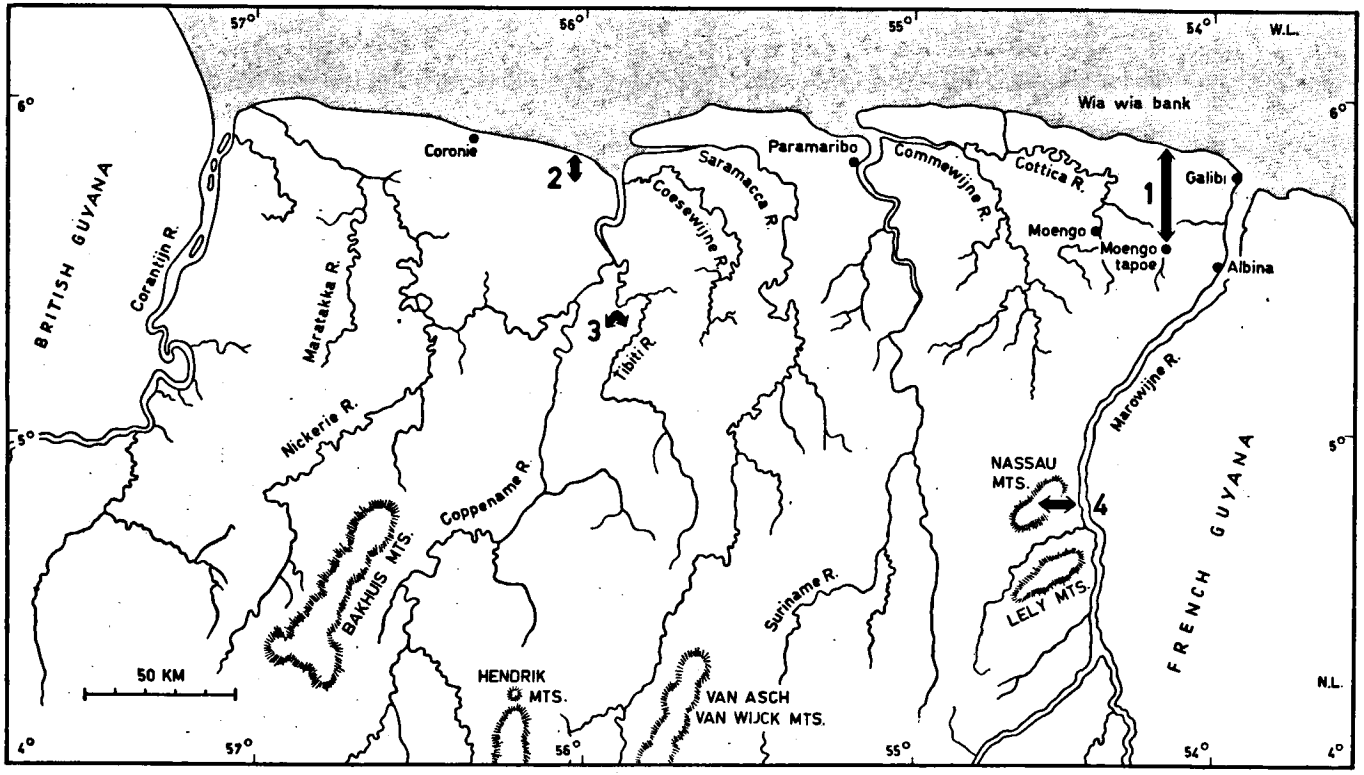


Fig. 1. Map of the northern part of Suriname showing the localities mentioned in the text. Numbers 1–4: transects explored by the 1948–1949 Surinam Expedition.

eight species present in the two collections were also collected by the 1948–1949 Expedition. The well known biologist A. KAPPLER (1887, p. 53–57) likewise recorded no more than these eight species of monkeys from Surinam, remarking that according to information obtained from the Amerindians no other species were to be found in the country. SANDERSON (1949, p. 760–768), during his 1938 trip to Surinam, collected six species all of which are represented in our collections. SANDERSON furthermore noted that "the presence in Suriname of several other monkeys and another marmoset is reported", basing his information on data received from the inhabitants and on an unidentified monkey, presumably from the interior of Surinam, seen by him in captivity at Paramaribo. According to GEIJSKES (1954, p. 73) the Surinam Bush Negroes recognize under the name "djakibilitóe" a monkey which reportedly resembles *Pithecia pithecia* in having a white face, but which is supposedly smaller than that species. GEIJSKES himself has not observed this animal.

The confusion which existed and still exists regarding the nomenclature of the South American monkeys often makes it very hard to evaluate properly the Surinamese records of various species mentioned in the literature. Notwithstanding the indications of more species of Primates to be found in Surinam, the eight species dealt with here are the only ones known with certainty to inhabit the country. For the benefit of biologists and other persons interested in the primate fauna of Surinam this paper presents a key to these eight species, based on the most conspicuous and easily visible characters, so that it can be used in the field. For each species a diagnosis is given, and the variability of the characters in the material of the 1948–1949 Expedition is discussed. In addition to this, from a typical member of each species the skull is photographed from four different sides (Plates I–VIII).

The material collected by the 1948–1949 Expedition is preserved in the collection of the Leiden Museum; museum registration numbers are given in each case. The localities mentioned in the text are noted on the accompanying map. An itinerary of the

Expedition was published by BAKKER & LANJOUW (1949). For the description of certain biotopes — those of the coastal region — we refer to LINDEMAN (1953).

All measurements given here are in millimeters. The distance across the orbital rings has been measured inside the orbits; the length of the mandible is the distance between the alveolar border of the inner incisors and the most posterior border of the condyle. The skulls which have been examined are too few in number to give a correct impression of the sexual dimorphism of the species concerned. It can be stated with certainty, however, that the length of the canines of the specimens of the two sexes in our material shows a striking difference: in the males the height of the first premolar is about one third of that of the canine, while in the females the proportion is about one half.

The colours are noted after RIDGWAY (1912).

For the arrangement of the genera, SIMPSON (1945, p. 64–65) has been followed.

The monkeys are of some importance in Surinam from an economic point of view. In the first place all the larger species are eaten by the natives and consequently are quite intensively hunted (GEIJSKES, 1954, p. 72–73). Secondly the animals form a danger for the people living in the interior, as they are known to carry the parasites playing a rôle in the transmission of jungle yellow fever and perhaps of some other diseases as well. Thirdly some species (*Cebus apella* and *Saimiri sciureus*) are harmful to plantations, where they destroy the cacao beans and citrus fruits. On the other hand the smaller species of monkeys are beneficial in that they catch large quantities of insects that are injurious to field crops, for instance grasshoppers. As yet nothing is known regarding their rôle as distributors of seeds of economically important forest trees.

KEY TO THE SPECIES OF SURINAM MONKEYS

1. Tail naked beneath for about the terminal half or two-thirds 2
– Tail entirely haired above and beneath 3
2. Body uniformly covered with black hairs. Highland bush

in the interior. Quite common. — Kwatta — . . . . . *Ateles paniscus paniscus* (L.)

– Body not uniformly covered with black hairs: back yellowish, olivaceous, or reddish brown; tail blackish or dark reddish brown. In the lowland bush of the interior and in the coastal plain (ridges) to near the sea coast. Common. — Baboen — . . . . . *Alouatta seniculus straminea* (Humboldt)

3. Tail distinctly bicoloured: the ultimate third black. In savanna bush and along rivers in the interior, and in swamp bush in the coastal plain. Common. — Monki-monki — . . . . . *Saimiri sciureus sciureus* (L.)

– Tail uniformly coloured all over 4

4. Hands and feet of an orange-red colour. In savanna bush and along banks of rivers. Quite common. — Sagoewintje — . . . . . *Marikina midas midas* (L.)

– Hands and feet not orange-red 5

5. Tail with conspicuously long woolly hairs, giving it a bushy appearance 6

– Tail with shorter appressed hairs 8

6. Head, extremities, and tail black; back covered with buffy to olive brown hairs; in both sexes a beard of long black hair. Mountainous forest in the hinterland. Not common. — Kwatta swageri — . . . *Chiropotes chiropotes* (Humboldt)

– Back the same colour as the other parts of the body 7

7. Body, tail, and extremities covered with dark blackish-brown hair; face cream-coloured; hands blackish. In the mountains and the lowland bush. Quite common. — Wanakoe — . . . . . *Pithecia pithecia* (L.), male

– Body, shoulders, outer surface of limbs, and tail blackish brown, but with the long apical ends of the hairs light yellowish; hands blackish. — Wanakoe — . . . . . *Pithecia pithecia* (L.), female

8. Tail and back of the same olivaceous brown colour; the frontal margin of the blackish head cap is triangular, reaching with the tip to the base of the nose. In the mountain forests. Not common. — Bergi kesi-kesi — . . . . . *Cebus olivaceus olivaceus* Schomburgk

– Tail blackish, distinctly set off from the brownish colour of the back; the frontal margin of the black head cap is practically straight and does not reach the upper margin of the nose. Everywhere in the lowland bush, also in the forest on the ridges to near the sea coast. Common. — Kesi-kesi: Mekoe — . . . . . *Cebus apella apella* (L.)

Pithecia pithecia (L.) Plate I
Wanakoe

[*Simia*] *Pithecia* LINNAEUS, 1766, Systema naturae, ed. 12, vol. *1*, p. 40.

TYPE LOCALITY. "Guiania". Restricted by VIEIRA (1955, p. 380) to French Guiana.

COLLECTED SPECIMENS. Transect 1, north of *Moengo Tapoe*, October 17, 1948, coll. no. 1939, adult male (reg. no. 12516; skin, skull, and skeleton). — Transect 4, *Nassau Mts.*, 13.3 km west of the Marowijne River, March 17, 1949, coll. no. 9137, adult female (reg. no. 12515; skin, skull, and skeleton).

The sexual dimorphism of this species is well known. The adult male of Moengo Tapoe has the body, the tail, and the extremities covered by dark blackish-brown hair. The hair of the body is long, lank, and coarse, like that of *Ateles paniscus*, but that of the tail is more like that of *Chiropotes chiropotes*. The ventral surface is loosely haired so that the blackish outer skin is distinctly visible. A large glandular area is present on the throat which, like the pectoral area, is naked (see SANDERSON, 1949, p. 765, pl. ii fig. 1). The hands and the feet are blackish. The face is covered with short cream-coloured hair; the front of the head and the golden-tinged haired area around the naked nose are very striking; the lips are sparsely haired, the hairs being short and white.

The adult female from the Nassau Mountains has long, loose, and wavy hair. The coat colour of the body, the shoulders, the outer surface of the limbs, and the tail is blackish brown, the long apical ends of the hairs being light yellowish brown. The hair of the ventral surface, from chin to anus, and that of the inner surface of the limbs is ochraceous buff to Buckthorn brown. The rather long hairs of the face, which are blackish with long light ochraceous buff tips, form a mask, which is interrupted below the chin. From the inner side of the eyes a stripe of light ochraceous buff-coloured hairs runs downwards to the chin, being broadest along the naked

nose; in the median part the forehead is covered by dirty white hairs. The hands and the feet are blackish above and provided with short hairs which are sparsely intermixed with light brownish hairs. The fact that the hands of the specimen are black shows that it is a true *Pithecia pithecia*, and that it does not belong to *Pithecia monacha* E. Geoffroy, which has whitish to greyish hands. In other respects *Pithecia monacha*, which does not show a sexual dimorphism, strongly resembles the female of *P. pithecia*.

The few *Pithecia* females present in the collections of the Amsterdam and Leiden museums and collected in Surinam all belong to *Pithecia pithecia*. It therefore seems probable that the records in the literature dealing with the occurrence of *P. monacha* in Surinam are based upon erroneously identified females of *P. pithecia*.

Cranial measurements of the male and the female respectively: total length 73.2, 75.3; condylo-basal length 58.9, 58.0; basal length 54.3, 53.2; palatal length 24.7, 25.4; zygomatic breadth 50.2, 49.6; mastoid breadth 39.2, 41.3; distance across orbital rings 34.7, 37.0; least width of nasals between orbits 4.4, 5.1; intertemporal breadth 31.4, 31.5; width of braincase 37.8, 43.0; c-m^3, length, 22.3, 20.3; length of upper cheek-teeth 17.6, 17.4; m^1, length × breadth, 3.6 × 4.1, 3.5 × 4.2; length of upper canines 9.6, 6.2; width across outer bases of upper canines 20.1, 19.7; length of mandible 50.1, 48.6; c-m_3, length, 25.1, 22.9; crown length of cheek-teeth 20.3, 19.7.

Biology. This strange-looking species covered with a coat of long black hair is nowhere common. It may be encountered, however, in the lowlands as well as in the mountains, where it lives in small troops of no more than ten individuals, sometimes even being solitary. When it is resting the bushy tail hangs down, and is never used as a prehensile organ. It likes to sit in the highest canopy of the entangled tree tops. Usually it moves slowly, but when alarmed it disappears quickly. Wanakoes are able to run over the ground like flying cats.

The species is sometimes hunted by the natives; the meat is good for eating. Females are sometimes kept as pets, but they cannot endure captivity for a long time.

Chiropotes chiropotes (Humboldt) Plate II
Kwatta swageri

Simia chiropotes HUMBOLDT, 1812, in: HUMBOLDT & BONPLAND, Rec. Observ. Zool. Anat. comp., ed. 2, vol. *1*, p. 311–314.

TYPE LOCALITY. Upper Orinoco, Venezuela.

COLLECTED SPECIMEN. Transect 4, *Nassau Mts.*, 13 km west of the Marowijne River, March 10, 1949, adult male, coll. no. 8652 (reg. no. 12514; skin, skull, and skeleton).

The hair of the head radiates from the vertex whirl and is divided anteriorly by a median line which extends to the forehead; two bushy tufts of hairs extend over the ears, cheeks, and chin. The ears are naked; the face is thinly covered with black hairs. That and the hair of the rather loosely covered ventral surface, the arms, the legs, and the basal part of the tail are unicoloured black. The hair from the vertex to the occiput and that of the distal part of the tail, however, are bicoloured, the bases being dark olive brown, the distal ends black. The black colour of the occiput passes rather abruptly into the colour of the back, the shoulders, and the upper parts of the arms, which are buffy to olive brown. The hair of the distal part of the tail is also bicoloured, though the difference between the black and the dark olive brown is not distinct. The hands and the feet are blackish. The tail is thick and bushy with longer hair than that of the body, the arms, and the legs.

REMARKS. In my opinion this specimen might be considered an intermediate form between the true *Chiropotes chiropotes* of British and French Guiana, in which the back is of a golden to yellowish brown, and *Chiropotes satanas* (Hoffmannsegg) from the Amazonas, in which the back is blackish brown to dark reddish chestnut. The Leiden Museum possesses a juvenile of *Ch. chiropotes* from Surinam in which the coat colour of the back is tinged dirty yellowish, and is therefore intermediate between the Nassau Mountains specimen on the one hand and five specimens from British Guiana and four from French Guiana in the same collection on the other. Some authors suppose that *Ch. chiropotes* and *Ch. satanas* are colour variations of one species (DA CRUZ LIMA, 1945, p. 82, 94); the present material (like that examined by DA CRUZ LIMA) is too

little to permit a definite conclusion in this question. It must be noted, however, that in the *Ch. chiropotes* material examined, including the Nassau Mountains specimen, the coat colour of the back contrasts strongly with that of the rest of the body, while in *Ch. satanas* there is no distinct line of demarcation between the colours of these parts.

Cranial measurements: total length 88.1; condylo-basal length 68.6; basal length 62.7; palatal length 27.7; zygomatic breadth 60.3; mastoid breadth 48.3; distance across orbital rings 42.3; least width of nasals between orbits 5.0; intertemporal breadth 40.0; width of braincase 51.4; c-m^3, length, 24.6; length of upper cheek-teeth 18.4; m^1, length × breadth, 3.2 × 4.4; length of upper canines 13.4; width across outer bases of upper canines 28.7; length of mandible 58.0; c-m_3, length, 28.3; crown length of cheek-teeth 11.5.

BIOLOGY. This species is known from the rain forest of the mountains in the hinterlands, where it lives in small families of six to ten individuals. It is not common, but in the mountains it can be found in several places. It prefers the highest trees, resting on the bigger horizontal branches, from where it looks down on passers-by and catches the observers' attention by swinging its black bushy tail. In its movements this species is more active than *Pithecia pithecia*.

Not much is known about the breeding time nor about feeding habits. Kwatta swageris are hunted by Amerindians and Bush Negroes for their meat, which is good for eating. The young caught when the mother is shot are sometimes kept as pets by Amerindians; they behave quite well in captivity.

Alouatta seniculus straminea (Humboldt) Plate III
Baboen

Simia straminea HUMBOLDT, 1812, in: HUMBOLDT & BONPLAND, Rec. Observ. Zool. Anat. comp., ed. 2, vol. 1, p. 355.

TYPE LOCALITY. Forests of "Grand-Parà" (Parà, Brazil).

COLLECTED SPECIMENS. Transect 1, north of *Moengo Tapoe*, October 23, 1948, adult male, coll. no. 2257 (reg. no. 12525); October 28, 1948, juvenile female, coll. no. 2325 (reg. no. 12522); November 27, 1948, adult male, coll. no. 3964 (reg.

no. 12520). — Transect 2, *Coronie Weg*, along the coast, December 17, 1948, adult male and adult female, coll. no. 4168 (reg. no. 12526) and coll. no. 4169 (reg. no. 12524), respectively. — Transect 3, *Tibiti*, January 18, 1949, adult female, coll. no. 6233 (reg. no. 12523). — Transect 4, *Nassau Mts.*, about 12 km west of Marowijne River, March 17, 1949, coll. no. 9138 (reg. no. 12521). — All the specimens are represented by skins, skulls, and skeletons.

All authors dealing with the coat colour of the present species (and subspecies) agree that the colour is subject to great variation apparently independent of sex, age, or the locality where the individuals live. This is borne out by the small collection of seven specimens at hand. In this material three different types can be distinguished.

a. Coll. no. 2325 (a juvenile female, collected north of Moengo Tapoe) is a richly coloured specimen: the head is copperish red, the beard blackish; the shoulders and the upper arms above are reddish brown; the rest of the back to the base of the tail, the sides, and the thighs above are golden yellow; the under parts of the upper arms are naked; the lower arms including wrists and hands are black to dark blackish brown; the under parts of the legs, the feet, and the basal part of the tail are dark copperish brown; the tail is reddish brown becoming lighter distally. The hair is unicoloured throughout.

b. In two specimens, coll. nos. 3964 and 2257 (both males collected north of Moengo Tapoe) the head, the back, the extremities, and the tail are a reddish brown; the sides, however, are more or less yellowish; the beard of coll. no. 3964 is brownish, that of coll. no. 2257 blackish to dark brown. The hair is unicoloured throughout.

c. The other four specimens — coll. no. 4168 (adult male), coll. no. 4169 (adult female), both collected along the coast, Coronie Weg; coll. no. 6233 (adult female, collected in the neighbourhood of Tibiti), and coll. no. 9138 (adult male, from Nassau Mts.) — more or less resemble each other in their colour. The most striking difference between the specimens of this group and those of group *a* and *b* is formed by the bicoloured hair of the back in which the basal parts are pure straw-coloured and the tips darker, so that the back is of a dark yellowish brown with an olive shade. The olive shade is generally also to be found on the sides, the shoulders, the upper arms, and the inner side of the thighs. Apart

from this general colour resemblence, the four specimens of group *c* show differences in the other parts of the body. In coll. no. 9138 (an adult male from the Nassau Mountains) the head, the neck, the under parts of the forearms, the hands, the under parts of the legs, the feet, and the tail from the base to the tip are blackish to blackish dark brown; the beard, however, is reddish brown. In two specimens, coll. nos. 4169 and 6233, most of these parts are dark brown, the tail a darker reddish brown and the beard lighter brown. In coll. no. 4168 (from Coronie Weg) the head, the forearms, and the tail are dark reddish brown; the legs, however, are somewhat lighter, except for the ankles and the feet, which are more reddish coloured, and the beard is light reddish brown.

The fact that in the coastal region three rather differently coloured groups of specimens of the subspecies under discussion were collected shows that there is a considerable variability within a small area. Our material is too small, however, to give a correct picture of variability of *Alouatta seniculus straminea* within Surinam. The same must be said as regards the skulls of the subjects.

All the above-mentioned specimens have the ventral surface very loosely haired; for about the terminal half the tail is naked beneath.

Cranial measurements: see Table 1.

REMARKS. No uniformity exists in the citation of the author of this subspecies: in some publications HUMBOLDT is mentioned as such, in others E. GEOFFROY–SAINT-HILAIRE. According to SHERBORN (1899, p. 428) HUMBOLDT's "Tableau synoptique des singes de l'Amérique" forms part of the second edition of HUMBOLDT & BONPLAND's work *Recueil d'Observations de Zoologie et d'Anatomie comparée*, vol. *1*, p. 353–363, and was published in the year 1812. In another paper SHERBORN (1914, p. 367) pointed out that GEOFFROY's "Tableau des Quadrumanes" appeared in October 1812.

The first question is therefore: was HUMBOLDT's "Tableau "published before or after GEOFFROY's paper? GEOFFROY in several places in his "Tableau" referred to pages of HUMBOLDT's papers: (1) "Mémoire sur une nouvelle espèce de singe, trouvée sur la pente orientale des Andes", (2) "Sur les singes qui habitent les rives de l'Orénoque, du Cassiquiare et du Rio Negro", and (3) "Sur les singes du royaume de la Nouvelle-Grenade et des rives de l'Amazone", which also form part of vol. *1*, edition 2, of HUMBOLDT & BONPLAND's *Recueil* (p. 14–16, 304–335, 336–344, respectively). According to SHERBORN (1899, p. 428) HUMBOLDT's "Tableau" (p. 353–363) and the above-mentioned articles belong to part 7 of HUMBOLDT & BONPLAND's *Recueil d'Observations*, and were published simultaneously. Since GEOFFROY (1812) cited some of the pages of this part 7 of HUMBOLDT & BONPLAND's work, his paper must have been published later, so that HUMBOLDT's "Tableau" published there must be accorded priority over that of GEOFFROY. That HUMBOLDT's

TABLE 1.

Cranial measurements of *Alouatta seniculus straminea* (Humboldt) from Suriname.

Locality	Coronie Weg	Tibiti	Nassau Mts.	Coronie Weg	North of Moengo Tapoe	
Collection number	4169	6233	9138	4168	3964	2257
Sex	female	female	male	male	male	male
total length	105	110	135	113.5	131.5	117.5
condylo-basal length	96.5	98.1	129.0	129.0	121	108
basal length	90.9	92.1	121.3	122.2	114.5	102.2
palatal length	38.5	39.8	49.1	52.0	49.0	40.2
zygomatic breadth	68.2	71.0	86.2	83.4	83.1	77.6
mastoid breadth	50.5	52.0	57.1	59.0	57.9	51.8
distance across orbital rings	51.5	53.7	58.2	59.0	60.5	54.5
least width of nasals between orbits	12.2	12.0	15.5	19.0	12.5	11.2
intertemporal breadth	42.2	43.1	40.5	39.0	44.0	41.8
choana breadth	10.6	10.6	15.0	14.4	13.0	12.9
breadth of braincase	53.6	53.0	54	55.4	57.8	52.5
c-m^3, length	38.4	38.0	44.1	43.7	40.0	39.6
length of upper cheek-teeth	32.7	32.3	35.9	37.1	35.1	33.0
m^1, length × breadth	5.8 × 6.9	7.1 × 7.1	6.9 × 7.3	8.0 × 8.0	7.4 × 7.4	7.0 × 8.1
c^1, height × breadth	8.8 × 5.3	9.6 × 5.7	14.8 × 8.2	— × 8.6	14.2 × 8.7	11.6 × 7.7
width across outer bases of canines	24.0	25.3	33.9	33.6	31.6	26.7
length of mandible	84.8	86.2	110	112	102.5	94.5
c-m_3, length	42.6	43.2	49.4	53.0	48.3	45.1
crown length of lower cheek-teeth	36.0	36.0	39.6	41.7	39.0	36.7

"Tableau" was published before GEOFFROY's is confirmed by HUMBOLDT's statement (1812, p. 362) that he had access to GEOFFROY's manuscript: "Ce naturaliste a bien voulu me communiquer un manuscrit duquel j'ai extrait les caractères des subdivisions et ceux des espèces inédites. Je dois cependent faire observer que, dans la famille des Hapales, M. Geoffroy place les Ouistitis (Jacchus) après les Tamarins (Midas). J'ai tâché, de mon côté, de rectifier les diagnoses, même pour les animaux qui sont connus depuis long-tempts".

This remark of HUMBOLDT's — that he differed from GEOFFROY in the order of the treatment of the genera *Jacchus* and *Midas*, since GEOFFROY had dealt with the former of these two genera after the latter — is of additional interest because in GEOFFROY's "Tableau" (1812, p. 118, 120) as published we find that the order in which he treated the genera *Jacchus* and *Midas* is the same as that employed by HUMBOLDT. GEOFFROY evidently changed the order after having received the manuscript back. HUMBOLDT, it is true, states (1812, p. 362) that GEOFFROY's paper was published in vol. *19* of the *Annales du Muséum d'Histoire Naturelle de Paris* ("Ce tableau *est* formé d'après les principes de classification proposés par M. Geoffroy de Saint-Hilaire, dans le 19.me Tome des Annales du Muséum d'histoire naturelle"), but this may have been owing to the fact that he knew GEOFFROY's paper was intended for that volume; nowhere in HUMBOLDT's paper is any reference given to a page of that volume. There is, then, no evidence to throw any doubt on SHERBORN's statement that p. 304–344 and p. 353-363 of vol. *1* of the second edition of HUMBOLDT & BONPLAND's book were published simultaneously; hence GEOFFROY's "Tableau" must be considered to have been published later than HUMBOLDT's "Tableau", and the new names given in the latter publication take priority over similar names in the former. It remains curious, however, that though GEOFFROY cites four of HUMBOLDT's articles in the *Recueil*, he does not make any reference to his "Tableau".

A second question arises: who must be considered the author of the name *Simia straminea* published in HUMBOLDT's "Tableau"? HUMBOLDT on p. 362 of his "Tableau" states that he inserts GEOFFROY's new species in the "Tableau", and in footnote 4 he lists these new species including *Simia straminea*. The diagnoses of the species given by HUMBOLDT, however, are in Latin, while those of GEOFFROY are in French. GEOFFROY (1812, p. 108) gives the following diagnosis of *Stentor stramineus*: "Pelage jaune de paille: les poils bruns à l'origine. Habite le Para." The diagnosis given by HUMBOLDT (1812, p. 355) for *Simia straminea* runs as follows: "stentorosa, pilis basim versus subfuscis, apice straminei coloris. Habite les forêts du Grand-Parà." In my opinion HUMBOLDT here gives a diagnosis in his own words, and has no intention of giving merely a Latin translation of GEOFFROY's words. This is the more probable as HUMBOLDT (1812, p. 362; see above) remarked, when discussing GEOFFROY's species, that he "rectifie" GEOFFROY's diagnoses. Hence HUMBOLDT, and not GEOFFROY, is responsible for the wording of the diagnoses in HUMBOLDT's "Tableau", and therefore must be considered the author of these names. For this reason the present species has to be named *Alouatta straminea* (Humboldt, 1812).

BIOLOGY. The baboon is well known because of its howl. It is a large monkey with a golden or red-brown coat and a black face. The adult male is much larger than the female and stouter in its

appearance. The species lives in small families of five or six individuals together, of which the adult male is the leader, called the reverend or domini. The Aucaner Bush Negroes call the male "domi" and the female "sina". The troops consist of one adult male, some females, and younger males. Solitary males are sometimes found. Members of the subspecies are slow-moving, and they often rest in the highest trees, where they also spend the night.

Alouatta is found chiefly in the lowland forest along the rivers, and on the ridges in the coastal plain near the sea coast, but is quite common throughout the country. Its howls can be heard in the daytime, but also during the night, and especially in the early morning before sunrise. The sound seems to be not a call to the other sex but a method of marking territory off from the territories of other families or individuals.

Because of their size and edibility the baboons are often hunted by the inhabitants of Surinam. The stomach is found to be filled for the most part with fruit and young leaves. In the duodenum Cestodes were very often found; in the skin, larvae of horseflies ("mosquito worms") sometimes occur.

It is not known whether the breeding time falls within a particular monsoon. A litter consists of one young only. A female (coll. no. 4169, from Coronie Weg) collected December 17, 1948, was carrying a well developed foetus.

Young animals are sometimes kept in captivity, but they usually die within a few months.

Cebus apella apella (L.) Plate IV

Kesi-kesi

[*Simia*] *Apella* LINNAEUS, 1758, Systema naturae, ed. 10, vol. *1*, p. 28–29.

TYPE LOCALITY. "America". Restricted by ELLIOT (1913, vol. *2*, p. 80) to Dutch Guiana.

COLLECTED SPECIMENS. Transect 1, north of *Moengo Tapoe*, September 24, 1948, coll. no. 656, adult male (reg. no. 12531; skin and skull); October 19, 1948, coll. no. 2032, adult male (reg. no. 12533; skin, skull, and skeleton); October 19, 1948, coll. no. 2033, adult female (reg. no. 12536; skin, skull, and skeleton); October 20, 1948, coll. no. 2102 (11), adult male (reg. no. 12544; skin, skull, and skeleton); October 20, 1948, coll. no. 2102 (12), adult female (reg. no. 12535; skin, skull, and skeleton); October 30, 1948, coll. no. 2331, adult male (reg. no. 12537; skin and

skull); November 21, 1948, coll. no. 3407, adult female (reg. no. 12534; skin, skull, and skeleton); November 26, 1948, coll. no. 3818, adult female (reg. no. 12530; skin and skeleton without skull). — Transect 3, *Tibiti*, January 18, 1949, coll. no. 6232, adult female (reg. no. 12532; skin, skull, and skeleton).

There is some individual variation in the coat colour of the present nine specimens, the ventral surface showing the most striking differences. In coll. nos. 2102 (11), 3407, 2102 (12), and 3818 the hair of the ventral surface is bicoloured with yellowish basal parts and light brown to light orange tips; in coll. nos. 2032, 2331, 2033, and 6232 the yellowish tips dominate; in coll. no. 656 the ventral hair is light greyish to dirty white. The stripes of the face, which meet under the chin, and the top of the head are black. A broad dark brown band extends from the neck to the base of the tail. Laterally it gradually passes into a lighter, more yellowish brown. The shoulders and the upper parts of the arms down to the elbow have the same shade as the ventral surface. The forearms are blackish to dark brown, irregularly washed or mixed with light brown. The outer sides of the thighs are coloured similarly to the sides of the body. In all specimens the rest of the legs, the feet, and the tail are black. It must be noted, however, that in coll. no. 2032 the hair of the legs and feet has light brownish tips and the outer sides of the forearms are washed with a yellowish brown.

In my opinion the best characters by which to distinguish this species from *Cebus olivaceus* (see below) are (*a*) the black colour of the tail which is in sharp contrast to the brownish colour of the back, and (*b*) the frontal margin of the head cap, which in *C. apella* is about straight, while in *C. olivaceus* it is triangular, the tip reaching to the nasal base.

Cranial measurements: see Table 2.

REMARKS. In recent years many discussions have been devoted to the interpretation of the diagnosis of LINNAEUS's *Simia apella*, *Simia fatuellus*, and *Simia capucinus*, and WAGNER's *Cebus nigrivittatus* (see *e.g.*, TATE, 1939, p. 209–214; 1954; HERSHKOVITZ, 1949, p. 324–349; 1955). After careful examination of the arguments pro and contra I must agree with HERSHKOVITZ's opinion, and as far as I can judge after having studied specimens of the genus *Cebus* in museums in the Netherlands I have come to the conclusion that only two species of the genus occur in Surinam: *Cebus apella apella* and *Cebus olivaceus* (= *nigrivittatus* auctorum) *olivaceus*. The head pattern of the specimens collected during the Expedition agrees

TABLE 2.

Cranial measurements of *Cebus apella apella* (L.) from Suriname.

Locality	Tibiti	North of Moengo tapoe						
Collection number	6232	2033	2102	3407	656	2032	2102	2331
Sex	female	female	female	female	male	male	male	male
total length	94.5	89.2	89.7	85.0	91	94.5	90	97.5
condylo-basal length	70.4	67.0	65.2	66.0	67.5	74.2	67.3	74.5
basal length	61.9	59.6	57.4	58.0	60.6	67.0	59.4	65.6
palatal length	29.9	31.1	—	29.3	29.0	33.1	30.9	33.6
zygomatic breadth	60.5	57.7	58.5	55.8	62.0	66.0	63.0	65.6
mastoid breadth	52.1	50.6	49.3	48.8	52.8	53.7	52.3	55.6
distance across orbital rings	44.8	43.3	43.1	40.0	45.0	47.2	43.7	47.3
least width of nasals between orbits.	4.5	3.8	3.7	4.5	4.3	4.6	4.1	4.3
intertemporal breadth	40.6	38.9	38.3	35.8	40.7	40.2	38.7	42.1
choana breadth	10.2	11.1	10.6	10.9	10.2	11.4	11.2	10.7
width of braincase	53.1	52.0	50.8	48.8	52.0	52.0	54.3	55.5
c-m^3, length	27.8	27.4	28.0	27.9	27.5	28.1	28.7	30.5
length of upper cheek-teeth	22.6	22.0	23.0	22.9	21.4	21.1	22.3	23.9
m^1, length × breadth	4.3×5.8	4.2×5.7	4.7×5.9	4.6×5.9	4.2×5.2	4.2×6.0	4.4×6.0	4.9×5.9
height of upper canines	9.7	10.1	10.2	10.0	13.7	16.0	15.2	16.2
width across outer bases of upper canines	31.6	26.2	24.7	28.1	26.5	28.5	26.9	28.0
length of mandible	60.7	58.0	59.0	56.1	59.5	64.6	59.8	65.7
c-m_3, length	31.5	29.9	30.8	30.1	30.2	31.6	32.1	33.4
crown length of lower cheek-teeth	26.0	24.5	26.3	24.6	25.2	24.5	26.3	27.3

perfectly with the figures given by HERSHKOVITZ (1949, p. 325, fig. 52, e and f). Coll. no. 6232, from Tibiti, and coll. nos. 2032, 3818, 2102, all from north of Moengo Tapoe, are distinctly tufted. The four other collection numbers from transect 1 are more or less untufted, partly because of the method of preparation used. Only one skull is distinctly crested, namely that of coll. no. 2032, an adult male from north of Moengo Tapoe; the crest runs from the anterior part of the frontal over two-thirds of the parietal.

Another species the identitv of which has been considered doubtful bv manv primatologists is *Simia trepida* Linn., 1766 (Syst. nat. ed. 12, p. 39), with the type locality Surinam. *Simia trepida* is based on the description and the plate given by EDWARDS (1764, pt. 3, p. 222–223, pl. 312): the description is more useful for identification than the figure, the colours of which are rather poor and do not entirely correspond with those mentioned in the description. I agree with TATE (1939, p. 212) in considering the specimen as belonging to his *Cebus fatuellus*. This means, then, that in the nomenclature adopted here *Simia trepida* Linn., 1766 becomes a junior synonym of *Simia apella* Linn., 1758, and since the type locality of the latter is Surinam, *Simia trepida* belongs to the typical subspecies of *Cebus apella*.

BIOLOGY. *Cebus apella* is the best known of all monkeys in Surinam. This is probably because of its common occurrence in the forests of the interior and in the coastal plain, and because it is often kept as a pet. It is intelligent and can endure captivity for years. In the forest kesi-kesis are met with in troops of up to thirty individuals, but pairs or single specimens are found as well. They are very active and noisy, calling to one another in a characteristic way. When hunting these monkeys, the Amerindians and Bush Negroes imitate the call in order to attract them.

During the period when the fruit of the maripa palms (*Maximiliana maripa*) is ripe (May-June) kesi-kesis are often observed in the palms eating the fruit. They also like to eat wild and cultivated cacao beans and sometimes become quite destructive to cacao plantations.

Babies and young individuals have been observed the whole year round. One of the females from Moengo Tapoe (coll. no. 2033), collected October 19, 1948, was carrying a foetus. A young male was found at the same place in September of that year.

Cebus olivaceus olivaceus Schomburgk Plate V

Bergi kesi-kesi

Cebus olivaceus SCHOMBURGK, 1848, Reisen in Britisch-Guiana, vol. *2*, p. 246 (description), p. 247 (name).

TYPE LOCALITY. Vicinity of "Our Village", at latitude 4°57'N, 60°1'W, alt. about 1000 m, southern foot of Mt. Roraima, Venezuela (see SCHOMBURGK, 1848, p. 241).

COLLECTED SPECIMENS. Transect 4, *Nassau Mts.*, March 18, 1949, coll. no. 9142 A, adult female (reg. no. 12527); two adult males, coll. nos. 9142 B and 9142 C, respectively (reg. nos. 12528 and 12529). All specimens preserved with skin, skull, and skeleton.

The three specimens agree perfectly with the original description given by SCHOMBURGK. On the vertex of the head is a triangular blackish patch, tapering anteriorly to a narrow point which ends at the upper margin of the base of the nose, posteriorly merging with the dark olive brown of the back, the latter colour being caused by the blackish tips of the hair, which are separated from the dark brown basal part by a golden brown zone. The back and the legs are dark olive brown; the shoulders and arms, however, are more dark straw-yellow. The ventral surface and the tail have the same colour as the back, the former being more loosely haired; the tail ends in a blackish tip. The face, cheeks, and chin are covered with yellowish hair. The hands and the feet are blackish.

Though SCHOMBURGK (1848, p. 246) noted that the tail is bi-coloured, dark olive brown and blackish beneath, we cannot detect any difference in colour between these parts, which in our material from the Nassau Mountains are of one shade, the same as the back; the tail, then, is not rather sharply set off from the back as in *Cebus apella*, mentioned above.

The most striking difference between the skulls of the specimens of the two species is the smallest width of the nasals between the orbits, which in *Cebus apella* is less than 5 mm, in *Cebus olivaceus* more than 5 mm.

In the skull of coll. no. 9142 A, an adult female, the second and third molars are lacking; the alveoli are present, however, though they are filled with a spongy tissue. In the mandible the last molar is lacking on both sides; no trace of alveoli is visible there.

Cranial measurements: see Table 3.

REMARKS. We entirely agree with HERSHKOVITZ's conception (1949) of the classification of the group of species and subspecies to which this form belongs. It is only for reasons of purely nomenclatorial nature that we do not use the name *Cebus nigrivittatus olivaceus* as does HERSHKOVITZ (1949, p. 348). In 1941 VON

TABLE 3.

Cranial measurements of *Cebus olivaceus olivaceus* Schomburgk from Suriname.

Locality	Nassau Mts.	Nassau Mts.	Nassau Mts.
Collection number	9142 A	9142 B	9142 C
Sex	female	male	male
total length	93	96.5	100.5
condylo-basal length	71.7	74	79.0
basal length	62.0	64.1	69.8
palatal length	34.2	33.9	36.1
zygomatic breadth	61.0	65.0	72.4
mastoid breadth	52.9	56.8	56.8
distance across orbital rings	45.8	47.5	50.3
least width of nasals between orbits	5.5	5.8	6.0
intertemporal breadth	42.0	42.6	42.8
choana breadth	14.4	13.6	15.2
width of braincase	53.5	55.5	54.4
c-m^3, length	26.9	27.1	29.5
length of upper cheek-teeth	21.5	21.5	22.9
m^1, length × breadth	4.0×5.2	4.0×5.0	4.2×5.3
height of upper canine	10.5	14.6	15.5
width across outer bases of upper canines	24.8	26.2	28.5
length of mandible	58.9	62.7	65.5
c-m_3, length	26.8	31.0	32.3
crown length of lower cheek-teeth	21.0	25.3	26.4

PUSCH in his revision of the genus *Cebus* united the genera *Cebus* Erxleben and *Saimiri* Voigt. By this action the two species *Cebus nigrivittatus* Wagner, 1848, and *Chrysothrix nigrivittatus* Wagner, 1846, were both placed in the genus *Cebus*, the latter becoming a synonym of *Saimiri sciureus* (L.). VON PUSCH (1941, p. 145) rejected the junior of WAGNER's two specific names *nigrivittatus* and proposed the new name *leporinus* for it. According to VON PUSCH's classification, the specific name *nigrivittatus* Wagner, 1848, as published in the combination *Cebus nigrivittatus*, was indeed a junior homonym of the specific name *nigrivittatus* Wagner, 1846, as published in the combination *Chrysothrix nigrivittatus*; for the definition of secondary homonym runs as follows: "Where two nominal species, at the time of the original publication of their respective names, are placed in different nominal genera and are given the same specific name, but later are placed in the same nominal genus, each of the binomina is thereafter a secondary homonym of the other" (FOLLETT, 1955, p. 74 par. 437). The fact that VON PUSCH does not use the combination *Cebus nigrivittatus* (Wagner, 1846) is irrelevant here, since "an author rejecting one name as a junior secondary homonym of another name is required to make it clear that he considers that the species bearing the specific name so rejected is congeneric with a species bearing a previously published identical specific name, but is free to indicate his view on this subject in whatever way he considers appropriate, provided that the method he adopted leaves no reasonable doubt that he considers the two species concerned to be congeneric with one another." (HEMMING, 1953, p. 83 par. 161). Now the International Rules further-

more say that "a specific name that is the later published of a pair of secondary homonyms is to be rejected by any author in whose opinion the two species concerned are referable to the same genus" (FOLLETT, 1955, p. 53 par. 277). Hence VON PUSCH's action (1941, p. 195) in rejecting *nigrivittatus* Wagner, 1848, as a junior secondary homonym of *nigrivittatus* Wagner, 1846, is fully justified under the existing Rules. Finally the Rules say that "where, before 1951, an author clearly rejects a specific name on the ground that it is the later published of a pair of secondary homonyms, that rejection is to stand" (FOLLETT, 1955, p. 53 par. 279). VON PUSCH's rejection of the specific name *nigrivittatus* Wagner, 1848, is thus final, and the name can no longer be used. HERSHKOVITZ (1949, p. 345) therefore arrives at an incorrect conclusion when, under *Cebus capucinus leporinus* Pusch, he states: "A new name proposed for *Cebus nigrivittatus* Wagner "preoccupied" by *Chrysothrix nigrivittatus* Wagner. The latter is a *Saimiri*, a genus that VON PUSCH recklessly lumped with *Cebus*. As this system of classification is not adhered to in this report, *leporinus* revolves to the synonymy of *nigrivittatus*"; *nigrivittatus* Wagner, 1848, once validly rejected as a homonym by VON PUSCH, cannot be revived again, even if VON PUSCH's classification is not followed and the condition of homonymy no longer exists.

The next oldest synonym of *Cebus nigrivittatus* Wagner, 1848, is *Cebus olivaceus* Schomburgk, 1848; hence this name has to replace that given by WAGNER. To the present specimens, which distinctly belong to the same subspecies as the material described by SCHOMBURGK as *Cebus olivaceus*, the name *Cebus olivaceus olivaceus* Schomburgk must therefore be given.

At the same time this solves the question as to which of the two names *olivaceus* Schomburgk, 1848, or *nigrivittatus* Wagner, 1848, both published in the same year, should be given priority.

BIOLOGY. In the mountain forests the dark olive-brown coloured *Cebus olivaceus* replaces *Cebus apella*, which prefers the lowlands. The two species have much in common, both of them living in small families of some ten to twenty individuals, gently moving around in the trees and calling to one another. They feed on fruits, especially palm fruits, but it is possible that they eat small animals as well.

It is not known whether they have a special breeding time. The female collected on the Nassau Mountains on March 18, 1949 (coll. no. 9142 A) was carrying a foetus. Young specimens caught when the mother is shot down endure captivity very well and are handsome pets. The species is hunted by the Bush Negroes and Amerindians of the hinterlands, but because of its scarcity is not captured so frequently as *Cebus apella*. The meat is of the same quality.

Saimiri sciureus sciureus (L.) Plate VI
Monki-monki

[*Simia*] *sciurea* LINNAEUS, 1758, Systema naturae, ed. 10, vol. 1, p. 29.

TYPE LOCALITY. "India". Restricted by THOMAS (1911, p. 129) to Guiana; limited, however, by TATE (1939, p. 218) to British Guiana.

COLLECTED SPECIMENS. Transect 1, north of *Moengo Tapoe*, October 18, 1948, coll. nos. 1992 A, adult female (reg. no. 12540); 1992 D, adult female (reg. no. 12542); 1992 B, adult male (reg. no. 12539); 1992 C, adult male (reg. no. 12543). — November 15, 1948, coll. no. 2729, adult male (reg. no. 12541). — November 16, 1948, coll. no. 2818, adult male (reg. no. 12538). With the exception of coll. no. 2818, of which only the skin is present, all specimens are preserved as skins, skulls, and skeletons.

The six specimens of this well known species, which is quite common in Surinam, vary only slightly in their coat colour and are in close agreement with the description of former authors. The arms below the elbows, the hands, the ankles, and the feet are ochraceous orange to light brownish orange. The apical third or fourth of the tail is black, passing abruptly into the grizzled grey of the rest of the tail. The ventral surface and the inner side of the legs is whitish to light yellowish. The back, the shoulders, and the upper parts of the arms and legs are greyish washed with golden yellow; the latter colour being caused by the golden yellow tips of the hairs. The colour of the base of the tail gradually passes into that of the back. The coloration of the top of the head is grizzled grey, like the basal part of the tail; the lateral parts of the head are blackish. The ears are covered with long white hair; the face is mainly whitish or light yellowish coloured; the chin and the throat are whitish.

Cranial measurements: see Table 4.

BIOLOGY. This pretty greyish-green monkey with white face and black mouth is a common species in Surinam. It has a liking for the lower forest and shrubs in swamps, savannas, and along the banks of rivers, where it lives in large troops of sometimes more than a hundred individuals. They jump from one tree to another with elegance — even through the spiny palms, the leaves of which are covered with needle-like thorns. During their movements the long black-tipped tail is used for balancing.

TABLE 4.

Cranial measurments of *Saimiri sciureus sciureus* (L.) from Suriname.

Locality	North of Moengo Tapoe				
Collection number	1992 A	1992 D	1992 B	1992 C	2729
Sex	female	female	male	male	male
total length	60.2	62.7	64.6	66.0	60.9
condylo-basal length	40.5	42.4	44.7	45.0	41.9
basal length	35.6	37.5	39.1	39.5	37.5
palatal length	17.3	18.0	19.7	19.6	18.3
zygomatic breadth	35.4	35.6	39.8	41.2	38.0
mastoid breadth	34.1	35.3	37.5	37.8	34.2
distance across orbital rings	27.9	29.6	30.6	30.6	29.2
least width of nasals between orbits	2.8	3.5	3.1	3.5	3.1
intertemporal breadth	29.2	30.5	30.5	30.6	29.4
width of braincase	36.0	36.2	36.1	36.4	33.9
c-m^3, length	13.9	14.8	16.1	16.3	15.1
length of upper cheek-teeth	11.5	12.5	12.2	12.9	12.3
m^1, length × breadth	2.5 × 3.5	2.6 × 3.4	2.6 × 3.5	2.7 × 3.7	2.5 × 3.6
width across outer bases of upper canines	14.6	15.5	18.6	18.3	17.0
length of mandible	33.4	34.2	36.4	37.0	34.2
c-m_3, length	15.5	16.3	—	17.7	16.8
crown length of lower cheek-teeth	13.3	14.1	—	15.2	13.5

The food consists of fruit, insects, and other small animals. During the time in which oranges are ripe, monki-monkis can be destructive on the plantations of the coastal plain, when they plunder the citrus trees.

Young animals have been observed in every month of the year. There seems to be no special breeding time. Young animals are often kept in zoological gardens. *Saimiri* is seldom hunted because of its small size and the fact that its meat has a peculiar taste.

Ateles paniscus paniscus (L.) Plate VIII
Kwatta

[*Simia*] *Paniscus* LINNAEUS, 1758, Systema naturae, ed. 10, vol. 1, p. 26.

TYPE LOCALITY. "In America meridionali: Brazilia". — KELLOG & GOLDMAN (1944, p. 11) "restrict" this locality to French Guiana, which of course is not in keeping with regulations, for the International Rules of Zoological Nomenclature state that "When, in the opinion of a taxonomist, the locality cited for a nominal

species by the original author of a specific name is lacking in sufficient precision and no further information is obtainable ... it shall be open to that taxonomist, acting as first revisor, to specify a restricted portion of the region or area cited by the original author to be the locality for the nominal species concerned". (HEMMING, 1953, p. 26–27). Since French Guiana does not form part of Brazil it cannot be indicated as the restricted type locality of *Simia paniscus*, which has Brazil as its actual type locality. In order to prevent any nomenclatorial complication, we now restrict the type locality of *Simia paniscus* Linnaeus, 1758, to Rio Jamundá near Faro, north bank of Rio Amazonas, Parà, Brazil, one of the localities mentioned by KELLOGG & GOLDMAN (1944, p. 17). In this way the restricted type locality of the species still falls within the area indicated by these authors for the typical subspecies.

COLLECTED SPECIMENS. Transect 3, *Tibiti*, January 10, 1949, coll. no. 5368, adult male (reg. no. 12517). — Transect 4, *Nassau Mts.*, 20.1 km west of the Marowijne River, March 22, 1949, coll. no. 9423, juvenile male (reg. no. 12519); coll. no. 9422, adult male (reg. no. 12518). The species is represented by skins, skulls, and skeletons.

The three specimens agree perfectly with the description given by KELLOGG & GOLDMAN (1949, p. 11): "Pelage silky, lax and very long (majority of hairs on midline of back 75–150 mm. in length, and on upper half of tail 50–100 mm. in length. — Entire pelage deep glossy black; face normally flesh-colored". The face is dark greyish in the dried skins, however. In the adult specimens the tail is naked beneath for about the terminal two-thirds; in the juvenile, however, the naked area extends over about half the length of the tail.

The skull of coll. no. 9422 from the Nassau Mountains shows some anomalies in its teeth. In the left side of the upper jaw the canine and the second and third molars are completely lacking, while in the right side the canine is present, but has broken off, and the first premolar is reduced in size and has also broken off. In the right side of the mandible the first premolar is completely lacking, in the left side this premolar is reduced in size and has broken off; the canines are present but have also broken off. The inner incisors of the upper jaw show caries.

Cranial measurements of the two adult males from Tibiti and the Nassau Mts., respectively: total length 119.5, 118; condylobasal length 95.0, 95.3; basal length 85.9, 84.1; palatal length 39.1, 37.0; zygomatic breadth 74.7, 72.7; mastoid breadth 64.6, 65.7; distance across orbital rings 64.4, 60.0; least width of nasals

between orbits 13.1, 12.3; intertemporal breadth 54.6, 50.6; width of braincase 63.6, 64.0; c-m^3, length, 30.3, -; length of upper cheek-teeth 13.1, 13.6; m^1, length × breadth, 4.7 × 5.4, 5.2 × 5.6; length of upper canine 17, -; width across outer bases of upper canines 27.0, -; length of mandible 80.7, 81.1; c-m_3, length, 34.8, -; crown length of lower cheek-teeth 15.2, 16.6.

BIOLOGY. This large monkey, which in the field is characterized by its black fur and red face, attains a length of 1.35 m. It inhabits the high mountain forests and is not found in the lowland forests of the coastal region. It generally lives in small groups; sometimes it is solitary. Compared with the body, the legs and the tail are very long; the tail is prehensile and is about twice as long as the body. The animal continually uses the tail for grasping branches or other objects. The thumbs of the fore-legs are very poorly developed, if at all. The animals are very agile and are able to move rapidly through the woods. When they are being chased their progress is so swift it is impossible to follow them on the ground. However, they are very inquisitive and hence often venture quite close to human beings. They may also be attracted by an imitation of their high gurgling call. Amerindians and Bush Negroes make use of this call when hunting the monkeys. The Amerindians of the interior prefer to shoot them with arrows poisoned with "oerali" (= curare), as otherwise the monkeys when shot grab hold of branches and remain hanging in the trees even after they have died. The poison of the oerali arrow paralyzes the animal, which then drops to the ground. Kwatta monkeys are much sought after because of their meat, which is quite tasty; their yellow fat is used by the Indians as a base for "koesoewe", a red dye from *Bixa orellana* which they rub on themselves. When chased, the monkeys often throw pieces of wood at their pursuers or drop dead branches.

As far as is known mating and birth are not confined to restricted seasons, young animals being met with throughout the year. A litter consists of one young only. It is quite rare to find baboons (*Alouatta seniculus*) and kwatta monkeys (*Ateles paniscus*) together; the two species probably do not mix too well.

The food of the kwatta monkey consists of fruit, and according to the natives the kinds of fruit eaten by kwattas are also harmless to men. They endure captivity quite well and can become very tame; tame kwatta monkeys allow themselves to be treated and pampered like small children. As regards parasites, lice strongly resembling the human louse (*Pediculus* sp.) were found between the long black hairs of the animals. The abdominal cavity often contained many long, thin threadworms.

Marikina (Tamarin) midas midas (L.) Plate VII
Sagoewintje

[*Simia*] *Midas* LINNAEUS, 1758, Systema naturae, ed. 10, vol. *1*, p. 28.

TYPE LOCALITY. "America". Here restricted to Dutch Guiana. — There is some confusion regarding the restricted type locality of this species. In the original description of *Simia Midas*, LINNAEUS (1758, p. 28) stated "Habitat in America". Thus, "America" must be considered the type locality. THOMAS (1911, p. 128) restricted the type locality to "West Indies", a most unfortunate action, since the species does not occur on any of the West Indian Islands. We have therefore either to assume that Thomas's term "West Indies" also included northern South America, or to reject his restriction as incorrect. As far as we know no other type locality restrictions have been made for the species. It is clear from ELLIOT's account (1913, vol. *1*, p. 191, 192) that he considered the type locality as lying either in British or in Dutch Guiana, while HERSHKOVITZ (1949, p. 412), by citing "French Guiana" after the name *Marikina midas*, probably meant to show his preference for that locality. However, neither of these authors actually made a restriction of the type locality. In order to end the present undesirable confusion a definite restriction of the type locality is made here. The facts are (*1*) that at the time that LINNAEUS published the tenth edition of his *Systema naturae*, most South American material found in the natural history cabinets of continental Europe came from the coastal region of Surinam (Dutch Guiana), (*2*) that the first authors after 1758 who cited a more precise locality for *Simia midas* L., namely SCHREBER (1775, vol. *1*, p. 132, pl. xxxvii) and GMELIN (1789, in LINNAEUS, Syst. Nat., ed. 13, vol. *1*, p. 41), gave Surinam as the locality, and (*3*) that ELLIOT (1913, p. 191) in his monograph on the primates, definitely excluded French Guiana from the range of distribution of *Simia midas*. In view of these facts we select here the locality Suriname (Dutch Guiana), as the restricted type locality of *Simia Midas* Linnaeus, 1758.

COLLECTED SPECIMEN. Transect 1, north of *Moengo Tapoe*, October 30, 1948, coll. no. 2332, adult female (reg. no. 12513; skin, skull, and skeleton), "one shot out of a group of five, in forest."

The hands and the feet above, including the wrists and the ankles, are orange-rufous. All the other parts of the body are uniformly black, except for the back between the shoulders to the

base of the tail, and the upper parts of the thighs, which are mottled. This mottling is caused by the light yellowish tips of the hair. The ears are naked and relatively large. The ventral surface of the body is loosely haired, so that in the dried specimen the light brownish colour of the outer skin is visible.

Cranial measurements: total length 49.8; condylo-basal length 38.0; basal length 44.4; palatal length 16.8; zygomatic breadth 35.7; mastoid breadth 29.0; distance across orbital rings 27.2; least width of nasals between orbits 5.2; intertemporal breadth 23.2; width of braincase 27.3; c-m^2, length, 11.1; length of upper cheek-teeth 9.1; m^1, length × breadth 2.1 × 3.0; width across outer bases of upper canines 14.0; length of mandible 32.9; c-m_2, length, 12.7; crown length of cheek-teeth 10.3.

BIOLOGY. Marmosets are quite common in savanna forests and along the banks of rivers, but also in the bush of the sand ridges in the coastal plains. This small, pretty, black monkey with orange-rufous feet and a long, not prehensile tail lives in families of five to twenty individuals. The general appearance of the creature is more that of a squirrel than of a monkey, though the ears are held sideways. In its movements the marmoset is quite slow, leaping from one tree to another and grasping the smaller twigs with its claws. We agree with KAPPLER (1887, p. 57) that sagoewintjes are sometimes found together with monki-monkis (*Saimiri*) and kesi-kesis (*Cebus apella*). The marmoset has a liking for fruit and is very agile in securing insects, on which it chiefly feeds. We are not able to say anything about the breeding season, if one exists. Young animals become very tame and make charming pets. The species is not hunted as game.

REFERENCES

BAKKER, J. P. & LANJOUW, J., 1949. Indrukken van de Natuurwetenschappelijke Expeditie naar Suriname 1948–'49. *Tijdschr. Kon. Ned. Aardr. Gen. 66*, p. 538–557, 1 map, 12 pls.

CRUZ LIMA, E. DA, 1945. *Mammals of Amazonia.* Vol. *1. General introduction and Primates.* Contrib. Mus. Paraense Emilio Goeldi de Hist. Nat. e Ethnogr., English ed., 274 pp., 42 col. pls.

EDWARDS, G., 1764. *Gleanings of Natural History, containing figures of Quadrupeds, Birds, Insects, Plants, etc. Most of which have not, till now, been either figured or described.* With descriptions of eighty-five different subjects, designed, engraved, and coloured after nature on fifty-two copper-plate prints, pt. *3*. London, (4) + i–vii, 221–347 pp., pls. 311–362.

ELLIOT, D. G., 1913 [1912]. *A review of the Primates.* Am. Mus. Nat. Hist. Monogr. no. 1, vol. *1*, iii–cxxvi, 1–317, i–xxxviii pp., col. pls., phot. pls., figs.; vol. *2*, iii–xviii, 1–382 pp., i–xxvi pp., col. pls., phot. pls., figs.

FOLLETT, W. I., 1955. *An unofficial interpretation of the International Rules of Zoological Nomenclature as amended by the XIII International Congress of Zoology, Paris, 1948 and by the XIV International Congress of Zoology, Copenhagen, 1953.* San Francisco, v + 99 pp.

GEOFFROY-SAINT-HILAIRE, E., 1812. Tableau des Quadrumanes, ou des animaux composant le premier Ordre de la Classe des mammifères. *Ann. Mus. Hist. Nat. Paris 19*, p. 85–122; 156–170.

GEIJSKES, D. C., 1954. Het dierlijk voedsel van de bosnegers aan de Marowijne. *Vox Guyanae 1*, p. 61–83.

HEMMING, F., 1953. *Copenhagen Decisions on Zoological Nomenclature. Additions to, and modifications of, the Règles Internationales de la Nomenclature Zoologique approved and adopted by the fourteenth International Congress of Zoology, Copenhagen, August, 1953.* London, xxix + 135 pp., 2 pls.

HERSHKOVITZ, PH., 1949. Mammals of Northern Colombia. Preliminary Report No. 4: Monkeys (Primates), with taxonomic revisions of some forms. *Proc. U. S. Nat. Mus. 98*, p. 323–427, figs. 52–59, pls. 15–17.

HERSHKOVITZ, PH., 1955. Notes on American monkeys of the genus Cebus. *Journ. Mamm. 36*, p. 449–452.

HUMBOLDT, A. DE, 1812 [1811]. Sur les singes qui habitent les rives de l'Orénoque, du Cassiquiare et du Rio Negro. In: HUMBOLDT & BONPLAND, *Recueil d'Observations de Zoologie et d'Anatomie comparée, faites dans l'Océan Atlantique, dans l'interieur du Nouveau Continent et dans la Mer du Sud pendant les années 1799, 1800, 1801, 1802 et 1803*, second ed., vol. *1*. Paris, p. 305–335, pls. xxvii–xxx.

HUMBOLDT, A. DE, 1812 [1811]. Tableau synoptique des singes de l'Amérique. In: HUMBOLDT & BONPLAND, *Recueil d'Observations de Zoologie et d'Anatomie comparée*, (etc.), second ed., vol. *1*, p. 353–363.

KAPPLER, A., 1887. *Surinam, sein Land, seine Natur, Bevölkerung und seine Kultur-Verhältnisse mit Bezug auf Kolonisation.* Stuttgart, 384 pp., figs., 1 map.

KELLOGG, R. & GOLDMAN, E. A., 1944. *Review of the Spider monkeys.* Proc. U.S. Nat. Mus. 96, no. 3186, 45 pp.

LINDEMAN, J. C., 1953. *The Vegetation of the Coastal Region of Surinam.* Results of the Scientific Expedition to Suriname 1948–'49. Botanical series No. 1. Thesis, Utrecht, x + 135 pp., figs. i–v, 17 pls.

PUSCH, B. VON, 1942. Die Arten der Gattung Cebus. *Zeitschr. Säugetierk. 16*, p. 183–237, 4 figs., 1 tab.

RIDGWAY, R., 1912. *Color Standards and Color Nomenclature.* Washington, iii + 43 pp., pls. i–liii.

SANDERSON, I. T., 1949. A brief review of the Mammals of Suriname (Dutch Guiana), based upon a collection made in 1938. *Proc. Zool. Soc. London 119*, p. 755–789, 4 figs., pls. i–vii.

SCHOMBURGK, R., 1848. *Reisen in Britisch-Guiana in den Jahren 1840–1844*, vol. *2*. Leipzig, xiv + 530 pp., 8 pls.

SCHREBER, J. CH. D., 1775. *Die Säugthiere in Abbildungen nach der Natur mit Beschreibungen*, vol. *1*. Erlangen, 188 pp., pls. i–lxii.

SHERBORN, C. D., 1899. A note on the date of the parts of "Humboldt and Bonpland's Voyage: Observations de Zoologie". *Ann. Mag. Nat. Hist.* (*7*) *3*, p. 428.

SHERBORN, C. D., 1914. An attempt at a fixation of the dates of issue of the parts of the publications of the Musée d'Histoire Naturelle of Paris, 1802–1850. *Ann. Mag. Nat. Hist.* (*8*) *13*, p. 365–368.

SIMPSON, G. G., 1945. *The principles of classification and a classification of mammals.* Bull. Am. Mus. Nat. Hist. 85, p. i–xvi, 1–350.

TATE, G. H. H., 1939. The Mammals of the Guiana Region. *Bull. Am. Mus. Nat. Hist. 76*, p. 151–229.

TATE, G. H. H., 1954. On Cebus apella (Linnaeus) with a note on Cebus capucinus (Linnaeus). *Journ. Mamm. 35*, p. 415–418, 1 pl.

THOMAS, O., 1911. The Mammals of the tenth edition of Linnaeus; an attempt to fix the types of the genera and the exact bases and localities of the species. *Proc. Zool. Soc. London*, p. 120–158.

VIEIRA, C. DA CUNHA, 1955. Lista remissiva dos mamíferos do Brasil. *Arquivos de Zool. São Paulo 8*, p. 341–474.

EXPLANATION OF THE PLATES

PLATE I. Skull of *Pithecia pithecia* from Suriname, female; reg. no. 12515 (natural size).

PLATE II. Skull of *Chiropotes chiropotes* from Suriname, male; reg. no. 12514 (× 4/5).

PLATE III. Skull of *Alouatta seniculus straminea* from Suriname, male; reg. no. 12520 (× 3/5).

PLATE IV. Skull of *Cebus apella apella* from Suriname, male; reg. no. 12533 (× 4/5).

PLATE V. Skull of *Cebus olivaceus olivaceus* from Suriname, male; reg. no. 12528 (× 4/5).

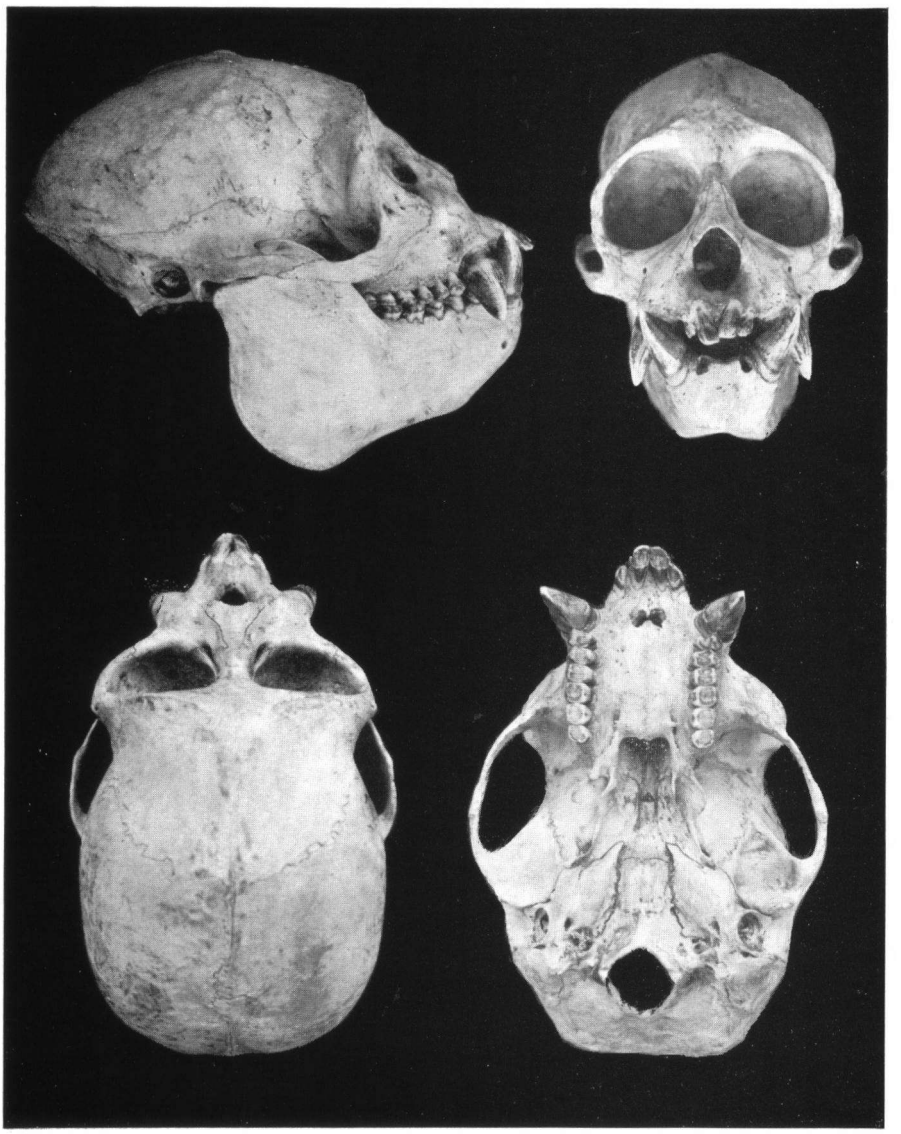
PLATE VI. Skull of *Saimiri sciureus sciureus* from Suriname, male; reg. no. 12541 (natural size).

PLATE VII. Skull of *Marikina midas midas* from Suriname, female; reg. no. Cat. Jentink, specimen "b" (natural size).

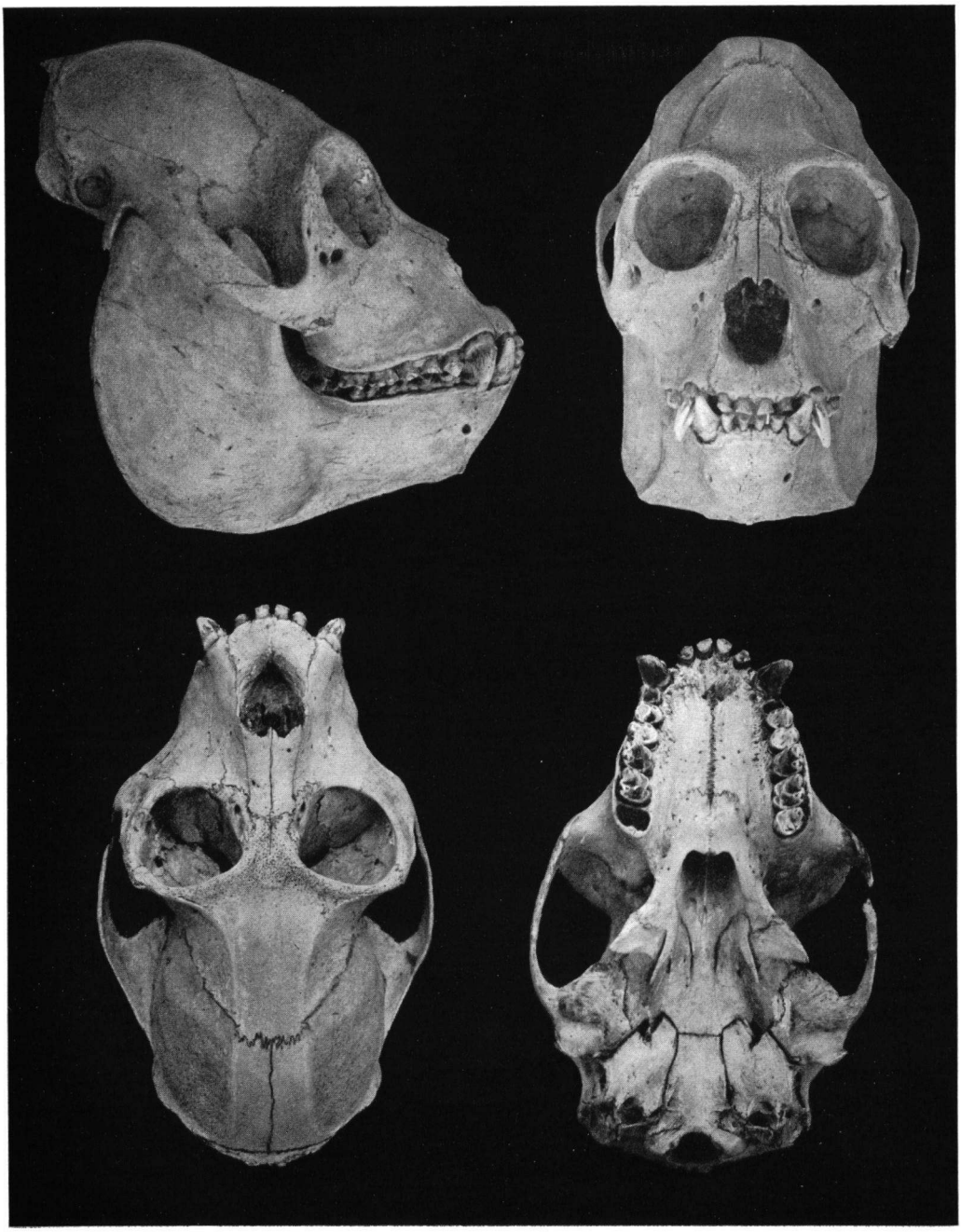
PLATE VIII. Skull of *Ateles paniscus paniscus* from Suriname, male; reg. no. 12517 (× 3/5).

Skull of *Pithecia pithecia* from Suriname, female (× 1/1).

PLATE II



Skull of *Chiropotes chiropotes* from Suriname, male (× 4/5).



Skull of *Alouatta seniculus straminea* from Suriname, male (× 3/5).

PLATE IV

Skull of *Cebus apella apella* from Suriname, male (× 4/5).

Skull of *Cebus olivaceus olivaceus* from Suriname, male (× 4/5).

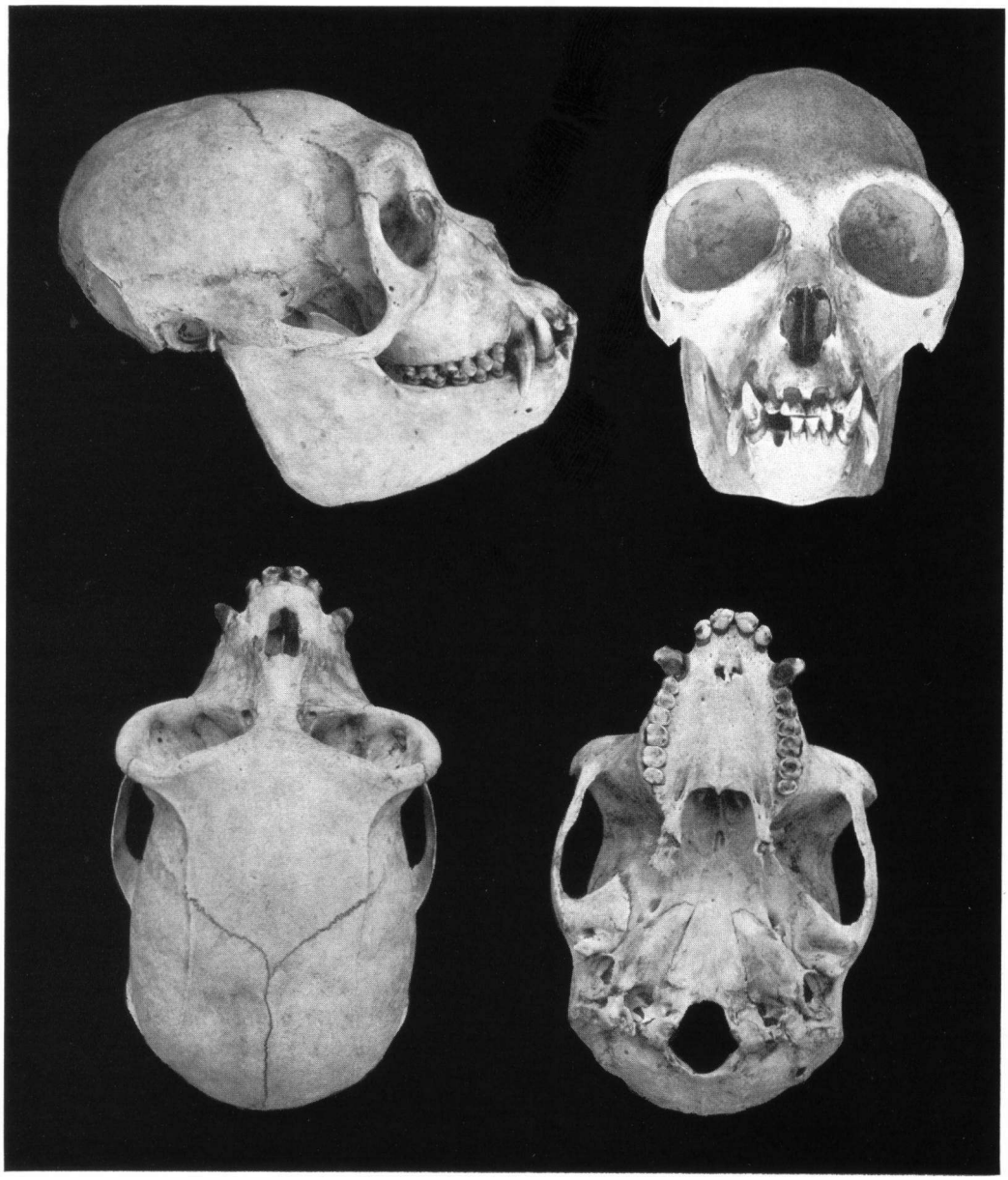
PLATE VI

Skull of *Saimiri sciureus sciureus* from Suriname, male (× 1/1).

PLATE VII

Skull of *Marikina midas midas* from Suriname, female (× 1/1).

PLATE VIII



Skull of *Ateles paniscus paniscus* from Suriname, male (× 3/5).