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PRIMATES FROM EQUATORIAL AFRICA

BY

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NEW RACES OF UNGULATES AND PRIMATES FROM EQUATORIAL AFRICA

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The present paper deals with African mammal material in the United States National Museum collected by the Smithsonian African Expedition under the direction of Colonel Theodore Roosevelt and by the Paul J. Rainey Expedition to British East Africa.

GORGON ALBOJUBATUS MEARNSI, new subspecies

Loita White-Bearded Wildebeest

Type from the Loita Plains, British East Africa; adult male, Cat. No. 163020, U. S. Nat. Mus.; shot by Dr. E. A. Mearns, June 28, 1909; original number 6809.

Characters.—Differs from the typical *Gorgon albojubatus* of the Athi Plains by dark colored limbs, smaller body size, the skull being decidedly less in length; and less widespread horns which are curved downward well below lower margin of orbit and about level with the foramen magnum. In *albojubatus* the horns extend much more horizontally, their lower edge not extending below the lower edge of the orbit.

Coloration of type: dorsal color drab-gray spotted and banded by dark patches due to the tips of the hair becoming dark brown as though representing an old worn pelage, the new alone being drab-gray. This faded condition of the hair is not seasonal but is a chronic condition in the wildebeest. Limbs darker than the body, uniform olive-brown deepening somewhat on the pasterns. Chest, fore part of belly and lower sides much darker than the back, clove-brown, the chest medially black. Groins, axillæ and inside of legs drab-gray like the back. Tail like the back in color and furnished along the lower surface and at the tip with a long black tuft of hair fully as long as the tail itself. Neck like the back in ground color but showing ragged cross bands of dark hair bases; a mane of long black hair extends the whole length of the nape and is continued as a black line on the back as

far as the rump. The throat marked by a mane of long buffy or whitish hair from the chin to the chest. Top of snout from the interorbital region to the muzzle and far down on the sides to the lower level of the eyes deep black, the blackness at muzzle spreading down around the mouth and uniting with the black chin; the upper lips whitish at tip of snout and walnut-brown on the sides. Sides of head drab-gray like the neck with a slightly lighter streak bordering the black face blaze from the eye to the angle of the mouth. Crown seal-brown and showing some contrast to the black forehead. Back of ears black and united with the dark crown patch by a narrow bridge of dark color, rest of base and inside pale drab-gray.

No flesh measurements of the type are available but an adult male specimen from the same locality, No. 181851, U. S. Nat. Mus., had dimensions in the flesh as follows: Head and body, 2,000 mm.; tail, 645; hindfoot, 515; ear, 200. The skull of the type shows considerable age, the last molars showing wear, the horn points being much worn down and the fronto-nasal suture quite obliterated. Condylbasal length, 430; greatest length, 457; greatest breadth, 185; nasals, 222 x 40; orbit to gnathion, 300; length of premaxillæ, 192; vertical diameter of eye, 58; upper tooth row, 101; width of palate across M², 95; tooth row to gnathion, 142. Length of horns on curve, 15½ inches; greatest spread, 20⅝ inches; spread at tips, 13½.

A series of twelve skins, with their skulls, of this new race is in the National Museum from the Loita Plains and six skins and skulls from the Kapiti or Athi Plains representing *albojubatus*. The series from the Loita representing *mearnsi* shows much darker legs accompanied by darker body color on the chest, sides and underparts. In the typical *albojubatus* of the Athi the legs are drab or tawny-olive and never as dark as olive-brown or sepia. No difference in the color of the throat, mane or forehead is evident in these two series but the ears at the base in *albojubatus* show a tendency to lose the bridge of dark color from the back of the ear to the crown patch. The horns in the Loita Plains specimens agree in showing a much deeper sweep downward from the head than do those of typical *albojubatus* from the Athi Plains.

Gorgon has been employed as the genus of the brindled wildebeests owing to their marked distinctness in skull shape and horns from the white-tailed gnu which is the type of the genus *Connochates* of Lichtenstein. *Gorgon* was proposed by Gray in 1850 for the brindled wildebeest, *G. taurinus*.

BUBALIS LELWEL KENIÆ, new subspecies

Kenia Lelwel Hartebeest

Type from the North Kenia Plateau, 20 miles northeast of Nyeri near the Meru road; adult male, Cat. No. 182009, U. S. Nat. Mus., shot by Paul J. Rainey, June 27, 1911; original number, 2310.

Characters.—Resembling *Bubalis lelwel jacksoni* closely in coloration and size but differing by the more widely spread or divergent horns and by decidedly shorter horn pedicle. From *cokei* or any of its races it is at once distinguishable by its V-shaped horns, longer head and larger body size.

Dorsal coloration uniform cinnamon-rufous, the color becoming gradually lighter on the sides and belly where it is ochraceous-buff. Legs like the sides without any black markings except a black border to the clefts of the hoofs in front. Terminal half of tail furnished with a long black tuft. Crown of head and snout darker and more rufous than the back. Ears like the back except on inside where they are clothed by white hair. Tip of chin black in marked contrast to the tawny throat.

Dimensions of the type in the flesh: head and body along curve of back, 2,000 mm.; tail, 570; hindfoot, 540; ear, 280. Skull: condylo-basal length, 431; greatest length from bifurcation of horn pedicle, 495; length of horn pedicle from bifurcation to orbit, 143; least width of pedicle, 111; gnathion to tooth row, 150; width of palate across PM², 88; length of premaxillæ, 140; nasals, 223 x 42; vertical diameter of orbit, 50. Adult, but not aged, the teeth showing very little wear.

There is one other specimen in the collection besides the type. This is also a male but from a locality some 20 miles farther west. It is much younger than the type having just shed its milk molars. In coloration it is quite light, being uniform buff in color without the rufous tinge of the type.

The horns of the type are broadly V-shaped with the tips turned sharply backward at right angles and parallel in direction. Length along front curve, 21¼ inches, spread at tips, 10¼ inches; circumference at base, 11¾ inches. The horn pedicle is much wider than in *jacksoni*, the least width being considerably greater than two-thirds of the length.

The Kenia lelwel is confined to the plateau region drained by the Northern Guaso Nyiro and flanking Mount Kenia on the north. It represents the extreme western range of the lelwel type of hartebeest.

Westward it connects with true *jacksoni* in the region west of Lake Baringo. It occurs in very limited numbers, is exceedingly wary and is seldom secured by sportsmen.

SYLVICAPRA GRIMMIA DESERTI, new subspecies

Desert Bush Duiker

Type from Voi, British East Africa; adult male, Cat. No. 182219, U. S. Nat. Mus.; collected by Edmund Heller, October 27, 1911; original number, 2532.

Characters.—*Sylvicapra grimmia deserti* is decidedly lighter than the other East African races of bush duikers with more vertically directed horns and shorter pelage. Body size large. Dorsal coloration buffy without any approach to the tawny color of the highland races and with the dark chin spots obsolete or but faintly indicated.

Color of the type: dorsal color buff speckled very lightly by narrow dusky vermiculations to the hair; underparts white, the breast showing but a slight tendency toward the ochraceous color of *hindei*. Legs buffy like the body but lacking the darker vermiculation; from the fetlocks to hoofs solid fuscous-brown which is continued upward in front as an indefinite darker leg stripe. Tail with a median black dorsal stripe, the sides and under surface white in sharp contrast. Head ochraceous marked by a broad seal-brown or black median stripe from the muzzle to the horn bases. Lips, chin, and forethroat white, the chin marked on sides by two faint drab-gray spots representing the blackish patches of *hindei*. Eye lashes and anteorbital stripe black. Ears on back covered by a short scattered growth of ochraceous hair but general color tone dark brownish due to the dark skin; inner side and base white. Throat and nape ochraceous-buff, slightly darker than the body.

Measurements of type in the flesh: Head and body, 810 mm.; tail, 110; hindfoot, 260; ear, 105. Skull, adult, with last molar in place but with milk molars still in use: greatest length, 166; condylo-basal length, 156; greatest breadth, 72; nasals, 63 x 30; length of premaxillæ, 48; vertical diameter of orbit, 26; orbit to gnathion, 87; tooth row to gnathion, 49; length of upper tooth row, 51. Length of horns, straight, $4\frac{1}{8}$ inches; spread at tips, $2\frac{5}{8}$ inches. Angle of horns with profile of dorsal surface of head, 130° .

Besides the type there are four adult females in the National Museum collected by the Rainey Expedition. Two of these are from Voi, one from Maji-ya-Chumvi, and the other from Mariakani sta-

tion. They all agree closely in their light buffy coloration. The horn character, however, may not be constant as it is based on a single specimen. A large series of the highland races, however, do not show any variation toward vertically directed horns. *Deserti* is a lowland race occupying the Taru Desert and the nyikæ of the coast slope generally as far north no doubt as the Tana River. It differs strikingly from the Athi Plains race described as *hindei* which is a dark tawny form. A series of seven specimens of the latter in the National Museum have been available for comparison with *deserti*. The lowland Nile race, *roosevelti*, is a much smaller and darker colored animal and is readily distinguishable by its small size from all the East African races.

COLOBUS ABYSSINICUS ROOSEVELTI, new subspecies

Mau Colobus Monkey

Type from the Mau forest near Enjoro, British East Africa, adult male, Cat. No. 163261, U. S. Nat. Mus.; shot by Colonel Theodore Roosevelt, December 6, 1909; original number (Heller) 513.

Characters.—Resembling most closely *Colobus abyssinicus matschiei* of the Kavirondo country but differing by its smaller size, shorter and more extensively black tail and the presence of a sagittal crest on the skull when aged. From the white-tailed *Colobus* of the Kikuyu Escarpment, the Aberdares, and Mount Kenia it is easily distinguishable by the absence of the large white tail, the white tail tuft being reduced to the terminal one-fourth of the tail, the basal three-fourths of which is clothed by short black hair.

Four specimens of this race shot by Colonel Roosevelt near Enjoro are in the National Museum. These have been compared with a series of five specimens of *matschiei* from the Kakumega forest which are practically topotypes. The skulls of *matschiei* are decidedly larger and their parietal ridges do not unite on the occipital region to form a crest but run parallel and widely separated to their junction with the lambdoidal crest.

No flesh measurements of this race are available. The type skull has the following dimensions: greatest length, 117 mm.; basilar length, 85; zygomatic breadth, 86; post orbital construction, 45; median nasal length, 26.4; width of palate in front between premolars, 22; width of palate at last molar, 20; length of upper molar series, 32.5. An adult male of *matschiei* of the same age has a skull length of 127 and a zygomatic width of 92.

The Mau forest near Enjoro where Colonel Roosevelt obtained the types represents the extreme eastern limit of this race. It is primarily a highland race occupying the high forest of the Mau Escarpment. Along the western edge of the Mau Escarpment in the Kavirondo country it meets the race described by Neumann as *matschiei* which is really the lowland Uganda *Colobus* which extends as far east as the Kavirondo district and the slopes of Mount Elgon.

COLOBUS ABYSSINICUS PERCIVALI, new subspecies

Uaragees Colobus Monkey

Type from Mount Uaragees, British East Africa; adult male, Cat. No. 182138, U. S. Nat. Mus.; collected by Edmund Heller, August 22, 1911; original number 2447.

Characters.—The *Colobus* inhabiting Mount Uaragees may be distinguished from typical *Colobus abyssinicus caudatus* of Kilimanjaro by the smaller white tail tuft, longer tail, larger body size and skull. The latter is distinguishable from *caudatus* by the union of the temporal ridges into a sagittal crest. In typical *caudatus* the white tail tuft is of immense size and occupies the whole tail with the exception of the basal one-fourth which is black but in the Uaragees race the whole basal half of the tail is black the white tuft being reduced to the terminal half. In the Abyssinian race, *abyssinicus*, the white tail tuft is still further reduced and is limited to the terminal fourth.

The measurements of the type in the flesh were: head and body, 645 mm.; tail, 645; hindfoot, 190; ear, 38. Skull of the type old with the occipital sutures obsolete, but molars show little wear: greatest length, 102; basilar length, 87; zygomatic breadth, 89; post-orbital constriction, 45; median length of nasal bones, 15; width of palate at last molar, 20; length of upper molar series, 35; length of mandible, 92. Besides the type there is one other specimen, an adult male, from Mount Uaragees in the collection. These have been compared with a series of 17 adult males from Kenia, Kijabe and Kilimanjaro. The largest in this series is exceeded in body size and length of tail by the type. The Uaragees race is confined to the forested summit of Mount Uaragees where it is a rather rare animal. But one troupe of some 20 individuals was noted during a week's sojourn on the northern peak. The forested area of Uaragees is separated from that of Mount Kenia by a hundred-mile stretch of low desert which completely isolates this race from communication with the *caudatus* inhabiting Kenia. Named for A. Blaynel Percival to whom the

describer is indebted for much assistance during his stay on Mount Uaragess.

COLOBUS ABYSSINICUS TERRESTRIS, new subspecies

Lado Colobus Monkey

Type from Rhino Camp, Lado Enclave; adult female, Cat. No. 164756, U. S. Nat. Mus.; shot by Kermit Roosevelt, January 20, 1910; original number (Heller) 623.

Characters.—Differs from the other races of *Colobus abyssinicus* by the reduced amount of white in the mantel and the great length of the tail. It approaches most closely in coloration to *matschiei* or *occidentalis* but has decidedly less white in the mantel covering the sides and the rump. The white tail tuft is limited to the terminal one-fourth, the rest of the tail being covered by short black hair. White of tail tuft and mantel much shorter haired than in *matschiei*. Tail greatly exceeding head and body in length. Skull smaller than *matschiei*.

Measurements of the type in the flesh: head and body, 540 mm.; tail, 775; hindfoot, 158; ear, 30. In an adult female of *matschiei* the tail is only 655. The skull of the type is old and has a well-marked sagittal crest on the occipital region: greatest length, 102; basilar length, 75; zygomatic breadth, 72; post orbital constriction, 42.5; median length of nasals, 11; upper molar series, 29; width of palate at last molar, 20.

The type is the only specimen in the National Museum. Small troupes of this race were seen by Kermit Roosevelt near the banks of the Nile, but were not observed by other members of the expedition. They were found in small scattered acacia trees which they deserted when hard pressed and ran across country to the next nearest grove in the manner of baboons. The Colobus monkeys of the highlands of East Africa have quite different habits and live in dense forests where they move about through the trees by leaping from one branch to another and descend to the ground rarely to escape an enemy. They are not known to inhabit acacia trees.

LASIOPYGA LEUCAMPAX MAUÆ, new subspecies

Mau Forest Monkey

Type from the summit of the Mau Escarpment between Londiani and Sirgoit, British East Africa, adult male, Cat. No. 173002, U. S. Nat. Mus.; collected by John Jay White, November 1, 1910.

Characters.—Resembling *Lasiopyga leucampax neumanni* but dorsal coloration olivaceous (grayish-olive of Ridgway) without the gray cast of that race and with the shoulders more extensively black; body size larger; skull longer and narrower with well-developed sagittal crest in age; teeth larger and heavier.

No flesh measurements of this race are available. The skull of the type measures: greatest length, 122 mm.; basilar length, 87; zygomatic breadth, 77; post orbital constriction, 41; median length of nasals, 26; length of upper molar series, 28; width of palate at M³, 21. The skull shows considerable age and has a well-marked sagittal crest running the whole length of the brain case. The cheek teeth and the middle incisors show much wear.

The type is the only specimen in the National Museum, but there is a series of nine specimens of the closely allied *neumanni* from the Kakumega Forest for comparison in the museum collected by the Rainey Expedition. This series which is very uniform smoke-gray on the back exhibits practically no variation in tone and is easily distinguishable from the specimen collected by John Jay White. The largest male in the series has a considerably smaller skull than the type. The race here described occupies the highland forest of the Mau Escarpment and is the easternmost representative of the Congo group known as *leucampax* of which *neumanni* is the lowland Uganda and Kavirondo race.

LASIOPYGA ALBOGULARIS MARITIMA, new subspecies

Coast Forest Monkey

Type from Mazeras, British East Africa; adult female, Cat. No. 182272, U. S. Nat. Mus.; collected by Edmund Heller, December 17, 1911; original number, 2585.

Characters.—*Lasiopyga albogularis maritima* differs from the other East African races by lighter coloration and absence of black lining or black tips to the hair on the back and underparts. Back ochraceous-tawny; underparts light smoke-gray without the blackish vermiculation so prevalent in *kolbi* and *kibonotensis*. Body size somewhat smaller. Skull small with narrow palate and large cheek teeth.

Measurements of the type in the flesh: head and body, 420 mm.; tail, 675; hindfoot, 125; ear, 31. Skull: greatest length, 95; basilar length, 62; zygomatic width, 62; post orbital constriction, 42; median length of nasals, 16; length of upper molar series, 25; width of palate at last molar, 18.

There are three female specimens of this race from Mazeras in the National Museum. The type is fully adult with the sphenoidal sutures of the skull ankylosed but the two others are somewhat immature. This small series has been compared with five females of *kolbi* from the Aberdares and Kenia and five females of *kima* from the Taita Hills. From these two races they are easily distinguishable by their light coloration and absence of black lining to the pelage. *Maritima* is a lighter and somewhat smaller race confined to the forests clothing the summits of the coast hills.

LASIOPYGA ALBOGULARIS KIMA, new subspecies

Taita Forest Monkey

Type from Mount Mbololo, Taita District, British East Africa; adult male, Cat. No. 182242, U. S. Nat. Mus.; collected by Edmund Heller, November 6, 1911; original number, 2555.

Characters.—Resembling closely *Lasiopyga albogularis kolbi* of the Kikuyu highlands from which it is distinguishable by its lighter and less rufous back, the smaller extent of the white throat patch and collar and the smaller body size. From *kibonotensis* of Kilimanjaro it is distinguishable by the white of the throat patch extending farther upward on the sides of the neck toward the nape. In this character it is quite intermediate between *kolbi* and the latter, but it is lighter colored and smaller than either of these races.

Flesh measurements of the type: length of head and body, 510 mm.; tail, 600 (defective at tip, perfect tail usually 725); hindfoot, 150; ear, 38. Skull: greatest length, 113; basilar length, 83; zygomatic breadth, 77; post orbital constriction, 44; median length of nasals, 20; length of upper molar series, 27; width of palate at last molar, 22. Skull of type old with the middle incisors much worn and with the temporal ridges uniting at the parietal suture but not forming a high narrow crest.

Ten specimens of this race are in the National Museum collected by the Rainey Expedition upon Mount Mbololo and Mount Umengo of the Taita Hill region. They are confined to the forests at the extreme summits of the hills, and their cover is at present rapidly disappearing before the ax and fire of the agricultural Wataita who are constantly enlarging their fields at the expense of the forest. The Wataita are fond of the flesh of the *kima* and owing to their persecution it is extremely shy and difficult to stalk. The name *kima* is used universally by the Swahili for this monkey and it is also employed by the Wataita who occasionally corrupt it to *gima*.

LASIOPYGA ASCANIUS KAIMOSÆ, new subspecies

Kavirondo White-nosed Monkey

Type from the Upper Lukosa River, near the mission station of Kaimosi, British East Africa; adult male, Cat. No. 182371, U. S. Nat. Mus.; collected by Edmund Heller, February 10, 1912; original number, 2692.

Characters.—Closely allied to *Lasiopyga ascanius schmidti* of the Manyema and Uganda country from which it is distinguishable by the brighter colored tail which is orange-rufous, the more blackish limbs which lack reddish vermiculation and the general darker and less reddish coloration of the upper parts.

The type measured in the flesh: head and body, 550 mm.; tail, 780; hindfoot, 145; ear, 30. Skull: greatest length, 100; basilar length 68; zygomatic breadth, 68; post orbital constriction, 42; median length of nasals, 16; length of upper molar series, 24; length of mandible, 70; length of lower molar series, 28.

The Rainey Expedition collected a large series of specimens from Kaimosi, the head of the Lukosa River on the lower slopes of the Nandi Escarpment and the Kakumega Forest. This material is now in the National Museum. It represents the eastern limits of the *ascanius* group of *Lasiopyga* in Africa which has not previously been reported so far east as British East Africa. They were found abundant in the dense forests where they lived in proximity to colobus and the large gray forest monkeys, *Lasiopyga leucompax neumanni*. When alarmed they uttered a peculiar, low, chirping, bird-like note very unlike the barking calls of other African monkeys.

LASIOPYGA PYGERYTHRA TUMBILI, new subspecies

Coast Tumbili Monkey

Type from Ndi, Taita District, British East Africa; adult male, Cat. No. 182229, U. S. Nat. Mus.; collected by Edmund Heller, November 1, 1911; original number, 2542.

Characters.—A very pale desert race of *Lasiopyga pygerythra* having the back olive-buff in color, the limbs grayish and the hands and feet black only on their distal parts. The dorsal surface shows none of the tawny reddish tint so prevalent in the other East African races. From *johnstoni* of Kilimanjaro it may be distinguished by its lighter dorsal coloration and smaller amount of black on the hands and feet. *Rubellus* of the Kenia and Nairobi districts differs

by its darker back which is decidedly ochraceous-tawny and by its wholly black feet and hands as well as larger body size.

The measurements of the type in the flesh were: head and body, 460 mm.; tail, 620; hindfoot, 133; ear, 32. The skull is that of an aged animal with the occipital sutures no more evident and the incisor teeth well worn. The temporal ridges do not form a sagittal crest but the median occipital region is marked by a flattened raised band. Greatest length, 104; basilar length, 70; zygomatic breadth, 70; post-orbital constriction, 44; median length of nasals, 17; length of upper molar series, 26; width of palate at last molar, 18.

A series of 13 specimens of this race is in the National Museum from Ndi, Voi, Changamwe, and Mtoto Andei stations collected by the Rainey Expedition. Most of these were collected at Ndi, a Taita village at the north base of Mount Mbololo. Here they were found living in the acacia trees on the steep sides of the mountain from which they descended daily to the small stream near the village to drink. Others were seen in fig trees growing near the banks of the Voi River close to the station. This monkey is called by the Swahili "tumbili" and the name has been adopted by many of the inland tribes and the resident Europeans for the monkeys of the *pygerythra* group.

LASIOPYGA PYGERYTHRA ARENARIA, new subspecies

Desert Tumbili Monkey

Type from the Merille waterholes, Marsabit Road, British East Africa; adult male, Cat. No. 182201, U. S. Nat. Mus.; collected by Edmund Heller, July 25, 1911; original number, 387.

Characters.—Closely resembling *Lasiopyga pygerythra callida* of Naivasha but separable by the more tawny dorsal coloration, less extensively black feet, shorter pelage and longer tail. From *rubellus* of the Mount Kenia region it may be distinguished by its darker dorsal coloration and lighter colored limbs and tail.

There are no flesh measurements of the type available but a specimen (Cat. No. 182140, U. S. Nat. Mus.) of the race from the base of Mount Uaragess had the following dimensions: head and body, 445 mm.; tail, 650; hindfoot, 129; ear, 33. Skull of type old with worn molars and incisors. Sagittal crest low and short. Greatest length, 99; basilar length, 64; zygomatic breadth, 70; post orbital constriction, 42.5; median length of nasals, 22; length of upper molar series, 24; width of palate at last molar, 18.

Along the banks of the Northern Guaso Nyiro this monkey was found very abundant. It is commonly found in the large flat-topped acacia in small troupes. It is found throughout the desert wherever there is water available. At Merille they came daily to the waterholes to drink but they were quite cautious in approaching the waterholes which were fifty yards from any cover in the midst of the flat sandy riverbed. Besides the type there are 16 specimens from the middle course of the Guaso Nyiro and two from the lower slopes of Mount Uaragess.