THE MONKEY TRIBE

THE MONKEY TRIBE

By

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CONTENTS

	PAGE
INTRODUCTION	ix
PART I	
THE LEMURS AND THEIR KIN	1
PART II	
THE NEW WORLD MONKEYS	33
PART III	
THE OLD WORLD APES AND MONKEYS	59
INDEX TO POPULAR NAMES	115
INDEX TO SCIENTIFIC NAMES	117

LIST OF ILLUSTRATIONS

	Facing page
Aye-aye (*Daubentonia madagascariensis*)	3
Tarsier (*Tarsius spectrum*)	7
Great Galago (*Galago crassicaudatus*)	11
Slender Loris (*Loris tardigradus*)	13
Slow Loris (*Nycticebus coucang*)	15
Lesser or Miller's Dwarf Lemur (*Microcebus murinus*)	20
Ring-tailed Lemur (*Lemur catta*)	25
Ruffed Lemur (*Lemur variegatus*)	26
Verreaux's Sifaka (*Propithecus verreauxi*)	30
Common Marmoset (*Hapale jacchus*)	34
Squirrel Monkey (*Saimiri sciurea*)	40
Feline Douroucouli (*Aotes rufipes*)	42
Humboldt's Saki (*Pithecia monachus*)	44
Black-faced Spider Monkey (*Ateles ater*)	48
Brown Capuchin (*Cebus fatuellus*)	52
Red Howler Monkey (*Alouatta seniculus*)	56
Mandrill (*Mandrillus sphinx*)	60
Yellow Baboon (*Papio cynocephalus*)	64
Gelada Baboon (*Theropithecus gelada*)	66
Pig-tailed Macaque (*Macaca nemistrina*)	70
Crab-eating Macqaue (*Macaca irus*)	73

	Facing page
Grey-cheeked Mangabey (*Cercocebus albigena*)	75
Diana (Roloway) Monkey (*Cercopithecus diana roloway*)	80
Schmidt's White-nosed Guenon (*Cercopithecus ascanius schmidti*)	82
Abyssinian Guereza (*Colobus abyssinicus*)	84
Hanuman Langur (*Pithecus entellus*)	88
Mitred or Capped Langur (*Pithecus aygula*)	92
Grey or Silver Gibbon (*Hylobates leucescus*)	96
Orang-utan (*Pongo pygmaeus*)	98
Chimpanzee (*Pan satyrus*)	102
Young Gorilla, John Daniel in thoughtful mood	106
Old Male Gorilla (*Gorilla gorilla*)	110

INTRODUCTION

IN the following pages it has been my endeavour to fill a gap in popular Zoological literature; namely, to present a general account of the appearance, habits, and geographical distribution of the Monkey Tribe—the Lemurs, Monkeys, and Apes, those animals which are included in the great order Primates. No attempt has been made to go into elaborate anatomical details, for that would have been going far beyond the scope of the present work, which is intended to serve rather as a simple non-technical account of the living animal. A huge literature already exists dealing with the anatomy and physiology of the Primates, and, as a matter of fact, far more accurate information is available concerning the intimate anatomy of the Monkey Tribe than about their actual natural habits and life-history. This is greatly to be deplored, because the Apes and Monkeys, like so many of the larger mammals, are steadily decreasing in numbers as the countries they inhabit become more and more opened up and the natural products exploited; so that it is no exaggeration of fact to say that in a few more years many species of these most deeply interesting animals will have become extinct before any reliable and fully detailed records of their natural life and habits have been compiled. This applies particularly to African species, and perhaps in a slightly lesser degree to many inhabiting Asia and tropical South America.

The middle and latter part of the nineteenth century witnessed an enormous advance in our knowledge of the range and constitution of the Monkey Tribe, thanks to the collections brought home by travellers and hunters; but unfortunately specie-creating was all too rife among those whose business it was to examine and describe the material thus obtained; such entirely uncertain factors as colour, size, and locality too often being deemed all sufficient to establish specific rank, with the result that again and again specimens of the same animal, because they happened to display some such variation of coat or locality, were promptly described as separate species. Needless to say, this has led to endless confusion and rendered the task of identification, and of allocating to each proven species its correct scientific

name, according to the accepted rules of Zoological nomenclature, no easy matter. It is a position that will ultimately clarify itself, but in the process inevitably leads to some confusion and a good deal of petty spite and cheap criticism.

In the following pages the familiar popular name of each animal described is followed by its scientific name as it appears either in the Zoological Society's *List of Vertebrate Animals*, Vol. I, "Mammals", compiled by Major S. S. Flower, O.B.E., in 1929, or in Dr. D. G. Elliott's *Review of the Primates*, published in 1912; the scientific names given in the latter work being quoted for those species not included in the *List of Vertebrate Animals*.

The long years of my official connection with the Zoological Society of London afforded me ample opportunity to become familiar with much of the scientific literature concerning the Monkey Tribe, and, when circumstances permitted, of watching, sketching, and becoming on more or less friendly terms with the Apes and Monkeys in the gardens at Regent's Park. From notes accumulated in this way much of the information concerning the habits of these animals in captivity has been derived. Wherever I have drawn upon the writings of other authors, their observations are recorded within quotation marks, together with their names; and to those still living, I would express my sincere thanks for the invariable kindness and advice so freely given whenever sought. It is my hope that the particulars given in these pages regarding suitable diet, or the natural food, may prove of real help to those wishing to keep their pet monkeys in health and happiness. Most of the illustrations are based on original sketches of living specimens. Unfortunately, to do full justice to the fine and often delicate gradation of colour of the coats of many of these animals would have called for the finest and most accurate colour printing, a far too costly undertaking at the present time.

Should this little book serve to awaken or further stimulate a greater interest, and also prove a useful guide to those seeking information about the appearance and habits of these remarkable animals, then the labour of its production will not have been entirely in vain.

PART I

THE LEMURS AND THEIR KIN

THE forests of western and eastern Africa, of Madagascar, Ceylon, southern India, and the great Asiatic islands are the homes of many animals resembling in some respects monkeys, but which show certain marked differences, both in their general structure and habits of life. For the most part, these animals are characterized by possessing a rather long, narrow muzzle which, when present, gives a somewhat foxy appearance to the face when seen in profile; the eyes are always large and prominent, the body slender and compressed, and the tail in some species very long but never prehensile. The hind limbs are longer than the front, and both hands and feet have five digits, each bearing a flat nail, except the second toe, which usually has a pointed claw employed chiefly as a toilet comb, while both the thumbs and the great-toes are opposable, a feature that at once distinguishes all Lemuroids from animals with paws, and gives them greater powers for grasping boughs and stems of creepers during their active nocturnal climbing. They also possess special structures on their finger-tips in the form of disc or button-shaped pads, on the upper surface of which is the nail. These curious tips are well supplied with sensitive nerves, sufficient to excite the muscles of the fingers and toes to grasp and hold on at the least touch, and are of the very greatest importance when the animal is leaping from branch to branch in search of food during the hours of darkness. Their ears are usually large, often possess remarkable powers of movement, and in some species can actually be folded up.

Although differing from the monkeys in many points of structure, these animals still resemble them, on the whole, more nearly than any other mammals, and therefore are associated with them in the scheme of classification applied to the Monkey Tribe by zoologists, being placed in a separate sub-order of the Primates called the *Lemuroidea*, for certain resemblances exist which suggest that both may have originated from nearly allied if not indeed from a common Tarsier-like ancestor.

All these lemur-like animals are peculiar to the southern regions of the great land masses of the Old World, the headquarters of the whole group being the great island of Madagascar, where they constitute no less than one-half of the entire mammalian fauna. Over the rest of their geographical range they form an insignificant element in the general fauna, being represented by only a very small number of species. The true Lemurs are confined entirely to Madagascar, and it is interesting to note that all the species found on the island scarcely show any closer relationship to those of the African mainland than they exhibit to those of Asia.

The Sub-Order includes the true Lemurs, the Galagos, or Bush-babies, the curious Aye-aye, the Pottos, the Asiatic Lorises, and the Tarsiers.

The Tertiary rocks of Europe have yielded the remains of many extinct forms, but the most remarkable series are those which have been discovered in Madagascar, some of which belong to existing genera, while others indicate totally distinct and, in some examples, gigantic types, such as the *Megaladapis grandidieri*, with a skull measuring more than a foot in length, which must have belonged to an animal the size of a large leopard.

The Aye-aye (*Daubentonia madagascariensis*)

This extraordinary little animal, one of the most aberrant of the Lemur family, is very rarely to be seen alive in Zoological Gardens. This is not due to actual scarcity; for although the little creature has a very restricted geographical range, its home being in the island of Madagascar, where it chiefly inhabits the dense forests of the east coast region, it would appear there to be fairly abundant. The real reason why living specimens so rarely find their way to Europe is that the natives possess the greatest veneration for the Aye-aye, which they believe to be an embodiment of their forefathers, and therefore under no circumstances will they capture or harm it. Should one have the misfortune to be caught in a trap set for some other wild animal, the native will grease its coat with fat as a peace-offering and apology, and then let the little animal go back to its home among the branches of the forest trees. The natives of the Betsimisaraka tribe, in whose country the Aye-aye is chiefly found, firmly believe that anyone trying to capture it will

Aye-Aye (*Daubentonia madagascariensis*)

[*Face page* 3

certainly die; while should they find a dead specimen in the forest, they will at once bury it on the spot with all due ceremonial rights.

The profound fear and respect in which the Aye-aye is held by the natives is not altogether surprising, for it is a weird and uncanny-looking creature, entirely nocturnal in its habits. It averages about three feet in length, including its long bushy tail, which serves as a useful blanket during the hours of daylight when the animal is asleep in its nest, high up among the branches of some tall forest tree. The head is rounded, with a short muzzle, large rounded ears almost destitute of hairs, and the eyes large and slightly prominent. The general colour of the coat is dark brown tending to black, with yellowish-grey throat, and a rufous tinge to the underparts. There is a pale whitish spot over each eye, and the nose and cheeks are of the same hue. The limbs are moderately long and slender, while the hands and feet are relatively large, with long, slender fingers and toes, and, with the exception of the thumbs and great-toes that have flattened nails, are armed with very long and narrow, sharply-pointed claws. But quite the most striking feature in the animal's make-up is the great development of the middle finger of each hand. It is much longer than all the others, and so slender that it looks like a piece of black, jointed wire terminating in a sharp claw. This extraordinary finger is used by the Aye-aye to probe down into the burrows made by the larvæ of certain insects in the soft wood of branches and sapling stems, and to extract these insects which form part of its natural diet.

Except for the opposable great-toes and thumbs with their flattened nails, the Aye-aye presents little outward resemblance to other members of the Lemur tribe, and its true relationship is further masked by the arrangement and curious character of the teeth in the adult, which have become specially modified to the creature's way of life, the front or incisor teeth being reduced to a single pair in both upper and lower jaw, and having sharp chisel-like edges, admirably adapted for gnawing hard substances; thus both in shape and position resembling the incisors of rats and their kindred. Small wonder, therefore, that the Aye-aye, when first discovered, was considered to be a species of squirrel and placed among the rodents, its real affinities to the Lemurs only being discovered later, after a more thorough examination of both its external and internal anatomy had been made. Then it was revealed that the structure of the skeleton and internal organs

were essentially that of a Lemur. Moreover, it was found that the first or "milk" teeth in the infant Aye-aye more closely resemble the permanent teeth of the true Lemurs.

Comparatively little is known about the habits of the Aye-aye in its native haunts. The animal lives a solitary life, never associating in bands of several individuals, but given to prowling about alone, sometimes in pairs, among the branches of the trees, and inhabiting the densest parts of the forest; and as it is essentially nocturnal in habit, is rarely seen by the human inhabitants of those regions. During the hours of darkness it gives vent to a plaintive half-whistling, half-grunting call as it roams from one bough to another and clambers up the trees examining the bark in search of its favourite insect food. Then as daylight approaches it disappears into the twilight shades of the densest foliage, and, encircling itself with its bushy tail, curls up to sleep and rest in a semi-torpid condition until evening draws on. High up, lodged in the fork of the branches of some large forest tree, the Aye-aye constructs a large ball-shaped nest composed of the rolled-up leaves of the so-called "Traveller's Tree", and carefully lined with small twigs and dry leaves. The opening to the nest is narrow and placed to one side, and it is within the safe shelter of this substantial nest that the female Aye-aye gives birth usually to a single offspring. The natural food of the Aye-aye appears to consist of young shoots and fruits, and the fat larvæ of certain beetles dug out from their burrows in the stems and branches of the forest trees.

The little animal is usually docile, and lives quite contentedly in captivity if provided with warmth and suitable food, so that much more is known about its habits under such conditions than about its natural life in the forests. One of the best accounts of the Aye-aye in captivity is contained in a letter to the great anatomist Prof. R. Owen from Dr. H. Sandwith, C.B., at that time resident in Mauritius, and who had obtained a living specimen from Madagascar. The following is Dr. Sandwith's account of his remarkable pet: "After very great difficulty and much delay I have at length obtained a fine healthy male, a real Aye-aye, and he is enjoying himself in a large cage which I have constructed for him. I observe he is sensitive to cold, and likes to cover himself up in a piece of flannel, although the thermometer is now often 90° in the shade. He is a very interesting little animal, and from close observation I have learned his habits very correctly. On

receiving him from Madagascar, I was told that he ate bananas, so of course I fed him on them, but tried him with other fruit. I found he liked dates, which was a grand discovery, supposing he is sent alive to England. Still I thought that those strong rodent teeth, as large as those of a young Beaver, must have been intended for some other purpose than trying to eat his way out of a cage—the only use he seemed to make of them besides masticating soft fruits. Moreover, he had other peculiarities, e.g., singularly large naked ears, directed forwards as for offensive rather than defensive purposes; then again the second finger of the hands is unlike anything but a monster supernumerary member, it being slender and long, half the thickness of the other fingers, and resembling a piece of bent wire. Excepting the head and this finger he closely resembles a Lemur. Now, as he attacked every night the woodwork of his cage, which I was gradually lining with tin, I bethought myself of trying some sticks over the woodwork, so that he might gnaw these instead. I had previously put in some large branches for him to climb upon; but the others were straight sticks to come over the woodwork of his cage, which alone he attacked. It so happened that the thick sticks I now put into his cage were bored in all directions by a large and destructive grub called here Montorek. Just at sunset the Aye-aye crept from under his blankets, yawned, stretched, and betook himself to his tree, where his movements were lively and graceful, though by no means as quick as those of a squirrel. Presently he came to one of the worm-eaten branches, which he began to examine most attentively; and bending forward his ears and applying his nose close to the bark, he rapidly tapped the surface with the curious second digit, as a Woodpecker taps a tree, though with much less noise, from time to time inserting the end of the slender finger into the worm-holes as a surgeon would a probe. At length he came to a part of the branch which evidently gave out an interesting sound, for he began to tear it with his strong teeth. He rapidly stripped off the bark, cut into the wood, and exposed the nest of a grub, which he daintily picked out of its bed with the slender tapering finger, and conveyed the luscious morsel to his mouth. I watched these proceedings with intense interest, and was much struck with the marvellous adaptation of the creature to its habits, shown by his acute hearing, which enables him aptly to distinguish the different tones emitted from the wood by this gentle tapping, his evidently acute sense of smell aiding him in his search; his secure footsteps on the slender

branches to which he firmly clings by his quadrumanous members; his strong rodent teeth enabling him to tear through the wood; and lastly, by the curious slender finger, unlike that of any other animal, and which he used alternately as a pleximeter, a probe, and a scoop. But I was yet to learn another peculiarity. I gave him water to drink in a saucer, on which he stretched out a hand, dipped a finger into it, and drew it obliquely through his open mouth; and this he repeated so rapidly that the water seemed to flow into his mouth. After a while he lapped like a cat; but his first mode of drinking appeared to me to be his way of reaching water in the deep clefts of trees."

Living specimens have at rare intervals reached the Garden of the Zoological Society at Regent's Park, and afforded opportunity for observing their habits and confirming Dr. Sandwith's original account. The first specimen to arrive in 1862 was in rather poor condition, having given birth to a young one during the voyage. However, she soon recovered, and lived for some time, being fed on a mixture of honey, eggs, fruit, and milk, and, when obtainable, sugar-cane, which was greatly enjoyed. Meal-worms, wasp-grubs, grasshoppers, and other insects were offered to her, but left untouched.

The Aye-aye was first discovered by the distinguished French explorer Sonnerat during his visit to Madagascar in 1780, and figured and was described in the account of his travels published in Paris in 1782. Sonnerat was evidently puzzled by the strange external appearance of the animal, for he begins his description by stating that "Although the Aye-aye much resembles a Squirrel, yet it differs therefrom in some essential characters, being also allied to the Lemur and the Monkey". He had obtained his specimens from the west coast of Madagascar; and on showing them to the natives inhabiting the east coast, Sonnerat states that it was their excited cry of astonishment, "Aye! aye!", on beholding the weird-looking animal for the first time, which suggested the name he eventually gave it. As a matter of fact, the animal probably has a wider range on the island than Sonnerat imagined, or he may not have clearly grasped what the natives were actually trying to explain, for it is now known that the native name for the animal is Haihay (pronounced Hihi), and not an exclamation of astonishment but actually a close imitation of the creature's natural call.

Tarsier (*Tarsius spectrum*)

[*Face page* 7

The Tarsier (*Tarsius spectrum*)

This most interesting little animal inhabits the islands of the East Indian Archipelago, Borneo, Java, Sumatra, Celebes, and the Philippine Archipelago. It is entirely nocturnal in habit, hiding away during the daytime among the dense tropical foliage, where it spends the sunlit hours sleeping, or in a semi-torpid condition. After sunset, however, it becomes extremely active, leaping from branch to branch with amazing agility, hunting down those insects which form its chief source of food.

Not very much is known about the actual life and habits of the Tarsier in its natural haunts, nor are specimens very easily obtained, for, owing to its nocturnal habit and weird appearance, the natives greatly fear the little creature and are firmly convinced of its malevolent powers. Indeed, so impressed are the natives of some parts of Java with its supposed evil influence that should they see a Tarsier on a tree near their rice-fields they will leave them uncultivated until such time has passed as they may consider sufficient to have eliminated its baleful influence.

The Tarsier is about the size of a rat, and has a small rounded head, large oval ears, and enormous owl-like eyes. Its limbs are slender, the hind-legs being the longer, while the slender fingers and toes are provided with curious sucker-like discs which enable their owner to grasp and hold on firmly to the branches and stems as the animal leaps about in search of insect prey. The fur is soft and woolly in texture, and ruddy brownish in colour, while the slender tail, which is much longer than the body, is lighter in hue and terminates in a tuft of coarser hair. The great eyes are a very striking feature, and given an uncanny expression to the queer little rather snub-nosed face.

In the islands of Samar and Leite the Tarsier is called by the Bisaya natives the Magou. Mr. John Whitehead, a well-known naturalist who spent some time in the islands studying the fauna and making collections for the British Museum (Natural History), has recorded in his field-notes the following very interesting observations on the appearance and habits of the Tarsier: "In habits the Magou is nocturnal, as the owl-like eyes would lead one to suppose; it frequents abandoned clearings where the new growth has sprung up to a height of twenty feet and is also thickly

covered with ferns and other plants. In such places this little animal easily conceals itself during the day. I had the good fortune to see a Magou in such a locality one day in Samar. The *Tarsius* was clinging to the stem of a small tree just above the fern growth, with its peculiar hands round the tree; it was awake and intently watching my movements, and permitted me to approach as close as I wished: when, doubtless, at the least movement of my hands it would have jumped to the ground and made off in the thick undergrowth. During the night the Magou is very active, and may often be heard, in localities where they are numerous, uttering a peculiar squeak like a monkey. From its habit of feeding on insects, this animal has a strong bat-like smell. In Samar, where at different times I kept several Magous alive, I found them very docile and easily managed during the day. They feed freely on grasshoppers, sitting on their haunches on my hand. When offered an insect, the Magou would stare for a short time with its wonderful eyes, then slowly bend forward and with a sudden dash would seize the insect with both hands and instantly carry it to its mouth, shutting its eyes and screwing up its tiny face in a most whimsical fashion. The grasshopper was then quickly passed through the sharp little teeth, the kicking legs being held by both hands. When the insect was beyond further mischief, the large eyes of the Magou would open, and the legs and wings were then bitten off, while the rest of the body was thoroughly masticated. My captives would also drink fresh milk from a spoon. After the sun had set, this little animal became most difficult to manage, escaping when possible, and making tremendous jumps from chair to chair. When on the floor it bounded about like a miniature kangaroo, travelling about the room on its hind legs with the tail stretched out and curved upwards, uttering peculiar shrill, monkey-like squeaks, and biting quite viciously when opportunity offered. During the day the pupil of the eye becomes so contracted that it appears only as a fine line, but after dark it is so expanded as to fill up most of the iris."[1]

The Tarsiers are not social animals, but appear to go about in pairs, as the natives say that they can always make certain of taking a second animal having secured the first. The female usually gives birth to a single youngster. When first born the baby Tarsier is a perfect replica of its parent,

[1] Oldfield Thomas: "On Mammals obtained by Mr. John Whitehead during his recent Expedition to the Philippines. With Field-notes by the Collector", *Transactions Zool. Soc.*, vol. xiv.

and for a few days spends most of its time hidden from view between its mother's thighs. As it gains strength it becomes restless and venturesome like all young things, and then may be seen attempting short climbing excursions, but not going far from its parent. In captivity, the mother has been seen to carry her offspring about in her mouth after the fashion of a domestic cat.

The Tarsier is of special interest as forming a connecting link between the Lemurs and the Monkeys, the generally accepted opinion among palaeontologists to-day being that the Primates have sprung from a Tarsier-like ancestor. In the structure of its skeleton and soft parts Tarsier displays certain features that link it with the Galagos and Mouse Lemurs, such as the striking elongation of the ankle or tarsal bones, from which the little creature has derived its name ; but there are other peculiarities which separate it from the typical Lemurs and have necessitated its being placed in a separate family, the *Tarsiidæ*, just as the curious Aye-aye is the sole representative of the family *Daubentoniidæ*.

Reference has already been drawn to the enormous owl-like eyes of the Tarsier, which, owing to the reduction in size and shape of the nose, have been brought forward to the front of the face. Recent careful ophthalmoscopic examination of the eyes of living specimens has proved that what is known as the "yellow spot", or *macula lutea*, so very obtrusive a feature of the retina in monkeys, is absent in the Tarsier, and therefore links the animal with the Lemurs. On the significance of the structure and the functioning of the eyes of Tarsier, the late Prof. G. Elliot Smith has left the following deeply interesting account: "Though *Tarsius* has binocular vision, it has no macula lutea to enable it to appreciate the details of the objects seen, nor has it any automatic mechanism for producing the conjugate movements of the eyes necessary for bringing the two images of objects seen on the corresponding areas of the two retinæ. In other words, *Tarsius* has not yet acquired true stereoscopic vision. But the wide range of movement of the head on the neck shows that the co-ordination of the two eyes is becoming biologically useful to the animal; but as it has no mechanism for automatically regulating the position of the eyes, the one to the other, it moves its head as a cat does. These enhanced powers of observation opened the possibility for one branch of the Eocene Tarsioidea to guide its hands with greater precision for the performance of

skilled movements, and so incidentally enhanced the sense of touch. Hence both the tactile and the motor areas of the cortex of the brain underwent a great expansion and elaboration; and at the same time the pre-frontal cortex began to grow rapidly as a mechanism was built up for co-ordinating the movements of the eyes. When this happened specially sensitive areas (maculæ luteæ) were differentiated in the two retinæ, and the optic tracts became rearranged for the purpose of stereoscopic vision. These far-reaching changes led to the transformation of the brain and converted a Tarsioid into a monkey."

The Galagos, or Bush-babies, as they are often called, the Slow and the Slender Loris, and the Pottos are an interesting group of small lemur-like animals inhabiting Africa and south-western Asia.

The Galagos, of which there are some five or six species, are all natives of Africa, ranging right across the continent from Abyssinia as far south as Natal, and to Senegambia in the west. They are chiefly nocturnal in habit, and more or less omnivorous in their diet. Like the Tarsier, their ankle bones are elongated, and when they leave their normal haunts among the branches of the forest trees and descend to the ground, they progress by kangaroo-like hops. Their ears are large and bare of fur and possess a unique peculiarity in that they can be partially folded upon themselves at the will of their owners, so as to lie nearly flat against the sides of the head; probably a protective device to prevent injury to these delicate organs when the animal is making its way through dense and rain-drenched foliage. Some build nests high up amidst the forked branches of the forest trees, and in these safe retreats they spend the hours of daylight, and the female produces her young, which usually number two or three at a birth. Some species appear to be social in habit, as it has been stated that several individuals have been observed to inhabit the same nest, and that they all rush out together from it when alarmed.

The Great Galago (*Galago crassicaudatus*), sometimes called the Bushy-tailed Bush-baby, is the largest of all, and has a range from Quilimane in Portuguese East Africa through southern Nyasaland and Rhodesia to Angola, and southward to the Transvaal, Zululand, and Natal. It is about the size of a large domestic cat, and the manner in which it carries its large bushy tail above its back is very reminiscent of a pampered puss. The ears are large and long, and the hands and feet are comparatively short and broad,

Great Galago (*Galago crassicaudatus*)

[*Face page* 11

the fingers and toes having disc-like expansions at their extremities. The fur is thick, soft, and dark brown in colour. On the west coast of Africa there is a local race of uniform grey colour which, when first discovered, was supposed to rank as a separate species, and was described under the name of Monteiro's Galago (*Galago monteiri*).

According to Sir John Kirk, who was one of the first travellers to observe the Great Galago in its native haunts, the Portuguese call it the rat of the coconut palm, that being its favourite haunt during the daytime, where it nestles among the fronds. But if alarmed or disturbed, it darts about and leaps with great agility from one palm to another, springing with rapidity and adhering to any branch on which it lands like a lump of tenacious clay. It has one weakness, but for which its capture alive would almost be impossible, and that is a taste for alcohol. Should a jar of palm-wine be left on the tree the Galago will drink to excess, and then descend to the ground, where it is said to rush about intoxicated. In captivity it is docile; during the day remaining either rolled up into a ball, or perched on a branch in its cage, half asleep and with its ears folded. Torpid during the day, the animal becomes active at night, or just after darkness sets in, and the rapidity and length of its leaps, which are absolutely noiseless, must give great facility for the capture of living prey. In captivity, a specimen kept by Sir John fed upon biscuit, rice, orange, banana, guava, and a little cooked meat. It was never heard to give a loud call, but would often make a low chattering noise.

Moholi's Galago (*Galago moholi*) and the Senegal Galago (*Galago senegalensis*), although originally described as distinct species, are now considered by most zoologists as only local races of a single species. The first of the Senegal form was described in 1796 from specimens brought back from Senegambia; while Moholi's Galago was described later, in 1839, from specimens from South Africa. In those early days Africa was still largely an unknown country save where here and there an intrepid hunter or missionary had penetrated from the coastal settlements into the interior; consequently but few specimens were available, and species were all too often set up on insufficient material.

Moholi's Galago, or Bush-baby, the South African form, is now frequently brought to England, and makes a most charming and interesting pet. It is a slenderly built little animal, the body measuring from seven

to eight and a half inches in length, and the thick tail about the same or slightly longer. The fur of both the body and tail is very thick and delightfully soft, usually of a pinkish-grey colour, and there is sometimes a dark ring round the eyes; the tail may have a yellowish or reddish-brown tint on the upper surface, darker at the tip, and lighter beneath. The ears are flesh-coloured, and the face and upper surface of the hands and feet yellowish or pale buff. The eyes are large and beautiful. This lovely little animal is nocturnal in its habits, and spends its life amidst the branches of the forest trees, singly or in pairs. It makes a nest of leaves in some convenient fork of a tree, and usually retires there to sleep away the hot hours of daylight. Occasionally, however, it will stay outside on some nearby branch, where it will rest with its long tail invariably folded across its body and round its neck; and if disturbed shows great disinclination to move, but stares half stupidly at the intruder. The female is about the same size as the male, and usually produces two young at a birth. After sunset the little creature becomes extremely lively and active, springing from branch to branch, and from tree to tree, often clearing at a single leap branches eight or ten feet apart. Its food consists chiefly of fruits and insects.

Allen's Bush-baby (*Galago alleni*) is a West African species recorded from the Gaboon and Fernando Po. Its body measures about eight to eight and a half inches in length, and the bushy tail about ten inches. The face is rather pointed, and the eyes and ears are large. The general tone of colour is a ruddy or brownish-grey. Not very much is known about the life of this little Galago, and comparatively few have been kept as pets; but so far as present records are available, its habits do not appear materially to differ from those of the better known species.

Demidoff's Bush-baby (*Galago demidoffi*) is found in tropical Africa, from Senegal to the Congo, extending eastward nearly, if not actually, to Uganda. It is a small animal, the short, stout body measuring only five inches in length, while the rather slender tail is eight inches in length. The oval-shaped ears are long, and the eyes are large and projecting. The general hue of the coat is a reddish-brown above, creamy white on the under-surface of both body and limbs. The little creature has been aptly described by one observer as "a very epitome of zoology, of the size and colour of a large rat, it has the tail of a squirrel, the facial outline of a fox, the membranous ears of a bat, the eyes and somewhat of the manners of an owl

Slender Loris (*Loris tardigradus*)

[*Face page* 13

in its cool way of peering at objects, the long slender fingers of an old man who habitually eats down his nails, and all the mirthfulness and agility of a monkey".

This engaging little creature makes a delightful pet, for in captivity it soon becomes quite tame and strongly attached to its owner, particularly if given some freedom nightly from its cage and permitted to move about the room, when it will display the most remarkable agility, leaping from chair to chair and from chair to table. Like all Bush-babies, its food consists chiefly of fruit and insects. In captivity, milk, boiled rice, a little minced meat, and hard-boiled egg may be tried in addition to fruit. There is a good deal of individual preference as regards articles of food with all these animals, and therefore to keep them healthy, and in happy condition of life, it is most important to try out different forms of food, keeping in mind the natural diet, and taking careful note of what is most readily or eagerly accepted, and what definitely rejected. Only in this way can a balanced diet to replace the normal natural food supply be built up, for the old saying "one man's meat is another man's poison" is equally applicable to the Monkey Tribe.

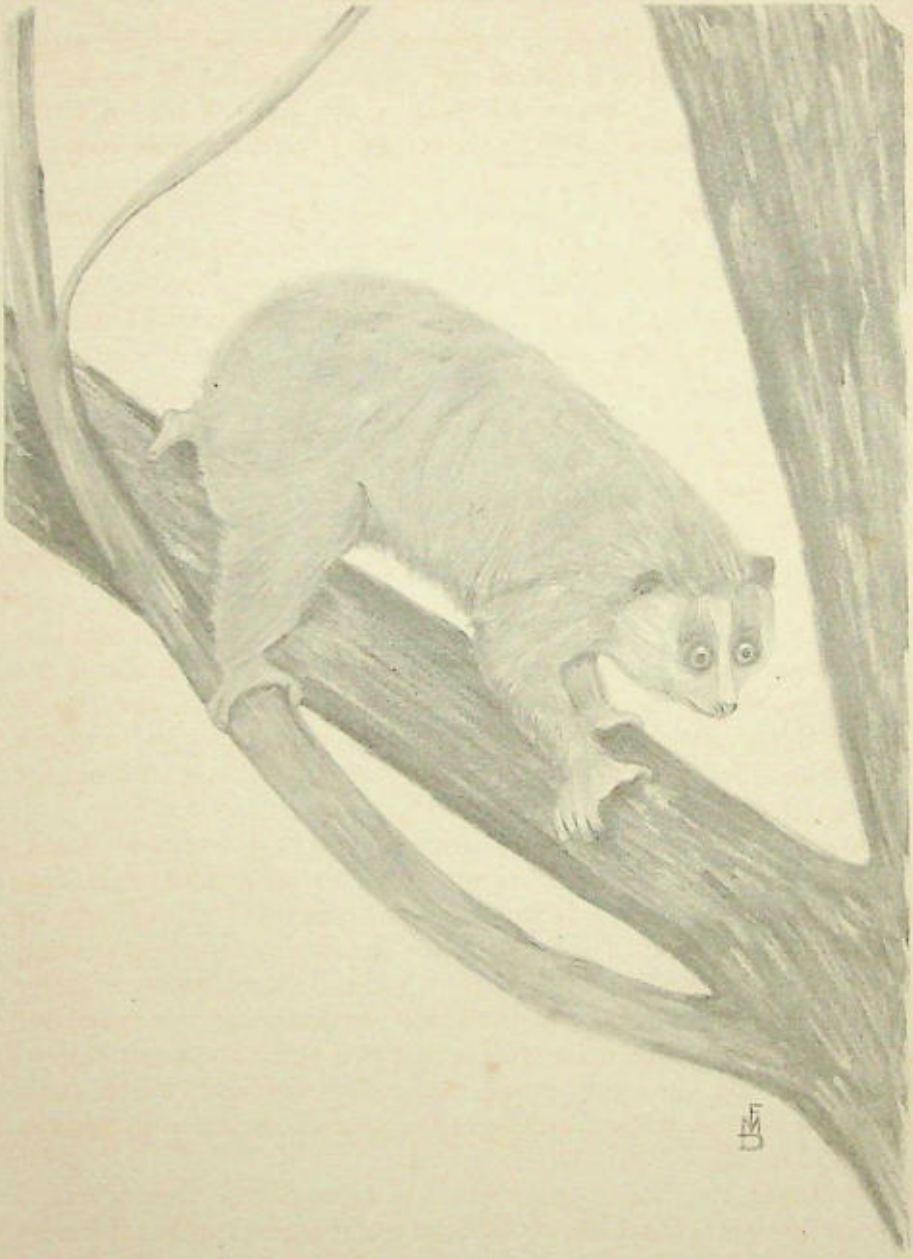
Both the Slender and the Slow Loris are Asiatic species, the Slender Loris (*Loris tardigradus*) being confined to Ceylon and southern India, while the Slow Loris (*Nycticebus coucang*) has a much wider distribution, through south-eastern Asia from Assam to Tonkin, south through Burma and Siam to the Malay Peninsula, Sumatra, Java, and Borneo. The name "Loris" is derived from the Dutch word "loeris" a clown, and appears first to have been applied to these animals by the early Dutch colonists of the East Indies.

The Slender Loris is a small animal, averaging about eight inches in length and devoid of any tail. It is a darkish grey in colour, tending to ruddy tints on the back and outer surfaces of the limbs, with a lighter silvery-grey on the chest and underparts of the body. There is a dark ring round the large eyes, and between them there is a narrow white stripe that spreads out fanwise on the forehead. The limbs are remarkably long and slender, and bend in a curiously angular fashion, so that they, together with the thin, narrow body, give the little creature a strangely emaciated appearance. The fur is close, soft, and woolly in texture. This strange-looking little animal is common in the lower forests of Ceylon and southern India, where it

leads an entirely arboreal and nocturnal life. Most of the day is spent in sound sleep, the animal firmly grasping with its hands the bough on which it is resting, while its back is curved into a ball of soft fur, and its head hidden between its legs. Although if roused during daylight its movements are hesitant and slow, the little animal being obviously alarmed at having been awakened, and also confused by the strong sunshine, it presents a very different manner after nightfall. Then, though showing a certain deliberation, its movements become relatively quick as it travels among the branches, making its appearance and departing again in ghost-like silence, a fleeing shadow and a real spectre of the gloom to the lesser inhabitants of the forest trees, on whom it preys; its natural diet consisting of small birds, their eggs and nestlings, small lizards, insects, and fruit.

In a Slender Loris which lived for some time in captivity the method of capturing prey was observed to be always the same, whether seizing a large insect or a small bird; first a quick but cautious stalking, ending in a lightning grab with both hands, either pinning the prey down, or gathering it to the mouth, followed by a swift bite through the head of the victim. The Loris would then proceed to chew and devour the head, after which the body would be eaten. This particular Loris would not touch small mammals such as mice and shrews when offered him, but devoured small birds with avidity. Among various fruits offered, he showed a marked preference for plantains, making large bites and wolfing down the pulp until his hunger was satisfied. Most insects were readily accepted and devoured, except hairy caterpillars of the Tiger moth family, but the large fat, naked caterpillars of the Sphinx moths, and the moths themselves, were greatly appreciated, as were occasional small tree-frogs, lizards, and geckos.

The Slow Loris (*Nycticebus coucang*) is a much larger and more stoutly built animal, averaging thirteen to slightly over fifteen inches in length, and has a thick coat of very close and rather woolly hair. As might be expected, the animal with so wide a geographical range varies both in size and colour in the different regions it inhabits, with the result that what are merely local races have, in the past, been described as distinct species. When it became possible for specimens from all these regions to be systematically examined, it was found that they merge so insensibly into each other that



Slow Loris (*Nycticebus coucang*)

[*Face page* 15

it is impossible to separate them into distinct species. The colour varies from a more or less rufous to a silvery-grey, with a chestnut brown stripe along the back from the crown of the head to the loins, a brown circle round the eyes, and a white stripe from the forehead down the nose between the eyes.

Slow and deliberate in its movements, the animal has a most tenacious grasp when climbing among the branches of the trees, and this is due to the manner in which certain of the flexor muscles are attached above the knee-joint; the mechanism, in fact, is similar in kind to that which enables a bird to perch without cramp while asleep, or a bat to remain suspended head-downwards without effort while at rest. The Slow Loris is entirely nocturnal and arboreal in its habits, and therefore, although fairly numerous in the countries where it lives, it is seldom seen. It frequents the densest forests, climbing and resting high up among the branches and never by choice descending to the ground. It sleeps in a rolled-up attitude with its head and hands buried out of sight between its thighs, both hands and feet firmly grasping the branch on which it is resting, only awakening with the onset of night to commence its nocturnal rambles in search of the insects, small animals, and fruit which constitute its normal diet. The female bears but one young one at a time, and this is carried under the mother's stomach, holding on tightly to its mother's fur by both hands and feet. The youngster is carried about until almost the size of its parent.

The Malayan natives attribute many strange powers to the Slow Loris, both alive and dead, and believe that there are few events in their own lives, both good or evil, for which the animal may not, in one way or another, be held responsible. The eyes and fur are used in the compounding of various charms and healing ointments, while should an enemy secretly bury certain parts of the animal at the threshold of your home, their presence may cast a malign influence upon you and cause you to commit unpremeditated crimes. On the other hand, the natives consider a live Loris a welcome guest on board their sailing boats, as its presence will assure a safe voyage and favourable winds.

When first caught, the Slow Loris is apt to be savage and to bite severely, giving vent to low grunts and growls of rage and indignation, but if kindly treated and well fed it will generally respond and soon become docile and

tame, making quite an interesting pet. Almost all kinds of fruit are acceptable, and in addition, bread and milk, eggs, meal-worms and a little finely minced meat may be included in the diet.

In the great forests of Equatorial Africa the Pottos take the place of the Lorises of the Asiatic forest regions. They are compact, stoutish animals possessing a very short or rudimentary tail, and the index finger of the hand is greatly modified, consisting externally only of a stump, without distinct joints, and without a nail. They are very similar in habit to the Loris, being even more sedate and deliberate in their movements.

Bosman's Potto (*Perodicticus potto*) is the species perhaps most frequently seen in captivity, and is named after its discoverer, the old Dutch navigator Van Bosman, who found it on the coast of Guinea in 1705. His account of the animal is a curious mixture of fact and fancy, very typical of the period and, I feel, worth quoting for its humour. It is, moreover, illustrated by a very crude drawing which Van Bosman describes as a "Draught of a creature, by the Negroes called Potto, but known to us by the name of Sluggard, doubtless from its lazy, sluggish nature, a whole day being enough for it to advance ten steps forward"; and he goes on to state: "Some writers affirm, that when this creature has climbed upon a Tree, he doth not leave it until he hath eaten up not only the fruit, but the leaves entirely; and then descends fat and in very good case in order to get to another Tree; but before his slow pace can compass this he becomes as poor and lean as 'tis possible to imagine; and if the Tree be high, or the way distant, and he meets nothing on his journey, he invariably dies of Hunger betwixt one Tree and the other. Thus 'tis represented by others, but I will not undertake for the truth of it, though the Negroes are apt to believe something like it. This is such a horrible ugly Creature that I don't believe anything besides so very disagreeable is to be found on the whole Earth; the Print is a very lively description of it. Its fore feet are very like hands, the Head strangely disproportionately large; that from which the Print was taken was a pale mouse colour, but it was then very young, and his skin yet smooth, but when old, as I saw one at Elmina in the year 1699, 'tis red and covered with a sort of hair as thick set as Flocks of Wool. I know nothing more of this animal than 'tis impossible to look on him without Horrour, and that he hath nothing very particular but his odius Ugliness."

The explorers and authors of those days were inclined to indulge in florid and uncomplimentary descriptions of new or strange animals, and old Van Bosman was no exception to the then prevailing fashion. To-day, no one would look with "Horrour" at Bosman's Potto, but rather with feelings of interest and friendliness towards the queer little beast, with its soft reddish-brown coat and deliberate movements. It frequents the forests of the Gold Coast to Sierra Leone, West Africa, and is entirely nocturnal and arboreal in habit. The body is stoutly built and measures about eight inches in length, the fat stumpy tail being little more than an inch long. The head is rounded, and the ears are smaller and more rounded than in the Galagos, while the hands are long and slender, the index-finger being quite rudimentary, and the thumbs and great-toes are large and directed backwards in the opposite direction to the other fingers and toes —reminiscent, in fact, of the foot of a parrot—the structure, both in the bird and the Potto, being a special adaptation for prolonged grasping a branch without change of position. These peculiar modifications of the hands and feet, and the accompanying special development of the muscles, account for the remarkably tenacious grasping powers for which the animal is famous. Another curious feature in the anatomy of the Potto is connected with the joints of the backbone of the neck. The spines of these vertebræ, which rise from the upper surface, are so elongated that they actually project as a series of little humps beyond the level of the skin of the back of the neck. Although so slow and deliberate in all its movements, even when hunting those insects that constitute part of its natural food, the Potto is amazingly expert, rarely missing its prey.

All the Pottos frequent the dense forests of Africa, leading an entirely nocturnal and arboreal life, climbing among the branches of the trees and feeding on fruits, leaves, insects, and probably occasional nestlings and small birds, for they show a marked preference for raw minced bird's flesh in captivity. They are found during the daytime curled up asleep, tightly clinging to the branch upon which they are resting. How strictly arboreal in habit are these little animals is revealed by the native method of placing traps on a horizontal pole that has been slung to form a bridge crossing an open glade in a small clearing, or across a small stream—the Potto almost invariably using the pole in preference to taking to the ground. Of the four recognized forms of the Potto,

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three are found on the western part of the African Continent, and one on the eastern.

The Calabar Potto, or Angwantibo (*Arctocebus calabarensis*), which lives in the forest regions of Old Calabar, West Africa, is a rare and very interesting little animal. It is smaller in size and more slenderly built than Bosman's Potto, dark brownish on the upper surface, whitish-grey on the underparts of the body and limbs, while the tail is reduced to a mere rudiment. The first specimen to reach England was exhibited in the Zoological Society's Gardens at Regent's Park in 1905. At times it was observed to crawl along the branches in its cage, body downwards, in the manner of a sloth, and, like that animal, to sleep in the same position. Owing to its nocturnal and strictly arboreal habits, very little is known about the animal's natural life. My friend Ivan Sanderson, who is one of the very few trained zoologists who have lived in the country inhabited by the Angwantibo—which, by the way, is the native name for this remarkable little animal—was fortunate in obtaining several specimens and in keeping one alive and under observation in his camp in the forest. Its gymnastic performances were remarkable to witness, for, thanks to the peculiar specialization of the hip joint by which the thigh-bone can completely revolve, the Angwantibo, in the course of its progress along a bough, may go through the most extraordinary contortions, and, to quote from Mr. Sanderson's delightful account, "the little animal may be advancing along the underside of a branch and, if it decide to retrace its steps, can (and does) walk back over its own chest and belly, emerging between its back legs with its nose pointing down to the ground. It then seizes the branch above its back by putting its hands behind its head and proceeds until the body slung between the hip joint has turned completely over. One hind leg after the other is then released and flies back like a spring to be reattached to the branch as the animal turns itself over on to its back once more with its forepaws. The whole performance is uncanny and quite extraordinary". The little animal was fed on finely chopped bird-flesh, which it greatly enjoyed, and on mashed banana, and was observed every evening, so soon as the sun had set, to go through a very thorough and elaborate toilet, combing the whole of its coat, first licking the fur with its long, rasping tongue, and then, lemur-fashion, using its lower front teeth as a comb. Later it would scramble about giving vent to plaintive throaty cries.

We now come to the so-called Mouse Lemurs, beautiful little animals with long tails, rounded heads, and large eyes placed close together. The legs are longer than the arms, and the feet are long and slender. These animals inhabit the island of Madagascar, and during the dry hot season some species are said to become torpid. During the rainy season, when food is abundant, a large amount of fat is deposited on parts of the body, particularly at the root of the tail, which becomes greatly enlarged; the little animal being sustained during its period of æstivation by absorbing this supply, so that by the end of the dry season its tail has become lank and lean. The Mouse Lemurs build snug nests composed of twigs and leaves, in which to pass their period of torpidity. Normally they are nocturnal in habit, their large round eyes enabling them readily to distinguish quite small objects on the darkest nights and successfully to stalk any moths and other insects which may settle on the branches of the trees. Their natural food consists of fruits, young green shoots, insects, and occasional nestlings.

Typical of these interesting little animals is the Greater or Brown Mouse Lemur (*Chirogaleus major*), one of the æstivating species which nest in hollows in trees, scooping out a hole just large enough to hold it, and covering itself with a thick layer of loose leaves. It is usually greyish-brown in colour, with white throat and underparts, and the short thick fur is of a beautifully silky texture. The colour, however, varies considerably in different individuals, and this extreme variation has led to confusion in the past, the same animal being described as a different species—Milius's Mouse Lemur (*Chirogaleus milii*), after M. Milius, a former Governor of Reunion. Its body measures about seven or eight inches in length, exclusive of the long, stout tail. The little animal is entirely nocturnal and arboreal in habit, and feeds upon fruit, the honey-cobs of wild bees, and various insects, sitting up on its haunches and holding its food in its hands. It is easily tamed, and makes a most charming and interesting pet, becoming very affectionate and delighting in being handled and petted.

Under the name of Dwarf Lemurs (*Microcebus*) are classed some four species of small Lemuroids possessing hind-limbs that are longer than the fore-limbs, though not to so marked a degree as in the Galagos. Their eyes are large, very prominent, and bright, and set rather close together; the ears are large and slightly pointed, while the feet are slender and long,

due to the elongation of the ankle-bones. All are natives of Madagascar, living among the branches of the tall forest trees, and are entirely nocturnal in habit.

The Lesser Dwarf Lemur (*Microcebus murinus*) inhabits the forests of Betsileo Province to Fort Dauphin on the south-east coast, and on the south-west coast northward from St. Augustine Bay. It lives in the tops of the highest forest trees, leaping from branch to branch, or climbing on all fours, using its tail as a balance, by twisting it round a branch, but never as a true prehensile organ. It builds a nest of dried leaves placed in a fork amidst the smaller branches near the top of the highest trees and closely resembling that of a bird; indeed, when viewed from below, it requires well-trained eyes to distinguish one from the other. In this safe retreat the female brings forth her young, two, sometimes three, at a birth. The animal is entirely nocturnal in its habits, and its food consists of insects and fruit. A well-known naturalist, the late Rev. G. A. Shaw, frequently watched some of these Dwarf Lemurs, which he had in captivity, catch the flies that entered their cages and alighted on the honey placed there for the Lemurs to feed upon, and noticed that the little animals eagerly accepted and devoured butterflies and moths if offered to them. At first they were very shy and wild, and among themselves were very quarrelsome, fighting fiercely and uttering at the same time a cry like a shrill whistle. They had much strength in their hands and legs, and would often hang by their feet head downwards, grasping food with their hands, and then draw themselves upwards to their former position on the perch. During such movements the tail served as a balance, but was not used for holding on by, for it is in no sense prehensile. The little hands are beautifully formed, with well-shaped nails, while the second toe-nail is long and claw-like, being used as a comb for toilet purposes in keeping the thick silky coat clean.

There are two well-marked phases of colour, a rufous-brown and a grey, but individuals vary so greatly that specimens of distinctive colour and slight variation in size collected from different regions have been described as distinct species, and this has led to considerable confusion, examples of the same animal having received different names.

Coquerel's Dwarf Lemur (*Microcebus coquereli*) inhabits the forests of Passandava Bay, near Morondava, south-west coast of Madagascar, and the

Lesser or Miller's Dwarf Lemur (*Microcebus murinus*)

Face page 20]

west coast from Cape St. Vincent to Helville. It measures about eight and a half inches in body length, and its tail another thirteen inches. The ears are large, long, and almost naked ; the fur is soft and woolly, dark grey above, shaded with rufous tints, while the throat, breast and underparts of the body are yellowish-grey. It is called by the natives the " Sisiba ", and is said to live in the densest forests, leading an entirely nocturnal and arboreal life, so that very little is known about its natural habits. The little animal is a skilled nest-builder, and collects large quantities of leaves and twigs, and creepers, which are used in the construction of a comfortable and large-sized nest, usually measuring a good eighteen inches in diameter, and placed high up among the branches of the tall forest trees. In these snug quarters it sleeps throughout the hours of daylight, coming out at dusk to crawl, leap, and run along the branches in search of fruits, young shoots, insects, small birds' eggs and other " live " food. Coquerel's Dwarf Lemur makes a most charming pet and soon becomes devoted to its owner. It takes kindly to captivity on a mixed diet of fruit, biscuit or bread, egg, lettuce, rice boiled in milk, or bread and milk. Care and attention as to what articles of food are most eagerly accepted will go a long way to keep such pets in a healthy and happy condition.

The Fork-marked Dwarf Lemur (*Microcebus furcifer*), or Walouvy, as the natives call it, is pretty widely distributed in Madagascar, being found in considerable numbers on the eastern coast from Fort Dauphin on the south to Mt. Ambre on the north, and down the west coast to Cape St. Vincent, and also inhabiting all the northern sector across the island. This little Dwarf Lemur is easily recognized by the black dorsal streak which breaks up on the forehead into two branches extending on the inner side of the ears and terminating over each eye. Like all its kin, the little Walouvy is nocturnal in its habits, and it is only towards evening that the little creature leaves its lodgings. Its choice of domicile is usually a hole in a tree, always selecting for preference one which has two openings. These hollows are equally popular as nesting sites with wild bees, a fact that does not appear to disturb the Walouvy, who forms a rough partition of bunches of dried leaves to separate his nest from that of the bees. According to the natives, these semi-detached residences are actually sought by the Lemur, who robs the bees of their store of honey, of which it is very fond. It is a remarkably active little creature after dark, taking surprising leaps from bough to bough,

and giving vent to a sharp, continuous rather shrill cry that has been likened to the cry of a guinea-fowl.

We now come to the so-called Fat-tailed Lemurs, of which there are two species included in the genus *Altililemur*, occupying an intermediate position between the Dwarf and the Mouse Lemurs, but probably more closely related to the former. The name Fat-tailed Lemur was applied in the first instance to the typical species on account of the thickened base of its tail, which in the type specimen happened to be most marked. Unfortunately at that time it was not known that a deposit of fat at the base of the tail and on other parts of the body is merely a transitory and not a permanent condition; actually the accumulated fat represents a food supply stored there to meet the needs of the animal when it retires into a state of torpidity, or æstivation, during the arid season, as we have already described in the Mouse Lemurs. Very little is known about these two Lemurs in their native state, their range on the island of Madagascar, so far as at present recorded, appearing to be very restricted. Thus Samat's Fat-tailed Lemur (*Altililemur medius*) has only been found in the vicinity of Bourbon on the west coast, and Thomas's Fat-tailed Lemur (*Altililemur thomasi*) near Fort Dauphin on the south-east coast. Samat's is the smaller of the two animals, the body measuring seven and a half inches in length, and the tail another six and a half inches; while Thomas's Fat-tailed Lemur has a body length of nine and a half inches, and a tail eight inches in length. The fur is soft and woolly, and the general colour grey, washed with ruddy brown. In shape and general appearance they are not unlike the Mouse Lemurs, and are similar in habit, living among the branches of the forest trees, spending the day in sleep, and at night seeking the fruits and insects upon which they feed.

The Sportive Lemurs (*Lepidolemur*) are smaller in size than the true Lemurs, and differ from all other lemur-like animals in possessing, when adult, either no upper front (incisor) teeth at all, or merely a single minute, rudimentary pair. Further points of distinction are the greater length of the muzzle, the large naked ears, and the close-set, short hair with which the tail is clothed. They are all natives of Madagascar, and nocturnal in their habits, while from their quite extraordinary activity they have gained their popular name. About seven species in all are recognized, and of these perhaps the best known is the so-called Weasel Lemur (*Lepidolemur mustelinus*),

which is found along the entire length of the east coast of Madagascar from Fort Dauphin to Mt. Ambre.

The Weasel Lemur is remarkable when full grown and adult as having no front teeth (upper incisors) at all; it is a slenderly built animal, the body measuring about fourteen inches in length, and the tail another ten inches. The fur is soft and woolly, reddish above, while the undersides of the body and limbs are pale yellowish-grey; the tail is clothed with close-set, short hairs, and the large ears are naked. The animal appears to be social in habits, as small parties have been observed together at play. During its nocturnal rambles the Weasel Lemur is wonderfully active and capable of taking tremendous leaps among the branches of the trees that form its natural haunt. Its little body is wonderfully and beautifully adapted to meet the sudden strains caused by such extraordinary agility, for there is a ridge of bone in some of the vertebræ which strengthens the spine as a whole; while the relation of the length of the ankle-bones and of the lower leg constitute a further specialization for leaping from branch to branch. The principal food consists of leaves and young bamboo shoots, which render its flesh palatable, and for this reason the little animal is frequently hunted by the natives, to whom it is known by the name of "Fitili-ki"; being knocked on the head with a stick and killed while curled up asleep in its nest during the daytime. The females are said not to carry their new-born offspring about with them, but to hide them in nests made in hollows high up in the trees, lined with dry leaves.

The Grey Gentle Lemur (*Hapalemur griseus*) may best serve as an example of another small group which differs from the true Lemurs in certain characters and habits. Its chief range is the eastern side of Betsileo Province, and the north-west side of Ifassy, Madagascar, where it is chiefly found in the bamboo jungles, and subsists mainly upon the leaves and tender young shoots of these plants. It is a small animal with a short muzzle and a round head, the prevailing colour being grey, with red tints on the back and head. As in the Sportive Lemurs, the dentition is peculiar and adapted for dealing with the bamboo leaves and shoots upon which it lives. A curious feature is the presence of a small bare patch of skin on the front surface of the forearm, a little above the palm of the hand, covered with small spines. The "Bokomboula", as the natives call it, remains asleep among the shoots of the highest bamboos all day, its back curved, the head lowered and

placed between the thighs, and the tail covering the back. Although so lethargic during the hours of daylight, at night it becomes extraordinarily active and agile, leaping and climbing about among the bamboo stems, and giving vent to shrill grunts, not unlike those of a young pig.

The Broad-nosed Gentle Lemur (*Hapalemur simus*) is a relatively large animal with a short, broad, black nose, short ears covered externally with long hairs, and possessing no patch of spines above the wrists as in the last species. Mouse-grey with rufous tints is the predominant colour on the upper surface, with pale ochreous to yellowish-white on the undersurface of the body and limbs. It is found along the north-east coast of Madagascar, living like the Grey Gentle Lemur in the bamboo jungles. The Rev. G. A. Shaw has left the following account of one of these Broad-nosed Gentle Lemurs, which he kept in captivity: "It was caught in the higher level forest among the bamboos on the eastern side of Betsileo Province. The outwardly inclined teeth in the lower jaw were used as scrapers, and not for biting. Besides these nearly all the teeth were serrated and arranged in opposition so as to intersect, and it could bite off easily the young shoots of the bamboo, and mince up a handful of grass stalks, each bite cutting like a pair of scissors. It feeds nearly throughout the entire day, like most grass-eating animals, and for several months this Lemur was kept chained on the lawn, and it rarely ceased from eating grass from morning until evening. It disliked fruit and could not be induced to touch it, although tempted with various kinds growing in the forest, but was very fond of cooked meat and sugar-cane; and through its desire for sugar it was induced to eat cooked rice, which eventually became its chief food. The broad pad on the great toes enabled it to grasp even the smoothest surface firmly. The cry it uttered was at times like that of a duck, but on other occasions was loud and piercing."

The true Lemurs are confined to Madagascar and the Comoro Islands, and they differ in many respects from all the Lemuroid animals we have so far considered. They are easily recognized by their rather fox-like faces due to the long, pointed muzzle and more or less pointed ears, features that are very marked in the handsome Ring-tailed Lemur. The disproportion between the arms and legs is not nearly so great as in the Sifakas, to be described later, and there is a marked difference in their natural diet, insects, small reptiles, birds' eggs and young nestlings forming at least as important a

Ring-tailed Lemur (*Lemur catta*)

[*Face page* 25

part of their food as fruit; and while some are nocturnal, others are diurnal in habit. Possible because of their adaptability to a varied diet, the Lemurs are much hardier in captivity, and in fact do so well as not infrequently to breed and rear their offspring. One or two are produced at a birth, and when first born are quite naked. These Lemurs are not all strictly nocturnal in habit; although during the heat of the day they slumber, they are most frequently seen and heard, for they are very vocal, in the early dawn, and again at dusk when seeking their food. Most appear to be social, travelling through the forests in small groups, sometimes made up of many individuals. Very considerable variation of colour occurs among the individuals of the same species, and even, in some instances, between the sexes, to a degree sufficient for the female to have been described as belonging to a different species from the male. With the further exploration of the island and the accumulation of more adequate collections of specimens gathered over wide regions, it has become possible clearly to demonstrate the great individual variation of colour occurring within a given species within its geographical range, and to prove that many of the so-called species founded originally chiefly on colour, and perhaps some slight variation of size, are merely local races.

One of the most beautiful and most familiar true Lemurs is the Ring-tailed (*Lemur catta*), sometimes called the Madagascar Cat. It is common in the south and south-western part of Betsileo Province, Central Madagascar, located on the tableland that extends for 150 miles, with a width of between fifty and sixty miles. There the Ring-tailed Lemurs dwell among the rocks in the south and south-western portion, where the trees are few, stunted and bushy, for these Ring-tails are unique among Lemurs in not being arboreal in habit. Their feet and hands have long, smooth, level and leathery soles and palms, which give them a firm grip on the damp rock, over which they can travel with amazing ease and swiftness, so that the native hunters, although barefooted, find it almost impossible to follow them. A further adaptation would appear to be the long upper fangs (canines), longest in the males, employed for stripping off the outer coating of the fruit of the prickly pear (*Opuntia*), which is full of spines, and the sweet pulp of which forms the principal food during the winter months, this cactus growing abundantly between the crevices and around the foot of the rocks. The fangs are also probably used in self-defence, although when fighting the

Lemurs chiefly make use of their hands, with which they strike and scratch their opponent. In addition to the fruit of the prickly pear, they seek, when in season, the various kinds of wild figs and bananas, of which they are very fond. The Ring-tailed Lemur is easily tamed and makes a charming and interesting pet. It will eat practically any kind of fruit, and can be trained to eat boiled rice, but usually will not touch cooked meat. This lovely little Lemur is about the size of a small fox. It is of an ashy-grey colour, darker on the back, and white on the face, chest, and underparts, while it is from the alternate broad rings of black and white on the long bushy tail that the little animal has derived its popular name. It is a social creature, living in small parties, and is most active in the early morning and evening, resting during the heat of the day, and sleeping throughout the night, with its bushy tail curled round its body for warmth.

The Ruffed Lemur (*Lemur variegatus*) is a very handsome animal, deriving its name from the remarkable variability of its markings, and is the largest of the true Lemurs. The typical form is black and creamy white, with a prominent ruff round the face. The coat is very thick and long, and the black pattern design varies considerably. Moreover, there is a well-marked red variety easily recognized by the dark rusty-red ears, ruff, and whole of the upper surface of the body, while the outer surfaces of the thighs and legs are white. This variety, when first discovered, was described as a separate species under the name of the Red-ruffed Lemur (*Lemur ruba*). The Ruffed Lemur is known to the natives as the " Varikossi ", and inhabits the north-eastern coast of Madagascar. It is social in habit and has a powerful and harsh voice which can be heard for a long distance echoing through the forest glades, for the animal is strictly arboreal in its habits. It is considered sacred by the natives of Tamatave, who claim that it worships the sun and prays to it every morning. The origin of this rather charming belief probably comes from the curious habit of this Lemur of sitting up on its haunches on a branch with its back against the trunk of the tree, and opening and extending its arms while gazing at the early morning sun and obviously thoroughly enjoying the returning and revivifying warmth, for, like all Lemurs, it is a chilly creature. One that I had under observation some years ago became a most devoted little friend and would come leaping across its cage with outstretched arms and joyful grunts to greet me. It loved me to allow it to snuggle close up against my waistcoat and for me

Ruffed Lemur (*Lemur variegatus*)

Face page 26]

to button the coat partly over it for additional warmth. And there it would rest quietly and contentedly, looking up into my face with loving and enquiring eyes, daintily accepting with one little outstretched hand the pieces of fruit or whatever I had brought it, and giving vent to little low grunts of contentment. A particularly cold and foggy November proved too much for its delicate constitution, and so, resting in my arms, holding, as it loved to do, one of my fingers, and with a last parting kiss, my little friend passed away.

The Mongoose Lemur (*Lemur mongoz*) bears no resemblance to the famous killer of snakes either in shape or way of life, and we can only suppose that its rapid movements reminded the great Linnaeus of the swiftness of the mongoose. It is brownish-grey in colour generally, with the crown of the head dark grey, the face between the eyes and nostrils and side of nose grey or white, and the hands and feet pale grey. It inhabits the forests which extend from the Bay of Diego-Juarez to the Bay of Bambetoc, and also the forest of Loncoubé in the island of Nosi-bé. It is arboreal and social in habit, associating in small troops that keep to the highest trees, where they may be seen toward evening climbing and leaping among the branches in search of food, and uttering loud cries that ring through the silent depth of the forest. These cries give place to growling sounds on the approach of danger. They are extraordinarily active, leaping from tree to tree with the swiftness of a bird in flight. When hunted, they have a trick of dropping suddenly from a lofty tree into the dense undergrowth and dodging among the bushes, quickly reaching and ascending another tree at a considerable distance. In captivity, particularly if caught young, this Lemur becomes a gentle and very friendly pet. It will eagerly devour all kinds of fruit, being especially fond of bananas, which form its chief natural diet. In the wild it has been seen occasionally to capture some small bird and, breaking the skull with its teeth, to suck out the brain with evident relish, but to make no attempt to devour the body of its feathered victim.

The Fulvous or Brown Lemur (*Lemur fulvus*) is a larger animal than the Mongoose Lemur, from which it can also be distinguished by its black nose. The upper part of the body is rufous or reddish-grey, the top of the head, face and nose black, and the cheeks iron-grey to whitish, varying in different individuals. It inhabits the forests of the northern part of Madagascar, and leads an arboreal life. There are very great variations of colour

and head markings among individuals of this species, and this has caused much confusion, not the least being that it is the animal most frequently mistaken for the Mongoose Lemur. The popular names of some of these spurious species alone will help the reader to realize the striking varieties of colour existing among individuals—White-fronted, Black-fronted, Red-footed, Collared, and Yellow-whiskered—each of these varieties has at one time or another been described as a distinct species, and it was only when a sufficient series of specimens became available for comparison that the fact that they were really varieties that intergraded became established beyond doubt.

The Woolly Lemur, or Avahi (*Lichanotus laniger*), is a small animal forming a connecting link with the next Lemuroid group, the Sifakas, but differing from them both in size and habit, for it is entirely nocturnal, sleeping during the daytime curled up in a convenient fork among the branches of the high forest trees. It inhabits the forests on the eastern coast of Madagascar, and along the Bay of Passandava on the west coast, where it leads a solitary life, only pairs or single individuals being seen climbing among the branches of the trees at nightfall in search of food. The slender body, covered with soft woolly hair, measures about twelve and a half inches in length, while the long, thick tail measures fifteen to sixteen inches. Individual specimens vary a good deal in colour, but grey with rufous tints prevail in what may be considered typical specimens; while in specimens from some districts the fur may be almost uniformly reddish, or with the parts above the thighs nearly pure white. The little animal is very sluggish in its movements, and, like the Sifakas, seldom descends to the ground, the shortness of the arms making terrestrial progress difficult and ungainly. The first specimen was brought to Europe in 1780 by the French traveller Pierre Sonnerat, and close upon fifty years elapsed before a second specimen was secured, chiefly owing to its nocturnal habits, small size, and the strong prejudice of the natives, who are very reluctant to capture or injure the queer little creature. Of recent years, however, numerous specimens have been brought over and kept alive in private and public menageries, but little has been recorded concerning its natural life in the forests.

The Sifakas, as the natives of Madagascar call them, are medium-sized Lemuroids with long tails and soft woolly coats remarkable for their diversity of colour, which, though white more or less tinged with yellow in typical

specimens, changes in some individuals, the yellow being replaced by red or black markings, the coat sometimes being entirely black or pure white. They are found in many parts of the island, leading the purely arboreal life for which they are specially adapted. They are gentle, sociable creatures, going about in small companies of six or more individuals, and are greatly venerated by the natives, who never trap or hunt them. The Sifakas live on various fruits, flowers, and young buds and leaves, and are to be seen in the early morning and again towards sunset climbing and leaping among the branches of the forest trees as they seek their food. Soon after sunrise they may be seen sitting on a bough with their long legs drawn up under their chins and their arms spread out as if enjoying the genial warmth. They retire into the dense forest, however, to escape the intense midday heat, and sleep with head inclined forward on the chest and shielded by the folded arms, the long tail being usually coiled up between the legs. They are essentially arboreal in habit, their long, slender hind-limbs enabling them to take swift and remarkable leaps from bough to bough, while both feet and hands are capable of the most tenacious grasp. Owing to the shortness of their arms, it is by no means easy for them to walk upon all-fours, so that on the rare occasions on which they leave the trees and descend to the ground, the Sifakas advance by a series of long leaps, tossing their short arms upwards at each leap in a really comical fashion. Little is known about their natural habits, but the males have been observed to indulge, on occasion, in contests that generally result in torn and tattered ears.

The Diademed Sifaka (*Propithecus diadema*) takes its popular name from the band of white hairs that runs across the forehead, and which, with the grey fringe of hairs on the cheeks and chin surrounding the black face, give the animal a very striking appearance. It is known to the natives as the "Simpona" and is the largest of the three recognized species. This Sifaka inhabits the narrow strip of forest land extending along the whole length of the eastern coast and bordering the chain of granite and slaty mountains which dip downwards towards the sea on the east. It is a handsome animal with striking coloration; a dark brown tint spreads like a mantle from the crown of the head down the neck and over the shoulders; the loins and flanks are grey passing gradually into the brown of the mantle, and to a bright yellow-orange round the forearms and tail. Considerable individual variation in colour exists, and in the moist southern parts of its range an

almost pure white race is found, while in the arid northern regions there exists a black race.

Verreaux's Sifaka (*Propithecus verreauxi*) is a smaller animal and less highly coloured. The fur is woolly and soft to the touch, and typically white with a faint tinge of yellow, the crown and back of the head often being maroon or reddish tinted. It is restricted to the western and southern coasts of Madagascar, and is only found in the thick forests which occur at intervals among the desolate solitudes of the western and southern sides of the island; arid sandy regions where rain seldom falls.

The Crowned Sifaka (*Propithecus coronatus*) very closely resembles Verreaux's in size and general coloration, but differs markedly in the character of the skull, which is larger and has a longer muzzle, as well as other distinguishing anatomical features. The animal is restricted to a small area on the north-west coast of Madagascar, north-east of Cape St. Andre and bounded to the east by the river Betsiboka, and by the Manzaray to the west.

The Sifakas and the Indris differ from all the other Lemuroids in that they do not give birth to more than a single offspring at a time. From this circumstance, together with certain anatomical characteristics which they possess, these animals are regarded as the most highly organized of all the Lemurs, and as most nearly approaching the second great division of the Primates which comprises the Monkeys and the great Apes.

The Indris, or Babakotou (*Indris indris*), is the largest of all the Lemur tribe, measuring about two feet in length, with only a rudimentary stump of a tail. The fur is long and woolly, and while blackish-grey with rufous or whitish tints constitute the typical and striking colour pattern, individual colour variations are very considerable. The head is rounded and has a moderately long muzzle, and the ears are small, rounded and fringed with long tufts of hair. The body is long, and the arms are much shorter than the legs, so that the Indris, like the Sifakas, when on the ground, proceeds by a series of amazing leaps, and not on all-fours. The hands are long and slender, and the four outer fingers are united by a membrane up to the first joint.

When the early European explorers first hunted this animal, the natives drew their attention to it among the branches by calling out "Indri! Indri!" and this exclamation was mistaken for the native name for the animal, though really meaning in the native language "Look!" "Behold!"

Verreaux's Sifaka (*Propithecus verreauxi*)

Face page 30]

or " See there ! " Actually the usual native name for the creature is " Babakotou ", which may be literally translated as meaning little or baby man. It is very common in the forests of Tamatava and is held in great veneration by the natives, who never kill it, and always release it if caught in a game trap ; while should one be found dead in the forest, they will carefully bury it. They believe that the trees among the branches of which the Babakotous live supply a certain remedy for many diseases ; and they carefully gather the leaves from any trees on which they have seen the animals resting. Many and strange are the stories related by the natives concerning the sacred Babakotou, for its ways, they say, are full of mystery, while it is subjected at birth to a severe trial. According to the native story, when the young one is born the female takes it into her arms and then deliberately throws it to the male, who is sitting on a branch in a neighbouring tree. He promptly throws the baby back at its mother, and this performance is repeated a dozen times or more ! Should the unfortunate infant fall to the ground during this ordeal, the parents will make no effort to retrieve it, leaving it to perish ; but should the little creature survive the trial without falling to earth, then it is tenderly cared for by its parents. According to another native belief, it is extremely dangerous to hunt a Babakotou with a spear, for if the weapon is thrown at one the spear will certainly be seized in its flight ere striking its intended mark, and will immediately be hurled back with deadly effect, for the Babakotou never, never misses its aim. The Betanemena tribe, who hold the animal in great veneration, tell how a certain tribe that was at war with its neighbours was forced to flee for refuge into the forest. The pursuing enemy, guided, as they supposed, by the voices of the retreating tribesmen, suddenly saw before them a company of Babakotous, and, believing that those they were following had been suddenly changed into these animals, fled terror-stricken from the forest glade ; while the fugitives thus miraculously saved, there and then made a solemn vow of eternal gratitude to their deliverers, and ever since have never hunted or harmed them.

The Babakotou is confined to the eastern coast of Madagascar, living in the forests on the eastern side of the high mountains between the Bay of Antongil on the north and the River Masara on the south. It is gregarious and arboreal in its habits, travelling through the forests in companies sometimes of large number ; moving about more particularly in the early hours

of the morning and again before darkness falls, for the animal is not strictly nocturnal in its habits, though hiding and resting in the green depths of the forests during the great heat of the day. Its howling, wailing voice resounds through the stillness of the forest glades as it wanders among the branches of the trees in search of the fruits and young shoots that constitute its chief food. Occasionally a sleeping bird is caught, killed and the brain eagerly devoured, the body being left untouched.

While the proofs of these pages were passing through the hands of the printers, news reached me that the spread of Western "Civilization" among the native tribes of Madagascar is likely, in the near future, to lead to the extinction of many of the rarer species of Lemurs.

Formerly well protected by the ancient traditions and customs of the tribes, these beautiful and deeply interesting animals had little to fear at the hands of their human neighbours who, for the most part, regarded them with awe and respect. But that happy state of things is rapidly passing; so-called civilized education among the natives having caused them to abandon the traditions of their ancestors, and now regularly to hunt down and kill the harmless Lemurs, whenever opportunity may occur.

Part II

THE NEW WORLD MONKEYS

THE Apes and Monkeys differ from the Lemurs in many anatomical details all pointing to a higher organization and including their dentition, the restriction of the teats to the breast, the eyes invariably directed forward and never outwards or to the side, the higher development of the cerebral hemispheres of the brain, and, in some of the New World Monkeys, the possession of a truly prehensile tail, naked towards the tip, and capable of grasping small objects with as equal ease as the branches of the trees. In all probability there are some 212 species or more, dwellers, for the most part, in the tropical and sub-tropical regions of the Old and New Worlds, presenting many different grades of intelligence, and ranging in size from the tiny Marmoset, no larger than a rat, to the huge and sinister Gorilla. The tail may be long, short, or entirely absent, and the proportions in length of the arms to the legs vary considerably in the different species. The great-toe, as well as the thumb, is in most species fully opposable, so that in the majority the foot is as good a grasping organ as the hand.

The Monkeys are separated into two great divisions founded on the character of the nose, and termed respectively the Catarrhines and the Platyrrhines. In the first the nostrils look downward and are close together ; while in the second, the Platyrrhines, they are separated by a broad cartilaginous septum and the apertures are directed outwards. The Catarrhines are confined exclusively to the Old World, while the Platyrrhines are only to be found in the New World ; moreover, it is of interest to note that the Platyrrhines display certain features which seem to signify more primitive characters, placing them at the base of the series and, in some respects, nearer to the Lemuroidea.

We therefore begin our account of the Platyrrhine Monkeys with the Marmosets and Tamarins, which rank nearer to the Lemuroidea than any other Platyrrhines. These beautiful little animals, many of them being smaller than an English squirrel, are confined to South and Central America,

and differ from all other American Monkeys in that all the fingers and toes, with the exception of the great-toe, are furnished with pointed claws instead of more or less flattened nails. They are entirely arboreal in habit, and in size and method of climbing among the branches of the forest trees are very like squirrels; and they subsist chiefly upon fruits and insects. They usually have litters of two or three young, whereas the higher Monkeys rarely give birth to more than one offspring at a time. They have long tails which are never prehensile, and are often ringed by bands of different coloured hair like those of the Lemurs. But the most important anatomical feature by which the Marmosets differ from the other American Monkeys relates to their teeth. Now, with the exception of the Marmosets, the American Monkeys are distinguished from their Old World relations by having thirty-six instead of thirty-two teeth in their jaws, the increase being due to the presence of an additional bicuspid, or premolar, on each side of the jaw. Although the Marmosets have the same number of teeth as the Old World Monkeys, a comparison of the cheek teeth reveals important differences, for while in the Old World Monkeys we find there are on each side of both the upper and lower jaws two bicuspids, or premolars, and three molars, in the Marmosets the order is entirely reversed, and we find three premolars and two molars. So the Marmoset resembles the rest of the American Monkeys in the number of its premolars, but has lost the last molar in each jaw. In common with all American Monkeys, the thumb of the hand cannot be opposed to the fingers, neither do the Marmosets possess cheek pouches or naked callosities on the haunches, while the hind limbs are more robust than the front ones, and the great-toes of the feet are reduced to such small dimensions as no longer to be worthy of their name. Although a large number of Marmosets, differing from one another more or less in coat colour or some such feature, have been described, there is considerable uncertainty as to how many are really entitled to rank as valid species, and how many are merely varieties or local races.

The Common Marmoset (*Hapale jacchus*) is frequently brought to England as a pet, and consequently may well claim to be the most familiar member of the family. It inhabits the forests of Brazil, particularly the south-eastern regions and the island of Marrajo at the mouth of the Amazon. The little animal in its native state leads an arboreal life, and is social in habit, assembling in groups of six or seven, climbing up the tallest trees and jump-

Common Marmoset (*Hapale jacchus*)

Face page 34]

ing from bough to bough, displaying the greatest activity. The body is covered with soft silky hair, mottled with black and grey, and brownish hues; and the long bushy tail is ringed with black and grey like the tail of a Lemur. The little head presents a striking appearance on account of the broad tufts of hair which spread out fanwise in front of the ears. There are several local races or varieties which, when first discovered, were described as separate species, such as the White-necked Marmoset (*Hapale albicollis*), the Black-eared Marmoset (*H. penicillata*), and the White-headed Marmoset (*H. leucocephala*).

Whether the White-shouldered Marmoset (*H. humeralifer*) can rank as a separate species, or as a condition of partial albinism in the Common Marmoset, seems somewhat uncertain; it is distinguished by the face, shoulders, chest, and arms as well as the ear-tufts being white, while the thighs are a mixture of brown and white in colour. Bates, the celebrated naturalist and explorer of Brazil, gives the following account of this animal as observed by him during his researches at Santarem: "I saw in the woods, on one occasion, a small flock of monkeys. The monkeys belonged to a very pretty and rare species, a kind of Marmoset, I think the *Hapale humeralifer*, described by Geoffroy St. Hilaire. I did not succeed in obtaining a specimen, but saw a living example afterwards in the possession of a shopkeeper at Santarem. It seems to occur nowhere else except in the dry woods bordering the campos in the interior of Brazil. Altogether, I thought it the prettiest species of its family I had yet seen. One would mistake it at first sight for a kitten, from its small size, varied colours, and softness of fur. It was a most timid creature, screaming and biting when anyone attempted to handle it; it became familiar, however, with the people of the house in a few days after it came into their possession. When hungry or uneasy, it uttered a weak querulous cry, a shrill note, which was sometimes prolonged so as to resemble the stridulations of a grasshopper."

The Silky Marmoset (*Hapale chrysoleucos*) and the Black-tailed Marmoset (*H. argentata*) belong to a group distinguished by the absence of the rings of different colour on the tail, and the arrangement or absence of the longer hairs on the ears. In the Silver Marmoset the ears are relatively large and nearly naked, covered on both sides near the margin with long hairs that form a double fringe. The fur is very soft and silky in texture, and either

yellowish or pure white in colour. Those specimens in which the body fur is yellowish have the tail, limbs and underparts of a chestnut brown, while the white specimens invariably have yellowish hair covering the limbs.

The Black-tailed Marmoset (*H. argentata*) is readily distinguished by its large, naked, flesh-coloured ears and face, and its black tail. The general colouring is a pale ashy-brown, with shades of white and dark brown on the limbs. It is found in the forests of Brazil and Bolivia, but is not often seen in captivity in England. Bates, during his researches in the Amazon region, considered it to be one of the rarest species; "indeed," he writes, "I have not heard of its being found anywhere except near Cameta, where I once saw three individuals looking like so many white kittens, running along a branch in a Cacao grove; in their movements they precisely resembled *Midas ursulus* (the Negro Tamarin). I saw afterwards a pet animal of this species, and heard that there were many so kept, and that they were esteemed as great treasures. The one mentioned was full grown, although it only measured seven inches in length of body. It was covered with long silky white hairs; the tail being blackish and the face flesh-coloured. The woman who owned it carried it constantly in her bosom, and no money would induce her to part with her pet. She called it Micko, the native name for these animals. It fed from her mouth and allowed her to fondle it freely, but the nervous little creature would not permit strangers to touch it. If anyone attempted to do so, it shrank back, the whole body trembling with fear, and its teeth chattered whilst it uttered its tremulous, frightened tones. The eyes, which were black, were full of curiosity and mistrust, and were always kept fixed on the person who attempted to advance toward it".

The Negro Tamarin (*Midas ursulus*) belongs to a group of Marmosets which are distinguished from the members of the Hapalidæ by their canine teeth, or tusks, of the lower jaw being considerably longer than the incisors, or front teeth, so that these animals are sometimes designated Long-tusked Marmosets; it was Buffon, the great French naturalist, who named them Tamarins. The Negro Tamarin is fairly common, and probably the best known species. It inhabits the forests of Guiana and the lower parts of the Amazon valley. The general colour is blackish, tending to become more or less mottled with greyish-white on the hind parts of the body. Bates states

that it " is never seen in large flocks, three or four being the greatest number observed together. It seems to be less afraid of the neighbourhood of man than any other monkey. I sometimes saw it in the woods which border the suburban streets of Para, and once I espied two individuals in a thicket behind the English Consul's house at Nazareth. Its mode of progress along the main boughs of the lofty trees is like that of a squirrel; it does not ascend to the slender branches, or take the wonderful flying leaps which the Cebidæ do, whose prehensile tails and flexible hands fit them for such headlong travelling. It confines itself to the larger boughs and trunks of trees, the long nails being of great assistance to the creature, enabling it to cling securely to the bark; and it is often seen passing rapidly round the perpendicular trunks. It is a quick, timid, restless little creature, and has a great share of curiosity, for when a person passes by under a tree along which a flock is running, they also stop for a few moments to have a stare at the intruder. When full grown it is about nine inches long, independently of the tail which measures fifteen inches. The fur is thick and blackish in colour with the exception of a reddish-brown streak down the middle of the back. When first taken, or when kept tied up, it is very timid and irritable. It will not allow itself to be approached, but keeps retreating backwards when anyone attempts to coax it. When treated kindly, however, as it generally is in the houses of the natives, it becomes very tame and familiar. I once saw one as playful as a kitten, running about the house with the negro children, who fondled it to their heart's content. It acted somewhat differently towards strangers, and seemed not to like them to sit on the hammock which was slung in the room, leaping up, trying to bite and otherwise annoy them ".

The Tamarins are all small, restless, active Marmosets leading an arboreal life in the forests of Brazil and Peru, to the Panama zone. They have expressive faces, and the quick movements of the head, and the way in which it is inclined to one side when the animal is interested or excited, contribute much to their intelligent expression. The small fingers and toes, with the exception of the great-toes, are furnished with long claw-like nails, and the thumbs are not opposable to the other fingers. Their bodies are long and slender, clothed with soft hairs, and the tail, though often nearly twice the length of the body, is never prehensile. The hind limbs are larger in bulk than the arms.

The Brown-headed Tamarin (*Midas fusticollis*) has a brownish face and head with grey hairs. The body is blackish with a white mottling on the hind part of the back; the general colour, in the male, tends to a bright rufous tinge. There appears to be considerable individual variation in colour, and probably the so-called Black-and-red Tamarin (*Midas rufoniger*) is merely a bright-coloured variety of this species. It is fairly common in the forests of the Upper Amazon, and social in habit, leads an arboreal life, running and leaping from branch to branch in search of the fruits and insects upon which it feeds.

The Moustached Tamarin (*Midas labiatus*) is black with a brownish tinge on the thighs, the white hairs on the nose and lips being long and forming a broad tuft from which the little creature has gained its popular name; indeed when seen at a short distance away, the little Tamarin looks as if it were holding a ball of snow-white cotton between its teeth. Like all the Tamarins, it is a forest dweller, frequenting the upper branches of the tall trees in the Upper Amazon region of Brazil, and in Peru.

The Pinché Marmoset (*Midas oedipus*) is found in the forests of Colombia. It is greyish-brown in colour on the back, the outer surface of the arms and legs, and the root of the tail, being tinged with red, while a long white tuft of hair forms a striking crest on the head. It is a handsome, friendly little creature, and, as it thrives in captivity, makes an interesting pet. Like all the Marmosets, the Pinché requires warmth and an abundant mixed diet if it is to be kept in health and happiness; the food, in captivity, consisting chiefly of fresh fruits such as bananas, apples, pears, dates, figs, and, in addition, eggs and boiled rice, and a few meal-worms.

One of the handsomest of these small monkeys is the Lion Marmoset (*Leontocebus rosalia*); a really lovely little creature which has the head and neck covered with long hair like a miniature lion's mane, of a beautiful shining golden-yellow colour. The general colour of the body and limbs is golden-yellow, while the face, hands and feet are purple, and the long tufts of hair from the ears brownish-black. Its home is in the forests of south-eastern Brazil, in the Province of Rio Janeiro. It is a kindly, friendly little creature in captivity, though not often seen in this country, and two that I had the pleasure of watching and playing with during a short stay in Rio de Janeiro some years ago were charmingly confiding and devoted to their owner, who was very proud of them.

The Titi Monkeys belong to the second division of the American Monkeys, the family Cebidae, which embraces the typical Platyrrhine Monkeys. They are small, active creatures, diurnal in habit, and are found living in the forests of Brazil, Colombia, Ecuador, Peru, and Bolivia, their food consisting of fruits, insects, birds' eggs, nestlings, and occasional small birds. They are sociable in their habits, wandering among the large branches of the trees in small companies of about half a dozen or more individuals in search of food, and making the forest resound at dawn with their yelping cries. Their fur is soft, and the long bushy tail, though often curled round a branch or its owner's body, is not prehensile; they have small, round, well-formed heads, small, expressive eyes, and almost hairless ears. Of the many species the following are typical examples.

The White-collared Titi (*Callicebus torquatus*) is perhaps one of the best known species, and has a considerable range through northern South America, extending from north-western Brazil, the headquarters of the species, into eastern Ecuador and Peru. The fur is long and soft, and rather woolly, black on the forehead, sides of head, limbs, feet and tail, but dark maroon on the upper parts of the body; while the face, throat, and a collar-band extending up to the ears are white, and the hands creamy-white. The Creoles call this little creature the Widow Monkey, the whiteness of its face, neck, and arms being compared to the veil, handkerchief, and gloves worn by their widows. It is said to be particularly gentle and timid in captivity and to have a great aversion to its hands being touched, withdrawing them at once. Somewhat lethargic in captivity, it will remain motionless for hours attentively watching whatever is going on, but becoming very active and excited should any living insects come within reach. Very little has been recorded concerning the natural life and habits of this monkey beyond that it is arboreal and social, travelling among the branches of the forest trees in small companies numbering six or eight individuals, and giving vent to loud cries in the early hours of the morning when seeking food, which consists chiefly of fruit and insects.

The Red Titi (*Callicebus cupreus*) is a native of Brazil, eastern Peru, and Ecuador. Its fur is soft, but there are intermingled with it numerous long stiff hairs. The colour of the body is blackish mixed with grey, while the cheeks, throat, abdomen, hands, feet, and legs are of the reddish-bay hue from which the monkey derives its popular name. It is an active social

creature, leading an arboreal life, hunting the insects and gathering the fruits that form its natural food, amidst the upper branches of the forest trees. Much still remains to be learned concerning this animal in its native haunts, and living specimens have been rarely seen in captivity in this country.

The Moloch, or Arabassu Titi (*Callicebus moloch*), has a more restricted range along the banks of the Rio Para, near the mouth of the Rio Tapajos. Bates met with this species at Aveyros on the Amazon, in which locality it was called by the natives the Thacapu-ski. It is arboreal in habit, keeping chiefly to the larger boughs of the trees and travelling in small parties numbering five or six individuals. Bates records having obtained a specimen one morning at sunrise on a low fruit tree at the back of his house; the only instance in his experience of one being taken in such a situation, as it must have descended from the forest trees and then walked some distance to reach the coveted fruit. The natives keep this monkey as a pet, but it is sedately listless and not particularly amusing in its ways, nor does it usually live long in captivity. It is a brightly coloured animal, the underparts of the body and inner sides of the limbs being orange-red; while the top of the head, shoulders, and the outer sides of the arms are brownish-grey, the rest of the upper parts of the body being reddish-brown, including the tail, which, at its base, is blackish-brown.

The Ornate Titi (*Callicebus ornatus*) is remarkable for the striking contrasts of colour on its body, head and limbs. It has a black naked face with a white forehead, and the hair on top of the head is a mixture of copper-red and black; the upper parts of the body and the outer sides of the limbs are varied tints of grey, black and ochre, with yellowish-grey hands and feet, while the abdomen and inner surfaces of the limbs are copper-coloured, the long tail being grey and black. Not very much is known about the natural life of this little monkey, nor have many living specimens found their way to Europe as pets. It is said to be nocturnal in its habits, spending the day coiled up lemur-fashion, and only becoming active towards sunset. Like the other members of the family, it is social in habit, moving about in small groups and leading an entirely arboreal life among the branches of the forest trees in Colombia and Peru, feeding upon fruits and insects.

The graceful little Squirrel Monkeys (*Saimiri*) constitute a small group allied to the Titis but readily distinguished from them by their small, expressive faces and large eyes, the peculiarity of the shape of the head

Squirrel Monkey (*Saimiri sciurea*)

Face page 40]

which is greatly elongated from back to front, the relatively large size of the canine teeth, and the short hair clothing the long tail that terminates in a tuft and is not prehensile. They are small, agile animals, and their brilliant colouring makes them particularly attractive. Strictly arboreal in habit, feeding chiefly on fruits and insects, they are probably the most frequently met with of all the ordinary monkeys dwelling in the South American forests, ranging from Nicaragua through the valley of the Amazon into Bolivia and Peru.

About six species are now recognized, of which the Common Squirrel Monkey (*Saimiri sciurea*) is typical. It is a small, slender monkey, the body measuring about ten inches and the tail fourteen inches in length. The long tail is slender, and, although frequently to be seen coiled round the branch on which the monkey is perched, or round the body of its owner, it is in no way prehensile. The little, sensitive face is greyish-white, the head dark grey or nearly black, and the body clothed with parti-coloured hairs golden at their base upwards and black-tipped, giving a greenish-golden effect; while the arms, hands and feet are a ruddy-yellow, and the long, slender tail grey with a black tip. The little monkey goes about in large companies among the branches of the forest trees, feeding upon fruits and insects. It is widely distributed in the Amazon region, the Guianas, and into Venezuela.

Humboldt, during his travels in South America, had many opportunities of watching the Squirrel Monkeys, and was much impressed by their gentle ways and affectionate disposition when in captivity. He states that they would listen intently to anyone speaking to them, often placing their little hands on the speaker's lips as if the better to comprehend what was issuing from the mouth of their human friend. Both Humboldt and other travellers who have resided in South America and kept these monkeys as pets state that the faces of the little creatures grow sad and their eyes fill with tears when scolded or spoken to in a low, melancholy tone of voice. The little animals are very sensitive to cold, and on a sudden drop of temperature the company collect and huddle together for warmth, much noisy squeaking and whistling going on during the process of snuggling into a compact mass. They seek the shelter of hollows in the great trees, and the young one is carried about clasping tightly to the fur of its mother's back.

The Douroucouli or Owl Monkeys (*Aotes*) are nocturnal in habit, sleeping during the day amidst the dense foliage or in holes high up in the forest

trees, awakening towards dusk, and leading an active and vocal life throughout the greater part of the night. They are small animals with soft silky fur, round heads and large eyes, and small ears partly hidden in the thick fur; the tail is long but never prehensile. Bates, during his exploration of the Amazon, stated that near Ega he found two species of these Owl Monkeys, both inhabiting the same forests growing on the higher and drier lands, but apparently never associating or interbreeding. He relates that "they sleep all day long in hollow trees and come forth to prey on insects and eat fruit only at night. They are small in size, the body being about a foot long, and the tail fourteen inches, and they are clothed with grey and brown fur, similar in substance to that of a rabbit. Their physiognomy reminds one of an owl, or tiger-cat. The face is round and encircled by a ruff of whitish fur; the muzzle is not at all prominent. The mouth and chin are small; the ears are very short, scarcely appearing above the hair of the head. The eyes are very large and yellowish in colour, imparting the staring expression of nocturnal animals of prey. The forehead is whitish, and decorated with three black stripes which in one species (the Three-banded Douroucouli, *Aotes trivirgatus*) continue to the crown, and in the other (the Feline Douroucouli, *Aotes felinus*) meet on top of the forehead. They have nails of ordinary form on all their fingers and semi-opposable thumbs; but the molar teeth, contrary to what is usual in the Cebidae, are studded with sharp points, showing that their food is principally insects. These monkeys, although sleeping by day, are aroused by the least noise, so that when a person passes by a tree on which a number of them are concealed, he is startled by the sudden apparition of a group of little striped faces crowding a hole in the trunk. It was in this way that my companion discovered the colony from which the one given to me was taken. I was obliged to keep my pet chained up; it therefore never became thoroughly familiar. It was very active at night, venting at frequent intervals a hoarse cry like the suppressed barking of a dog, and scampering about the room, at the length of its tether, after the cockroaches and spiders. Although seeming to prefer insects, it ate all kinds of fruit, but would not touch raw or cooked meat, and was seldom thirsty. When approached gently, my Ei-á allowed itself to be caressed; but when handled roughly it always took alarm, biting severely, striking with its little hands, and making a hissing noise like a cat".

Feline Douroucouli (*Aotes rufipes*)

Face page 42]

The Three-banded Douroucouli (*Aotes trivirgatus*) is found in Venezuela, Peru, Guiana, and Brazil. In general colour the short fur is greyish-brown with a dark stripe down the back, and the three characteristic bands on the forehead reaching to the crown of the head, from which it derives its popular name. Humboldt, who first discovered this monkey, states that one kept in his possession for a few months never became reconciled to captivity, hissing and striking out with its hands like an angry cat when startled or irritated. It always concealed itself during the daytime in the darkest corner it could find, where it slept until sunset, becoming wide awake and active as night drew on. The closely allied Feline Douroucouli (*Aotes felinus*) is, as stated by Bates, distinguished by the three dark bands on the forehead meeting on top instead of continuing separately to the crown of the head. It has the same range as the Three-banded Douroucouli, but appears to be a much rarer animal, and when captured soon becomes tame if kindly treated. The Red-footed Douroucouli (*Aotes rufipes*) somewhat resembles a lemur in general appearance, and is distinguished from the other species by its rufous-coloured hands and feet, and the less clearly defined forehead bands. It inhabits the forests of Nicaragua, and, like all these Owl Monkeys, is arboreal and nocturnal in habit, and feeds upon insects and fruit. In captivity it soon becomes attached to its owner, responding to care and kindly treatment and delighting to be fondled.

The Saki Monkeys, while resembling the Owl Monkeys and their allies in possessing non-prehensile tails, are readily distinguished from them by the peculiar position of the front or incisor teeth of the lower jaw, which, instead of being vertical, are inclined forward. In some species the head, body, and limbs and tail are covered with long hair, while in others the long hair is confined to the head, or to the cheeks and chin, many possessing more or less well developed whiskers and beards, the latter facial adornment being either broad and single, or divided in the middle so as to incline backwards on each side, somewhat after the manner of the "Dundreary" whiskers of mid-Victorian fashion. In confinement Saki Monkeys become very tame and affectionate, but appear to be delicate and difficult to keep for any length of time.

Humboldt's Saki (*Pithecia monachus*) frequents the forests of the Amazon valley as far west as Ecuador, and is called the "Parauacu" by the inhabitants of the Upper Amazon. Bates, during his residence at Ega, on the right

banks of the Amazon, studied the habits of this monkey in captivity, of which he gives the following account: "One of the Ega monkeys, called the Parauacu, is a timid, inoffensive creature with a long bear-like coat of harsh speckled-grey hair. The long fur hangs over the head, half concealing the pleasing diminutive face, and clothes also the tail to the tip, which member is well developed, being eighteen inches in length, or longer than the body. One of the specimens now in the British Museum was, when living, the property of a young French neighbour of mine at Ega. It became so tame in the course of a few weeks that it followed him about the street like a dog. My friend was a tailor, and the little pet used to spend the greater part of the day seated on his shoulder, whilst he was at work on his board. It showed, nevertheless, a great dislike to strangers, and was not on good terms with any other member of my friend's household than himself. I saw no monkey that showed so strong a personal attachment as this gentle, timid, silent little creature. The eager and passionate Cebi (Capuchin Monkeys) seem to take the lead of all the South American Monkeys in intelligence and docility, and the Coaita (Spider Monkey) has perhaps the most gentle and impressionable disposition; but the Parauacu, although a dull, cheerless animal, excels all in this quality of capability of attachment to man. It is not wanting, however, in intelligence as well as moral goodness, proof of which was furnished one day by an act of our little pet. My neighbour had quitted his house in the morning without taking the Parauacu with him, and the little creature, having missed its friend, and concluded, as it seemed, that he would be sure to come to me, both being in the habit of paying me a visit daily together, came straight to my dwelling, taking a short cut over gardens, trees, and thickets, instead of going the roundabout way of the street. It had never done this before, and we knew the route it had taken only from a neighbour having watched its movements. On arriving at my house and not finding its master, it climbed to the top of my table, and sat with an air of quiet resignation waiting for him. Shortly afterwards my friend entered, and the gladdened pet then jumped to its usual perch on his shoulder."

The Red-backed Saki (*Chiropotes chiropotes*) is found in the forests of northern Brazil, the Guianas, and Venezuela. It was first discovered by Humboldt on the banks of the Orinoco, and he described it as being "a robust, active, fierce, and untamable animal; when irritated it raises itself on the

Humboldt's Saki (*Pithecia monachus*)

Face page 44]

hind extremities, grinds its teeth, rubs the end of the beard violently, and darts upon the person who has excited its displeasure. In confinement it is habitually malancholy, and is never excited to gaiety, except at the moment of receiving its favourite food. It seldom drinks, but when it does so the operation is performed in a peculiar manner. Thus instead of putting its lips, after the manner of other monkeys, to the water or the vessel containing it, this species conveys it to its mouth in the hollow of its hand, at the same time bending forward its head. It is not, however, easy to witness this singular trait of character, since the animal is unwilling to satisfy its thirst when watched or likely to be observed". Humboldt also states that these Sakis are not social in habit, but that they live and wander among the branches of the forest trees in pairs, giving vent to occasional harsh grunts.

The closely allied Black Saki (*Chiropotes satanus*), or Cuxio, as it is called in the Amazon valley, is said to frequent the most secluded parts of the forests on the higher ground that is less subject to inundations. Very little is known about the natural life and habits of this monkey beyond that it leads an arboreal life, feeding upon fruits and insects, and that it has never been seen to take up water in its hand, but always to drink freely, bending down on its hands and putting its mouth to the water, quite regardless of wetting its beard. The long fur is of a uniform blackish-brown hue, generally darker in the male, occasionally quite black. The tail is long and bushy, while the hair of the head, with its central parting and forehead fringe, together with the long whiskers and moderate beard, give a grotesquely human touch.

The Uakari Monkeys (*Cacajao*) are the only short-tailed species inhabiting South America, while two of the species are remarkable for their highly coloured faces, which are scarlet or vermilion-red, deepening in hue when the animal becomes excited or angered. Three species are recognized, namely the Bald or White Uakari (*Cacajao calvus*), the Red Uakari (*C. rubicundus*), and the Black-headed Uakari (*C. melanocephalus*), each with a very restricted Amazonian range, and living in forests that are inundated during a great part of the year. The peculiar shelving forward of the lower incisor teeth, already noticed in the closely related Saki Monkeys, is still more marked in the Uakaris.

The Bald or White Uakari Monkey (*Cacajao calvus*) is confined apparently to a region within an angle formed by the union of the Japura River with

the Amazon. It presents a most grotesque appearance, with its naked scarlet face and reddish-chestnut beard, the body and limbs being whitish-grey above, cinnamon-red beneath, while the hands and feet are yellowish-brown. Living specimens occasionally reach this country, but do not live very long, being unable to adapt themselves to our changeful climatic conditions. According to Bates, the species is peculiar to the Ega district and lives in the forests that are inundated during the greater part of the year, on the banks of the Japura, near its principal mouth. This monkey is said never to descend to the ground, and to live in small troops among the crowns of the lofty trees, subsisting on various fruits. According to the native hunters, it is an active creature, but not much given to leaping, preferring to run up and down the larger boughs in travelling from one tree to another.

The Red-faced Uakari (*Cacajao rubicundus*) differs from the White Uakari in being clothed with chestnut-red hair which is sufficiently long on the shoulders and arms to form a cape. The face and ears are hairless and bright vermilion-red; the top of the head is thinly crowned with short grey hairs, and the rest of the head and neck covered with bright chestnut hair. This animal wholly replaces the White Uakari in the western parts of the Japura delta, and little seems to be known concerning its natural life and habits, beyond it being arboreal and living upon fruits and insects.

The Black-headed Uakari (*Cacajao melanocephalus*) has a somewhat less restricted range, being found in the forests through which the Rio Cassiquiare, Rio Negro, and Rio Branco flow. Its face, head, shoulders, hands, feet and short tail are all black, while its back, sides and thighs are brownish-red and black. It leads an entirely arboreal life, feeding upon various fruits and insects, and does not appear to be particularly social in habit. Like the other two species, it does not thrive in captivity, and unless given a great deal of care and attention soon falls ill and dies.

The Spider Monkeys form one of the most remarkable groups of the Primates, unique in the manner in which the tail has attained to the greatest possible degree of perfection as a prehensile organ, unsurpassed in flexibility and sensitivity, a veritable fifth hand, capable of grasping with firmness any object with which it may come into contact; by its aid fruits and other objects otherwise out of reach are seized and conveyed to the hands or mouth, and it can also grasp a bough with sufficient power to hold its

possessor suspended by it in mid-air, allowing the hands and feet complete freedom of action.

These monkeys have a wide distribution on the American Continent, from the State of Vera Cruz in Mexico, through Central America into northern South America, where they frequent the forests through which the Orinoco and Amazon with their tributaries flow, to the Pacific coast States of Colombia, Ecuador, and Peru. Their bodies are relatively small, and the limbs are long and slender, the arms being longer than the legs, while the thumbs are mere rudimentary stumps or absent. This suppression of the thumb, or its retention only in a rudimentary condition, may be regarded as a part of the general modification of the long, slender hand to adapt it the better for sliding over and grasping, hook-fashion, the branches during the swift progress of the monkey from tree to tree. The fur is coarse, and the very long tail is naked and palmate on the under-surface towards the prehensile tip. There are a large number of species or local races, of which the following examples may be considered as being typical as well as most frequently to be seen in captivity.

The Red-faced Spider Monkey (*Ateles paniscus*) is one of the best known species, and by the natives of Brazil is called the Coaitá. It is found living in the forests of the Lower and Upper Amazons, the Guianas, and the Lower Rio Marañon, Peru. The body and limbs are entirely black, only the face being naked and of a ruddy flesh-colour, from which it derives its popular name. The hands are destitute of thumbs. Bates states that the Coaitás are more frequently kept in a tame state than any other kind of monkey, the Indians being very fond of them as pets, and the women often suckling them, when young, at their breasts. Of a particularly tame individual, an old female which accompanied its owner, a trader on the river, on all his voyages, Bates gives the following amusing account: "By way of giving me a specimen of its intelligence and feeling, its master set to and rated it soundly, calling it scamp, heathen, thief, and so forth all through the copious Portuguese vocabulary of vituperation. The poor monkey, quietly seated on the ground, seemed to be in sore trouble at this display of anger. It began by looking earnestly at him, then it whined, and lastly rocked its body to and fro with emotion, crying piteously, and passing its long gaunt arms continually over its forehead; for this was its habit when excited, and the front of the head was worn quite bald in consequence. At length its master

altered his tone. 'It's all a lie, my old woman; you're an angel, a flower, a good affectionate old creature,' and so forth. Immediately the poor monkey ceased its wailing, and soon after came over to where the man sat."

In eastern Peru the Black-faced Spider Monkey (*Ateles ater*) replaces the Red-faced species, from which it is distinguished by the shorter length of the hair on the forehead, and the face being the same tinge of black as the body fur. The limbs are long and slender, covered with rather coarse black hair, and the thumbs are absent. This species is found in Panama, French Guiana, Bolivia, and Colombia as well as in eastern Peru. They lead an entirely arboreal life, moving through the forests in troops of thirty to forty individuals, making great use of their prehensile tails, by which they swing themselves from bough to bough; and they feed upon fruits and insects.

The Variegated Spider Monkey (*Ateles variegatus*) is remarkable for its coloration and its thick, soft, long hair. The general colour is black, but the cheeks are white, with a band of reddish-yellow passing across the forehead a little distance above the eyes, while the under-surface of the body and tail and the inner surfaces of the limbs are orange-yellow in the male, greenish-yellow in the female. It has a wide geographical distribution, extending from the upper reaches of the Amazon in Peru to the banks of the Rio Negro, flowing from Venezuela into the lower portion of the Amazon, and northwards into the Andes of Ecuador and Colombia. Mr. E. Bartlett, who was one of the first trained naturalists to pass through parts of these regions in search of specimens, has left the following account of some of the difficulties he faced while seeking this Spider Monkey: "Having determined to spend a few months in the mountain country, I passed up the Marañon and Huallaga to Yurimaguas, and so to Xiberos, whence I went to the town of Chyavetos in the mountains. Having heard that this large monkey was to be met with in this little known locality, I remained at Chyavetos about two months; and during that time I became well acquainted with the Indians, who informed me that a long-armed Ape (called in the Inca language Urcu Maci-suppah or Quilla Maci-suppah) was to be met with at a distance of three or four more days' journey. I engaged three active Indians, and started by way of a forest road, that had been opened by a Catholic priest as a part of his penitence, to the town of

Black-faced Spider Monkey (*Ateles ater*)

Face page 48]

Moyabamba. At the end of three days I reached the highest point in the mountains; here we came across a number of the monkeys in question. I shot the male that is now in the British Museum; my Indians brought down another with the poison dart. Having obtained two of them, I felt perfectly satisfied that I had discovered a new species. While, however, I was busily engaged preparing the finest specimen, my Indians had quietly placed the other on the fire; to my great horror and disgust they had singed the hair off, and thus spoiled my second specimen. Of course I was obliged to keep peace, for we had not tasted meat for several days before starting from Chyavetos, and this monkey proved a very dainty dish to us all. I was still in hopes of obtaining more specimens in the Munga-Urcu, or Saucepan Mountain (so called from its peculiar shape), but in this, after much hard work, I failed. These monkeys appear to go on in small parties, passing through the forest at a rapid pace, feeding on different kinds of berries. The berries I found in the mouth and stomach of the male were similar to the gooseberry in external appearance; they have a large stone inside."

Geoffroy's Spider Monkey (*Ateles geoffroyi*) is a species showing considerable individual variation of colour, and this, coupled with a wide distribution from Nicaragua to Panama and Colombia, has led to the animal being described under several names. A typical specimen will have the top of its head buff, with a patch of black erect hairs on the forehead; a black face except for flesh-coloured rings around the eyes, and the lips of the same colour. The hands, elbows, feet and knees are black, while the upper and lower parts of the body are a light greyish-drab, and the upper part of the long tail buff. In this species the thumb is absent.

Belt, during his travels in Nicaragua, often saw this species moving among the branches of the forest trees, where they live and roam about in bands numbering ten or twenty individuals. Sometimes when he was passing under trees in which these monkeys were located the animals would violently shake the branches, giving vent to threatening cries and gestures, and sending down a shower of the hard ripe fruits if it happened to be a nispera tree among the branches of which they had been resting. Occasionally he saw a female carrying a young one on her back, to which the infant clung by its legs and tail while the mother made her way among the branches and even leapt from tree to tree, apparently but little encumbered

by her clinging offspring. A large black and white eagle is said to prey upon stragglers that have become separated from the troop.

Comparatively little seems to be known concerning the natural habits of the interesting Brown Woolly Spider Monkey (*Brachyteles arachnoides*), which forms a kind of connecting link between the true Spider Monkeys on the one hand and the so-called Woolly Monkeys on the other. It has the woolly fur of the latter but the slender build of the former, while the thumbs are rudimentary, and the long, slender hands constitute admirable grasping hooks. It is a handsome animal with long, slender limbs and stout body covered with thick woolly hair of a prevailing yellowish-grey or ashy-brown tint. The face is naked and often a brilliant red colour, and the long, stout, prehensile tail is naked on the undersurface at the tip. It is found in south-eastern Brazil, from Cape St. Roque to Rio de Janeiro. Specimens have been described at various times under different names as distinct species, from the presence of an undeveloped thumb, or merely a tubercle, or its total absence. But these characters have no specific value, as individuals have been found with a thumb on one hand and a tubercle on the other; or with the tubercle present on one and the thumb absent on the other. Like the true Spider Monkeys, it leads an entirely arboreal life.

Humboldt's Woolly Monkey (*Lagothrix humboldtii*) is found in the forests of the Upper Amazon region, and the upper Magdalena Valley, Colombia, and in Peru. It is a stoutly built animal with limbs of moderate length, the hands and feet having thumbs and great-toes, while the thick tail is long and prehensile. The rounded head, covered with thick, black, woolly hair, and the black face give it a very negro-like appearance. The general colour of the thick, soft, woolly coat is a blackish- or bluish-grey, and it is from the woolly texture of the under-fur that the monkey has received its popular name.

These Woolly Monkeys are social in habit and lead an entirely arboreal life, moving about through the forests in small troops and feeding on fruits, and they do not appear to be so restless and active as the Spider Monkeys, possibly on account of their heavier build. In captivity they are sedate and grave in manner, usually very gentle and confiding if kindly treated, and the one or two of which I had personal experience became very friendly and affectionate. One in particular became very devoted to me and displayed considerable intelligence, as it learned, and seemed to take considerable

pleasure in, washing its hands and face in a basin of warm water and soap, drying itself on a towel afterwards. It also learned to take a given number, up to five, of sultanas, or pieces of banana, or apple, as the case might be, at my request, very gently from my hand or out of its dish, and would, I think, had it lived, have learned to select up to a higher number without mistake. Unfortunately they are not as hardy as the Spider Monkeys, and require warmth and careful feeding and attention in our changing climatic conditions, but they are worth all the trouble one can take, becoming most delightful and affectionate pets. Some six species have been described, but whether these will ultimately stand seems doubtful, as individual variations of coat colour and size have, in some cases, been considered sufficient evidence on which to claim specific rank for what may well prove to be merely local varieties or races of Humboldt's Woolly Monkey. The majority inhabit the western portion of Brazil, frequenting the forests of the Upper Amazon and its tributaries.

The Capuchin Monkeys, or Sapajous, possess comparatively stout tails of moderate length without any naked area on the lower surface of the tip, and therefore less perfectly adapted as prehensile organs. Another distinctive character is the quality of the hair, which does not partake of a woolly nature, but tends to be straight, fairly long, and often of a silky texture. They are represented by a large number of species, many of which, however, may ultimately prove to be only local varieties or races of one widely distributed species, for a great deal of individual variation in colour and size is known to exist. They range from Central America to south of Brazil.

On the whole, Capuchin Monkeys are hardy, docile, and easily adapt themselves to captivity and the vagaries of our English climate. They are lively, active little creatures, soon become attached to those who tend and feed them, and usually are gentle and good-natured, though some individuals prove spiteful, aggressive, and difficult to handle or train. In days gone past, when hordes of Italian organ-grinders and accordion-players used to wander about the streets of our principal cities, Capuchins were the commonest monkeys carried about by these dubious " musicians ", who often dressed them up in little scarlet coats and taught them to perform simple tricks and to beg for pennies. It was a miserable existence, particularly during the winter months, for both man and monkey, natives of

warmer lands, and consequently the mortality among them from pulmonary diseases was great.

The Amazon native name for these monkeys is "Caiarara", literally "macaw-head", in reference to the relatively large round head, and often abbreviated into "cai". It is due to Buffon, the celebrated French naturalist, having used this abbreviation, but turning the hard c into soft s—sai, when describing the Weeper Capuchin, and the term "sajou" for another species, that the name Sapajou has been evolved; while the name Capuchin takes its origin from the somewhat cowl-like appearance of the patch of dark hair on the back of the head, which is a characteristic feature in some species.

We may take as our first example of these monkeys the Brown Capuchin (*Cebus fatuellus*), for it is one of those species subject to such great variation of coat colour among individual specimens as to lead to their being given separate specific rank. The general appearance of a typical individual is that of a small reddish-brown monkey with yellowish shoulders and upper arms, black forearms, legs, hands, feet, and tail, and a black head with two tufts of hair. These tufts of hair become most pronounced during the equivalent of our winter, when the fur is longest, and individuals in which they are very fully developed are known as Horned Sapajous. In another variety the hair on the crown of the head, instead of growing forward to form tufts or horns, is flat and directed backwards. The Brown Capuchin has a wide range through Brazil, the Guianas, and Colombia. It is social in habit, living together in small companies in the forests, and though restless and destructive in the wild state, wasting more fruit than it eats, it becomes, if caught young, and properly trained, docile and affectionate.

The Weeper Capuchin (*Cebus apella*) is one of the most familiar species, and is characterized by the short, dark-brown hairs on the crown of the head, directed backwards without any tendency to form into tufts, but in outline shaped like a skull-cap or cowl. The colour of the fur is brown with a golden tinge, the side of the forehead, cheeks, throat, and chest being pale yellow. It has a wide range, extending across Brazil to Colombia, and wanders about the forests of those regions in small companies of six to ten or twelve individuals, of which the majority appear to be females. It leads an almost entirely arboreal life among the branches of the high forest trees, only descending on occasions to drink at the edge of some pool or stream, and

Brown Capuchin (*Cebus fatuellus*)

Face page 52]

is a shy, timid little creature, keeping well aloft and out of sight, so that but little has been recorded concerning its natural life and habits. Rengger, during his travels in Paraguay, had several opportunities of observing the ways of these monkeys, and particularly mentions the devotion of the female for her offspring. In January the female gives birth to a single young one, and keeps it at her breast for the first week; later, when on the move, she carries it partly on her back, partly under her arm, keeps it scrupulously clean, watches over it constantly, and will fearlessly attack any unwelcome intruder who dares to approach. The male leader of the troop appears to share his feelings with the rest, by various motions and also by giving utterance to certain sounds which are taken up by the other members of the troop. The face is very expressive of the emotions; when pleased, the mouth is drawn up into a smile, and when sad the eyes fill with tears, and a low plaintive cry is sounded; and although the tears may not actually roll down the cheeks, the sorrowful, woebegone expression explains how this sensitive little creature came by its common name.

When captured young, the Weeper Capuchin is easily tamed and makes a most delightful and intelligent pet. It will flourish in captivity if well cared for and protected from cold and damp, and may live for fourteen or fifteen years. Under natural conditions its food consists chiefly of fruits, together with insects and occasional small birds' eggs. In captivity it should have fresh fruit, stoned dates, sultanas, rasins, rice boiled in milk, boiled eggs, crisp fresh leaves of lettuce. Special attention should be paid at feedingtime to see what food is most eagerly accepted and what entirely rejected, so that a balanced diet can be built up to suit the individual tastes of the particular monkey.

The White-fronted Capuchin (*Cebus albifrons*) is common in many parts of South America, widely distributed throughout the forests of the level country of the Upper Amazon. The head is large in proportion to the body; the hair of the crown of the head, cowl-shaped in outline, is short and directed backwards without any sign of side tufts or crest. The general colour of the body is reddish-brown, the face, forehead, throat and chest being white, while the back and outer surfaces of the limbs are brownish-red. Like the other species, it is social in habit, living in troops in the forests and feeding upon fruits. The troops of these monkeys, consisting of thirty or more individuals, travel in single file, and when the leader reaches the outmost

branch of a lofty tree he will spring forth, without a moment's hesitation, to alight on the dome of yielding foliage belonging to a neighbouring tree, perhaps ten or twenty feet below, and the rest of the troop follow without pause, all displaying the greatest agility, grasping the branches as they land upon them and rapidly disappearing along the boughs out of view into the forest depths.

The closely related White-throated Capuchin (*Cebus capucina*) is found in Central America, inhabiting the forests from Nicaragua to Colombia. It is readily distinguished from the White-fronted Capuchin by its colouring. The general colour of the fur is black, but the forehead and part of the crown of the head as well as its sides, together with the throat and neck, are pale yellowish-white, while the naked portion of the face is pale flesh-colour. The well-known traveller and naturalist Belt, who had many opportunities of observing this species during his stay in Nicaragua, states that it feeds upon fruits, and also spends much time searching for insects hidden in crevices and under the bark of the trees ; and that even the largest beetles are seized and munched with avidity. It is also very fond of eggs and nestlings. One of these White-throated Capuchins, which he kept as a pet, proved to be an intelligent and mischievous animal. At first it was kept chained up, but it would open the links in the chain and go off directly to the nests of the domestic fowls and break every egg that it could snatch ; after a day or two of freedom, however, it would permit itself to be recaptured. Another devastating trick was the capture of ducklings. The Capuchin would hold out a piece of bread with one hand as a bait, and a duckling being tempted to approach within reach, the monkey would seize it with the other paw and promptly kill it by biting the breast. When the little Capuchin was about to be punished for some of his misdeeds, he would try to intimidate his master by uttering a shrill threatening note and showing his teeth. His notes varied from a gruff bark to a shrill whistle, and by them his owner could tell whether he was hungry or eating, frightened or menacing, even without seeing him.

The Howler or Howling Monkeys derive their name from their hideous, resonant cries. They are the largest of the South American Monkeys, and have thick unwieldy bodies and long prehensile tails, their chief characteristic being the conspicuous thickening of the throat and the extraordinary development of the larynx caused by the great enlargement of the hyoid

bones to form the remarkable vocal organ. It is most highly developed in the males, and is the means by which the deep-toned voice can be so augmented as to carry over a distance of several miles. In order to provide space for this remarkable "sound-box", the sides of the lower jawbone are very deep, and this, together with the extreme obliquity of the plane of the face and the projecting muzzle, readily distinguishes the Howlers from all the other prehensile-tailed monkeys. For the most part they seem to be of a surly, untamable disposition, slow in their movements, and not so highly intelligent as either the Spider Monkeys or the Capuchins, nor do they, as a rule, live long in captivity. The tail, although naked on the undersurface towards the tip, and used for grasping the boughs of trees as a support for the whole weight of the body, nevertheless, is not so sensitive as in the Spider Monkeys, with whom it reaches its highest development. The thumb, however, is well developed and opposable, so that the hand becomes a better grasping organ in some respects. The face is naked, and a heavy beard hangs beneath the chin, and is especially thick in old males. Some species have short, while others have fairly long hair covering the body, generally most plentiful about the head; while in appearance the Howlers are the ugliest of all the South American Monkeys. Much confusion exists as regards the various species owing to the difference of colour which is developed between the sexes in some, and also between young and adult individuals.

The Howlers are found from the State of Vera Cruz, Mexico, on the north, through Central America to the Province of Corrientes, Brazil, on the south, and westward to Colombia, Ecuador, Peru, and Bolivia. They are social and entirely arboreal in their habits, and semi-nocturnal, uttering their resounding yells late into the night and before sunrise, and also in dark cloudy weather on the approach of rain. They live upon fruits, and the buds and leaves of various forest trees and creepers. In the silence and gloom of the depths of the Brazilian forests, where the few calls of the birds are of a pensive or mysterious character that only serves to intensify the feeling of inhospitable solitude as darkness of the night closes down, one is startled by the most dreadful and harrowing screams and yells that suddenly ring out as the Howler Monkeys begin their nightly vocalization, seated somewhere among the topmost branches of the trees. It does not appear that their hideous roars are emitted from sudden alarm, though probably

the noise does serve to intimidate lurking foes. A single individual is usually responsible for the howling, generally a full-grown male, and the depth and volume of his vocal efforts must be heard echoing through the depths of the tropical forest in the stillness of the night to be fully appreciated. The performance begins and ends very often with startling abruptness and as one Howler tires, or finishes his fiendish chant, it will be taken up by another old male perched in some neighbouring tree-top.

One of the best-known species is the Red Howler (*Alouatta seniculus*), which is found in the forests of Colombia on the west, in Guiana on the east, and in the Upper Amazon valley, where, according to Bates, it appeared to be the sole representative of these monkeys. There is a good deal of variation of colour among individuals of this species, from almost straw-colours or coppery-red, to a brownish or dark purplish-red. In the typical form the general colour is a reddish chestnut, but golden yellow in the middle of the back, the hair of the head being bent back so as to form a ridge across the centre of the crown. Young specimens are clothed with short rather coarse hairs of a uniform colour throughout their entire length, and have no undercoat. In adults the hair tends to become long, soft, and silky, and is brown at the roots, golden to chestnut at the tips, while a thick undercoat is developed. Writing of this monkey, Charles Waterton states that " nothing can sound more dreadful than the nocturnal howlings of this red monkey. Whilst lying in your hammock amidst these gloomy and immeasurable wilds, you hear him howling at intervals from eleven o'clock at night until daybreak. You would imagine that half the wild beasts of the forest were collecting for the work of carnage. Now it is the tremendous roar of the jaguar, as he springs on his prey ; now it changes to his terrible and deep-toned growlings, as he is pressed on all sides by superior force ; and now you hear his last dying groan beneath a mortal wound. Some naturalists have supposed that these awful sounds, which you would fancy are those of enraged and dying wild beasts, proceed from a number of red monkeys howling in concert. One of them alone is capable of producing all these sounds ; and the anatomists, on inspection of his trachea, will be fully satisfied that this is the case. When you look at him, as he is sitting on a branch of a tree, you will see a lump in his throat the size of a hen's egg. In dark and cloudy weather, and just before a shower of rain, this monkey will often howl in the daytime ; and if you advance cautiously, and get under

Red Howler Monkey (*Alouatta seniculus*)

Face page 56]

the high and tufted trees where he is sitting, you may have a capital opportunity of witnessing his wonderful powers of producing these dreadful and discordant sounds. Thus one single solitary monkey, in lieu of having others to sit down and listen to him, according to the report of travellers, has not even an attendant. Once I was fortunate enough to smuggle myself under the very tree on the high branches of which was perched a full-grown red monkey. I saw his huge mouth open; I saw the protuberance on his inflated throat; and I listened with extreme astonishment to sounds which might have had their origin in the infernal regions".

The Guatemalan Howler (*Alouatta villosa*) is abundant throughout the virgin forests of the eastern portion of the Republic, but, according to Salvin, is unknown in the forest-clad slopes which stretch towards the Pacific coast. It is locally known as the "Mono", and is an entirely black animal. Salvin states that he sometimes endeavoured to ascertain how far the cry of the Howler could be heard, and that it took him an hour or more to thread the forest undergrowth from the time the cry first reached his ears to when, guided by the cry alone, he stood under the tree where the animals were sitting amidst the topmost branches; and that it certainly would not be overestimating the distance to have been a good two miles. "When the sound came over the lake at Yzabel undisturbed by trees, a league would be more like the distance a Mono's cry could be heard."

These Guatemalan Howlers are found in small parties numbering five or six individuals, frequenting the branches of the highest forest trees, living an entirely arboreal life and feeding upon fruits, buds, and leaves. They do not appear to be particularly active animals, as when disturbed, unless shot at, they usually crawl rather sluggishly along the boughs, and swing away from tree to tree.

In the forests of Nicaragua, Costa Rica, and Panama the Howler Monkeys are represented by a species that presents a very curious appearance, from which it derives its popular name of the Mantled Howler (*Alouatta palliata*). It is characterized by the presence of a fringe of long, brownish-yellow hair which forms a kind of mantle on each side of the body. The face is naked, and the hairs on the forehead are short and upright, those on the back of the head being longer, while the beard is moderately stiff. The general colour of the hair covering the head and limbs is a blackish-brown, becoming yellowish-brown on the middle of the back and upper parts of the sides.

The hands and feet are slender, and the stout tail is long. It is strictly arboreal in habit, keeping to the upper branches of the tall forest trees; is shy and morose, and untamable like all its kin, rarely surviving long in captivity.

On account of their inability to adjust themselves to other than their natural forest home, comparatively few specimens reach this country alive, and so far only four species are on record as having been exhibited in the Zoological Society's Gardens at Regent's Park, of which two male Red Howlers, believed to be the first imported into Europe, were purchased in August 1863 and died within two months of their arrival.

Part III

THE OLD WORLD APES AND MONKEYS

THE Old World, or Catarrhine, Apes and Monkeys differ from their New World relations, the Platyrrhine Monkeys, in many important and well-marked characters. One of the most obvious is the structure of the nose; the partition dividing the nostrils being narrow instead of broad as in the New World Monkeys, while the openings of the nostrils themselves are directed downwards and outwards. The dentition is markedly different, the number of teeth in the jaws being reduced to thirty-two by the loss of one premolar above and below on each side. Certain genera of Old World Monkeys also possess remarkable pouches in their cheeks, formed by distensible folds of the skin, which serve as temporary storing-places by the sides of the jaws for food. Though the pouches may be crammed to capacity, this in no wise interferes with the mastication of other food, or with the vocal utterances of the monkey. The thumb is not always present, but in those species in which it is fully developed it is always opposable to its fellow digits. The great-toe is never rudimentary, is capable of free movement like the thumb, and is always the shortest digit of the foot. All possess ischial callosities, hard fleshy sitting pads, on the buttocks, and in many species these are of large size, vividly coloured, and of sexual significance. The tail may be long, short, or externally absent, but no matter what its length or thickness, it is never prehensile.

The Baboons are the lowest of the Old World Monkeys. They are easily recognized by their dog-like faces, the muzzle being greatly elongated and truncated at the end, with the nostrils set in the truncated termination. Their arms and legs being of nearly equal length, the Baboons progress on all fours, with the palms of the hands and the soles of the feet flat on the ground. The shape and size of the body and the length of the tail vary very much in different species. The ischial callosities are very large and conspicuous, and in the females become greatly swollen and brilliantly coloured at certain times of the year. In many species the ridge of the forehead projects much

over the eyes, which are directed downwards, so that when the animals desire to look upwards they are obliged to raise their eyebrows and the skin of the forehead. When excited or angered, the Baboons incessantly move their eyebrows up and down, in addition to their other facial grimaces.

Baboons are generally fairly large, powerfully built animals, possessing very savage, surly dispositions when adult; and on account of their great strength and agility, and their long canine teeth capable of inflicting very serious wounds, they can be very dangerous creatures. As they are gregarious in habit, and often associate in large herds, their combined numbers make them formidable antagonists, for they are brave, fierce and aggressive when enraged; indeed a full-grown male Baboon, when infuriated, can be as dangerous a foe as a leopard or lion. The various sounds which they utter, ranging from low murmurs of peaceful intercourse, appreciative or warning grunts, to defiant barks and shrill, angry screams, make up a language the various inflections of which are instantly comprehended and acted upon by every member of the herd, whether it be a warning of approaching danger, flight, or combat. When the herd is feeding, and particularly when pillaging native crops, old male sentinels are always posted at vantage-points from which they can see what is going on and give timely warning of the approach of any foe, so as to enable the company safely to escape. As a rule, Baboons frequent open country, rocky places such as hills, ravines and promontories where grass and trees affording cover for their carnivorous foes are relatively scarce, and they have extensive views of the surrounding plains. A few species frequent dense forest and climb trees, but for the most part they are essentially dwellers in open country where their ancient foes the lion and the leopard are most easily detected. They are almost omnivorous as regards their diet, though normally their food chiefly consists of fruits, leaves and young shoots, the tubers and bulbous roots of certain plants, and insects and small reptiles. Much time is spent in turning over stones in search of insects, and even scorpions, whose stings are carefully removed before being devoured. When present, large numbers of locusts are caught and devoured with evident satisfaction, the long and spiny hind legs being rejected. Baboons are confined to the African Continent and Arabia.

The Mandrill (*Mandrillus sphinx*) is one of the largest and certainly the most grotesquely hideous of the Baboons. It is a thick-set, powerfully

Mandrill (*Mandrillus sphinx*)

Face page 60]

built animal with a short, stout body, disproportionately large head, short, stocky limbs, and a stumpy tail carried cocked over the back. The face and hindquarters present a most extraordinary appearance on account of their vivid colouring in brilliant blue, red, and violet, which become intensified when the animal is excited. A line of bright red runs from the top of the nose down to its tip, where it changes to a vivid scarlet, while the hideous longitudinal ridges on the cheeks are bright blue with violet in the furrows between them. The hazel-brown eyes are deep-set under overhanging brows, and the small, naked, black ears are pointed. The back view of the Mandrill, which he is very fond of displaying, is equally astonishing and repulsive, the large and naked callosities and the external genitalia being coloured in hues of vivid blue, violet, and scarlet. The coarse brownish hair rising from the ridge on the lower edge of the brow forms a crest on top of the head, and there is a mane covering the head and neck. The chin is furnished with a short pointed beard, and the naked, vividly coloured cheeks are fringed by outstanding whiskers. The colour of the fur covering the head, body and limbs is made up of areas of black, yellow, olive-brown, and white which mingle to give a general olive-brown effect with contrasting white on the chest and underparts in old males. It is only in the adult male that the vivid colours and large facial ridges are developed; in the female and juvenile male the colouring is much less conspicuous, and the facial ridges are only moderate in size and pale blue in colour.

Mandrills are confined to tropical West Africa, from Senegambia to the Congo, where they are found living together in large companies, their general habits and behaviour resembling those of other Baboons. On account of their size and savage nature, they are a terror to the natives, their great strength and the formidable canine teeth of the old males making them dangerous antagonists. They are bold and aggressive, and make raids upon the growing crops, causing serious loss and damage. They will devour almost anything that can be crushed by their powerful jaws, but fruits, young shoots and tubers, and insects, large and small, appear to constitute their chief natural diet.

The Drill (*Mandrillus leucophaeus*) may be distinguished from its cousin, the Mandrill, by its smaller size and lighter build, and the absence of bright colours on the naked part of the face, which is entirely black, while the facial ridges are much smaller. The general colour of the fur is brown, the naked

parts of the hands and feet are copper-brown, and the naked callosities on the hindquarters bright red. It inhabits the same regions of West Africa as the Mandrill, and from its smaller size and sober colouring was at first thought to be the juvenile form of that animal. In habits and character it appears closely to resemble the Mandrill, but so far very little has been recorded concerning the Drill in its native haunts.

The Arabian or Sacred Baboon (*Papio hamadryas*) frequents the open hilly country on both the African and Arabian sides of the Red Sea, and Somaliland. It is a large and strongly built animal about the size of a large pointer dog, the full-grown male presenting a very striking appearance. The head is large, with a long, dog-like muzzle and strong jaws furnished with most formidable canine teeth, while the eyes are deep-set under the prominent, overhanging brows. A large mane spreads like a mantle over the neck, shoulders, and middle of the back, while long whiskers, directed backwards, almost conceal the ears. The general colour of the body fur is ashy grey lightly washed with greenish tints, the naked parts of the face, hands, and feet being light and dark flesh-colour, while the large callosities on the hindquarters are bright scarlet; the tail is moderately long, carried at a downward angle, and terminates in a tuft of hairs. The females and immature males are similar in colour, but do not possess the whiskers and fine mane of the adult male.

The Sacred Baboon is gregarious in habit, the herds varying considerably in numbers. Some herds must easily number 250 to 300 Baboons of all ages, the old males always being the most conspicuous animals on account of their large size and magnificent manes. They usually take the lead when the herd is on the move, and some bring up the rear, while others place themselves on vantage-points along the route, keeping a sharp look-out for any enemies. A herd collected on some rocky crag near a spring at eventide in the dry thirsty country between Komayli and Sanafe present a most remarkable sight. Every jutting rock or slight rise forming a vantage-point is occupied by a patriarch of the tribe, keeping watch and ward while the females and young are resting, drinking, and at play. But woe betide any unruly youngster who may become too noisy, or disturb the repose of his seniors, for he will at once "catch it" in a most unmistakable manner, and, being dismissed with many vigorous cuffs, departs to a respectful distance a wiser if not a better Baboon. These Baboons appear to avoid

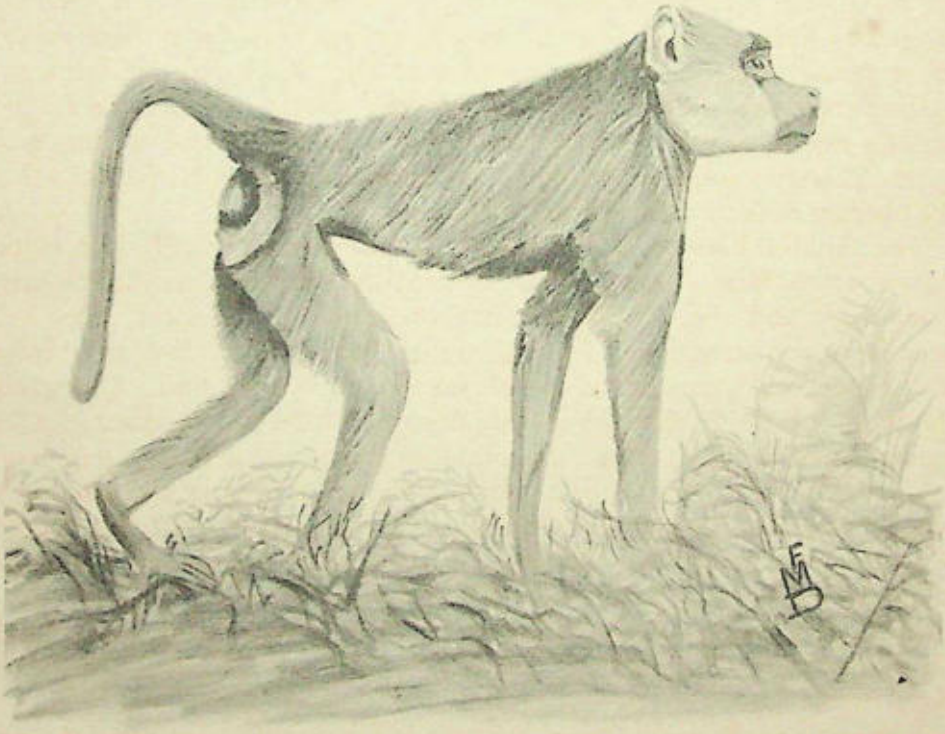
woods, and to keep mainly to high, open country. They climb heavily and clumsily for a monkey, so that they are rarely seen climbing trees, but when moving quickly on the ground they swing along at a steady, regular gallop. This is the Baboon so often represented on ancient tombs and monuments in Egypt, for it occupied a very important place among the animals held sacred by the Egyptians. Hermopolis, the sacred city of Thoth, was especially dedicated to the cult of these animals, while at Thebes there existed a special necropolis for their mummified bodies. When sculptured as a statue emblematic of the god Thoth, it was always the male Sacred Baboon that was represented, seated, and with his hands upon his knees, and his mane wrapped round his body like a cloak. Sometimes the Baboon is shown seated on a throne as a god, and holding a sacred ibis in his hand ; while in the judgment scenes of the dead, it frequently occurs seated on the summit of the balance as the emblem of Thoth, who had an important office on that occasion and registered the account of the actions of the deceased. Thoth, in one of his characters, was the regulator and supervisor of time, and presided over the fate of man and the events of his life.

The Chacma (*Papio porcarius*) is the largest of the Baboons, but has not the imposing appearance of the male Sacred Baboon, as although the hair is long, especially on the shoulders, it does not form into a conspicuous mantle-like mane. The general colour is a greyish-black washed with a greenish hue, while the purplish tint of the face with a white ring round each eye, whitish upper eyelids, and small greenish-grey whiskers give the animal a curious appearance. " Chacma " is an Anglicized form of " Tchali-Kamma ", the Hottentot name for this Baboon, which is distributed throughout South Africa, and is social and polygamous in habits, a troop sometimes numbering fully a hundred individuals of all ages and both sexes. They inhabit the steep, rocky kratzes which abound in all parts of South Africa, in preference to the more wooded country, though they are quite good climbers of trees when opportunity offers. When on an expedition, the old males are usually seen in advance and on the outskirts of the troop, while some always form a rearguard. Their chief enemy, apart from man, is the leopard, which, however, usually confines his attentions to the females and young, for the savage and powerful old males, armed with their long canine teeth, are quite capable of proving more than a match even for a full-grown leopard.

As regards food, the Chacma may be said to be omnivorous, nothing eatable coming amiss. Wild fruits, berries, tuberous roots, bulbs, the whitish pith of the lower ends of aloes, together with both fruit and leaves of the prickly pear, make up the greater part of the Chacma's natural diet, to which must be added insects, scorpions, centipedes, and small lizards, all of which are eagerly sought after and found by the very patient turning over of all loose stones. The combs of the wild bees are also greatly enjoyed, and the Chacma obtains them by making a sudden rush at the nest, grabbing a comb and, after dropping it a few times and rolling it about to brush off any adhering insects, carrying it off for a short distance, where, well away from the infuriated bees, he can devour it at ease. Troops of these Baboons cause considerable loss and annoyance to the South African farmers by raiding their fields and orchards; while what may well become a far more serious aspect of their depredations is the habit, formed during recent years, of killing and disembowelling young lambs and kids, for the sake of the curdled milk in their victim's stomach.

The Anubis Baboon (*Papio anubis*) is widely distributed over tropical Africa, from West Africa to the Sudan-Abyssinian frontier, and south to Congoland and the Victoria-Nyanza country, several local races being peculiar to certain regions. The typical form has a general olive-green colour, dusky face, and a small crest of hair on the nape of the neck. It resembles the other species of Baboons already described in habit, associating in large troops which frequent rocky, mountainous districts, where they feed largely upon the curious West African plant *Welwitschia*, tearing and ripping the woody tissues of the stunted stems with the aid of their strong canine teeth. A troop may number from fifteen to thirty or forty individuals, made up of adults and young of both sexes. When alarmed they can run very fast on all-fours in a curious kind of sideways gallop, the very young ones mounted on the backs of their mothers and holding tight to the longer hair on the nape of the neck.

The Yellow Baboon (*Papio cynocephalus*) is readily distinguished from the Anubis by the absence of the crest of hair on the nape of the neck, and by its pale brownish-yellow colouring, while the face and callosities are flesh-coloured. It inhabits East and east Central Africa, southward to Mashonaland. In some localities it is met with in considerable numbers, frequenting the outlying parts of the plantations belonging to the natives,



Yellow Baboon (*Papio cynocephalus*)

Face page 64]

and making raids on their crops of maize and other products. Although the natives drive them away from the growing crops, the Baboons show little fear unless fired upon, and instead of running away will turn and face the men with threatening gestures, finally retreating in a leisurely manner with their cheek-pouches crammed to fullest capacity and dragging away more plunder in their hands. They are social in habit and wander about in large troops composed of individuals of both sexes and all ages.

The Guinea Baboon (*Papio papio*) inhabits West Africa from Senegal and the Niger to Central Africa. It is the smallest of all the Baboons, and characterized by the uniformly reddish-brown colour of the fur, tinged with yellow on the head, back, and limbs. The naked parts of the face are bluish-black, and bear small logitudinal swellings corresponding with those which are so enormously developed and highly coloured in the Mandrill. Like all its relations, the Guinea Baboon is social in habit, wandering about in small troops. It is hardy and lives well in captivity, large numbers being imported into Europe to stock travelling menageries ; but, like all Baboons, though friendly and fairly docile when young, it becomes spiteful and aggressive when adult.

The Gelada Baboon (*Theropithecus gelada*) inhabits southern Abyssinia, frequenting the mountains at elevations of 7,000 to 8,000 feet, where the climate is relatively cool, and where it climbs the steep faces of the cliffs with almost incredible ease and agility. The deep, rounded muzzle, with the nostrils placed some distance behind its edge, makes the face of the Gelada much less dog-like in shape and appearance as compared with the pointed muzzles and nostrils of all the other Baboons ; in fact the animal is considered by some authorities as forming a connecting link between the true Baboons and the Black Ape (*Cynopithecus niger*) found in Celebes. It is a large and powerfully built animal, with a short body and stout limbs, and a cylindrical tail with a terminal tuft of hairs. Perhaps the most characteristic feature is the long, heavy mantle of brownish-black hair which covers the shoulders and upper part of the body, giving to the old males a very majestic appearance. The face, hands, feet, and sternal callosities are black, and there is a red, naked patch of skin on the chest, while the canine teeth in the adult are very large, making a full-grown male a most formidable animal.

The Gelada Baboons live together in large companies, the full-grown old males being very savage and pugnacious. A common habit of the

Geladas is to roll or push loose rocks from the cliffs down on to any foe, particularly any member of a troop of Arabian Baboons that may venture to approach their territory, and against whom they appear to nurse an hereditary hatred. Their food consists of all sorts of wild fruits, leaves and shoots of various plants, supplemented by raids on the native crops growing in the valleys.

Whether the Dusky Gelada (*Theropithecus obscurus*) will ultimately retain specific rank, or be merged as a dark coloured variety of the typical Gelada, is a point yet to be definitely settled by the authorities, some of whom seem at present quite inclined to display Geladaic spleen on the subject. Its chief distinguishing characters are its dark colour, the flesh-coloured ring round the eyes, and the two dark, flesh-coloured, naked patches on the chest at the base of the neck, surrounded by white hairs extending to the inner sides of the arms. It is known to the natives as the Black Baboon, and lives in large troops in the high mountains of Abyssinia, at an altitude of 6,000 to 10,000 feet, frequenting the almost inaccessible rocky cliffs, from which it hurls down stones upon any intruder. These Gelada Baboons pass the night together within the shelter of any caves, and come forth at dawn to bask in the morning sunshine before descending to the lower, verdure-clad valleys in search of food.

The Black Ape (*Cynopithecus niger*), sometimes known as the Celebean Black Baboon, lives far away from the haunts of the true Baboons, whose home is Africa, for it inhabits the island of Celebes in the eastern part of the Malay Archipelago. Although the Black Ape is found on the island of Batchian as well as on some of the Philippine islands to the west, it is generally considered that the Ape's presence there owes its origin to accidental introduction by the Malays, through individuals kept as pets on board their native ships, or praus, having escaped from confinement and become established in the congenial and luxuriant forests. To quote from the late Alfred Russel Wallace's account of his visit to the island of Batchian and the presence there of the Black Ape, which he found to be abundant in some parts of the forests : " It is the same species that is found all over the forests of Celebes, and as none of the other Mammalia of that island extend into Batchian, I am inclined to suppose that this species has been accidentally introduced by the roaming Malays, who often carry about with them tame monkeys and other animals. This is rendered the more probable by the

Gelada Baboon (*Theropithecus gelada*)

Face page 66]

fact that the animal is not found in Gilolo, which is only separated from Batchian by a very narrow strait. The introduction may have been very recent, as in a fertile and unoccupied island such an animal would multiply rapidly—it is difficult to imagine how it could have reached the island by any natural means of dispersal, and yet not have passed by the same means over the narrow strait of Gilolo."

In its true home in Celebes, the Black Ape is very common in the forests, where small troops may be seen swinging from bough to bough among the trees in search of the various fruits which form their chief natural diet. The animals present a rather striking though sombre appearance, clothed in black, rather shiny woolly hair, and with a black face, hands and feet, the only touch of colour being confined to the sternal callosities, which are a bright flesh-colour. On the top of the head there is a broad tuft of long hairs curling somewhat backwards so as to form a very characteristic crest. The tail is reduced to a mere tubercle, scarcely an inch in length. The face is long, the muzzle terminating bluntly, with the nostrils placed at some distance behind its extremity and opening obliquely. It is this position of the nostrils which links this monkey with the Macaques and distinguishes it from the true Baboons, in which, with the exception of the Gelada, as already explained, the nostrils are situated at the very end of the still longer and more dog-like muzzle. The sides of the face, however, have the peculiar longitudinal swellings characteristic of the Baboon, and the cheek pouches are very capacious.

The Macaques are among the commonest monkeys met with in India and the East Indian islands. Eastward their range extends into Thibet and northern China, and they are present in the great islands, in Sumatra, Java, Borneo, Celebes, and Timor, while one species inhabits northern Africa. The name Macaque, or Macae, was originally applied to what was supposed to be an African monkey from the Congo and Guinea, in Marcgrav's *Natural History of Brazil*, published in 1648, where it is given as the native name for the particular monkey. The great French naturalist Buffon, with that facility for misappropriation for which he has long become notorious among zoologists, transferred the name to this essentially Indian group of monkeys, and to them it has ever since clung, having become Latinized into *Macaca*. The genus contains a large number of species which are characterized by the thick-set body and short, stout limbs ; by the long,

rounded muzzle, the nose, however, not reaching forward to the extremity, but the nostrils opening in advance of the termination of the muzzle, and being directed obliquely outwards and downwards. The cheek pouches are large, as are also the naked sternal callosities, which tend to increase in size with age. The tail, never prehensile, may be long, short, or so reduced as to be hidden under a fold of skin.

The different species of Macaques resemble each other so far as their habits are concerned; they are all social, usually being found in troops, often of considerable size, and composed of individuals of both sexes and all ages. All have the habit of cramming food into their cheek pouches for mastication at leisure, their diet being very varied, most of them devouring insects in addition to fruits, seeds, leaves and young shoots, while one species feeds chiefly upon crustacea. Most of the species thrive and breed in captivity, the period of gestation lasting about seven months, only a single offspring being, as a rule, produced at birth. They are playful and docile when young, but tend to become spiteful and bad-tempered when adult.

The Barbary Ape (*Macaca sylvana*) is the only existing species of the Macaques that is not Asiatic. It inhabits the north-western corner of Africa in the region of Morocco and Algeria, and also is found across the Strait in Gibraltar, where it is not truly indigenous, but has been introduced from time to time by human agency, chiefly by the Moors trading from Morocco.

In the early part of the nineteenth century the Barbary Apes were very numerous on the Rock, but they became so bold and predacious in their habits, coming down to rob the fruit gardens in the upper part of the town, that a war amounting almost to complete extermination was waged upon them, so that by 1863 only three individuals were said to remain. However, Gen. Sir W. Codrington, then Governor of Gibraltar, saved them from complete destruction by importing fresh specimens from Africa, and these settled down amicably with the survivors. In their native Africa, the Barbary Apes are found in troops in the forests of the Atlas Mountains, near the seaboard, living on wild and cultivated fruits, seeds, roots, and bulbs. When raiding the cultivated fields, the old males are to be seen posted on the tops of trees or high rocks, from which vantage-points they keep watch and give timely warning to their companions at the approach of danger. The Barbary Ape is also known as the Magot, a name of French origin applied to the animal by Buffon. In appearance it is a large, stoutly built

monkey, with a prevailing yellowish-brown-coloured coat, becoming somewhat deeper on the head and a long a line bordering the cheeks. The naked parts of the face, hands, feet, and sternal callosities are flesh-coloured, while the rudimentary tail consists of a little fold of skin having no connection with the end of the backbone. It is interesting to note that the only other tailless Macaque is a Chinese species.

In the Brown Stump-tailed Monkey (*Macaca arctoides*) we have an example of a group of Macaques the members of which are characterized by the reduction of the tail to a mere stump, while they have a wide geographical range from Burma and the Malay region into China and Japan. This particular species has long, rather woolly, dark or blackish-brown hair, covering his short, stout body and limbs, and the stumpy tail, which is barely two inches in length. The naked parts of the face and sternal callosities are a bright-reddish flesh-colour in the adult. In young specimens the fur is of lighter colour, at first being usually a pale uniform brown that later deepens into chestnut-brown.

The Stump-tailed Monkey appears essentially to be a hill- or mountain-frequenting species, and to be social in habit. Very few observations seem to have been recorded concerning its life and habits in its natural haunts. In captivity, however, it is usually docile and gentle, responding to kindly treatment and becoming very devoted to its owner; but, like practically all monkeys, old specimens tend to become crotchety and uncertain in temper, and therefore require careful handling. From the Malay Peninsula comes the so-called Rufous Stump-tailed Macaque (*Macaca rufescens*), which, although credited with specific rank, chiefly on account of the more ruddy hue of its fur, is probably only a southern variety of the Brown Stump-tailed Macaque.

The Moor Macaque (*Macaca maurus*), which inhabits Celebes, is a black-faced species possessing a very short stump of a tail, barely one inch in length. The upper surfaces of the body and limbs are black, while the lower part of the neck, undersurface of the body, and the inside surface of the limbs are grey, the naked sternal callosities being flesh-colour. The true home of this species appears to be restricted to the southern peninsula of Celebes and the neighbouring island of Bouton. Some confusion existed at one time regarding the geographical range of the Moor Macaque, due to specimens reaching this country from Borneo and Aru which were supposed to have

been captured while roaming wild in the forests. However, it now seems to have been clearly established that all such specimens must, in the first instance, have been carried to the islands by the Malayan stream of commerce from Celebes. Little has been recorded concerning the natural life of this monkey beyond the fact that it is social in habit, frequenting the forests in small companies, and living on fruits, young shoots, and insects.

In Japan this group of short-tailed monkeys is represented by the Japanese Macaque (*Macaca fuscata*), a large and handsome animal with a thick coat of longish hair of silky texture, the general colour varying from dark or yellowish-brown to olive. The naked parts of the face and the sternal callosities are red tinged with purple, and the short tail is clad with long hairs ending in a terminal tuft. This monkey inhabits the islands of Yakushima and Nippon to 41° North latitude; it is common in the hills about Kyoto, and, it is interesting to note, has the farthest northern habit of any existing monkey. In captivity, those that I have known at Regent's Park have generally been quiet, sedate and friendly, not particularly demonstrative of affection, but rather gravely reserved, like hairy old philosophers politely bored by our human attentions. Young specimens, however, were active, lively, and up to all the usual monkey tricks. This monkey has frequently figured in Japanese art in the past, and most delightful representations painted by the great artists, and also carved in ivory and cast in china and bronze, are to be found in museum collections. In its natural wild state the animal is social in habit, and feeds on fruits, seeds, the young shoots of various plants, and insects.

The Pig-tailed Macaque (*Macaca nemestrina*) is a large monkey, short-bodied with long limbs, a slender, pointed tail, and a long muzzle to the head which gives it a very Baboon-like appearance. The hair is short, and on top of the head radiates from a common centre. The general colour is olive above, greyish-white on the undersurface of the body and the inner sides of the limbs. It is found in the province of Tenasserim, extending southwards into the Malay Peninsula, and is also found in Borneo and Sumatra. It inhabits the thick jungles of the lower country, living socially in large companies made up of individuals of all ages and both sexes. The period of gestation, according to the observations of the late Dr. Blanford, lasts for seven months and twenty-one days. The females are very devoted to their offspring, which, when first born, cling tightly to the abdominal

Pig-tailed Macaque (*Macaca nemistrina*)

Face page 70]

surface of their mother. In some districts the natives are said to train young captive Pig-tailed Macaques to climb the coco-nut palms, and to gather and throw down the ripe nuts. Old males become very savage and aggressive, and can rarely be tamed.

The Burmese Pig-tailed Macaque (*Macaca andamanensis*) inhabits Arakan and Upper Burma, and is a smaller animal, easily distinguished from the last species by its shorter muzzle and limbs, its longer hair, and a black horse-shoe area on the temples above the eyes that stands out in marked contrast to the brown colour of the rest of the fur, while the short, slender tail is more hairy and has a terminal tuft. Very little is known about this somewhat rare species in its natural state, but young captive specimens are very intelligent, soon becoming tame and quickly learning to perform simple tricks.

The Lion-tailed Macaque (*Macaca silenus*), sometimes called the Wanderoo Monkey, is readily distinguished from all other species of the Macaques by its general black colour and the huge grey ruff and beard which surround the black face, except the middle of the forehead, and give the monkey somewhat the appearance of an old gentleman sporting an enormous shaggy beard and whiskers. The fur is long, and the moderately slender tail bears a terminal tuft of hairs, like the tail of a lion, and from which the monkey has derived its popular name. The Lion-tailed Macaques inhabit the Malabar or western coast of India, from Cape Comorin to about 14° N., being particularly abundant in the districts of Travancore and Cochin. They inhabit the forest lands on the range of mountains known as the Western Ghats, and are always found at a considerable elevation above sea level. They are extremely shy and wary, and are therefore difficult to approach or to keep under continuous observation, particularly as they always keep to the most unfrequented and thickest parts of the forests, where they live in small troops numbering from twelve to twenty or more individuals of varying age and sex. When caught they are most untamable, displaying a very sulky and savage disposition, making the adults very difficult animals to keep in captivity. I have only known one specimen which belonged to a famous collector, and when caught was quite young and therefore fairly amenable, but as it grew to an adult it became more and more uncertain of temper, even at times turning upon and biting severely its owner, to whom it otherwise was apparently devoted, liking to sit on his lap and be fed with

pieces of apple or other fruit, and displaying evident signs of pleasure when he approached its cage to take it out.

Best known of all the Macaques is the Bengal Rhesus, or Bander Monkey (*Macaca mulatta*). It is widely distributed in India, being found continuously northward from the valley of the Godaveri to the Himalaya ; and extending to the west coast of Bombay, it appears to range to the north-east into Assam and Upper Burma, and thence into the Province of Yunnan in western China. It inhabits the valley of Cashmir and surrounding regions at elevations of 4,000 feet or more. The general colour of the moderately long, straight hair is brown with a tinge of grey. The face and sternal callosities are flesh-coloured in young animals, becoming red in the adult, while the moderately long tail tapers from base to tip, and has no terminal tuft of hairs. The Banders live in herds of considerable size in the jungle or low forest, and also frequent rocky hill-sides ; they also frequent the neighbourhood of cultivated fields, where they cause a good deal of damage. Although leading a social life, they are very quarrelsome and noisy, the different members of the troop perpetually teasing one another, fighting, squealing and chattering. The female takes the greatest care of her young baby, which clings tightly to the fur covering her stomach for about the first fortnight after birth. While not strictly regarded as sacred by the Hindus, they nevertheless accord the monkey considerable protection, and in the Temple of Hounuman, the Monkey God, at Benares, large numbers are kept and given the freedom of the building. Full of mischief and curiosity, they often become a great nuisance about the towns and villages where they are protected. These monkeys do well in captivity, and are easily taught to perform amusing tricks by the native jugglers in northern India. In years past these Bengal Macaques were often to be seen about our city streets dancing on top of the barrel-organs worked by Italian peasants. Both the monkeys and their masters suffered terribly from exposure during the chill and damp of our English winters, and many died from pulmonary diseases.

On the island of Formosa lives the Round-faced or Formosan Rock Macaque (*Macaca cyclopis*). It is closely allied to the Bander, but readily distinguished by several characteristic features. The head is round, and the face flat and surrounded by dark whiskers and a strong, ruff-like beard. The tail is stout, some twelve inches in length, thickly covered with hair

Crab-eating Macaque (*Macaca irus*)

[*Face page* 73

and ending in a terminal tuft, while the body fur is thick and woolly. According to the late Mr. R. Swinhoe, who discovered this interesting species and described it in the *Proceedings of the Zoological Society of London* in 1862, " the Formosan Rock Macaque affects rocks and declivities that overhang the sea, and in the solitary caverns makes its abode. On the treeless mountain in the south-west called Ape's Hill, it was at one time especially abundant, but has since almost entirely disappeared. About the mountains to the north and east it is still numerous, being frequently seen playing and chattering among the steep rocks, miles from any wood or tree. It seems to be quite a rock-loving animal, seeking the shelter of caves during the greater part of the day, and assembling in parties in the twilight, and feeding on berries, the tender shoots of plants, grasshoppers, crustacea, and mollusca. In the summer it comes in numbers during the night, and commits depredations among the fields of sugar-cane, as well as among fruit trees, showing a partiality for the small, round, clustering berries of the Longan (*Nephelium longanum*). In the caves among the hills they herd ; and in June the females may frequently be seen in retired parts of the hills with their solitary young one at their breast. These animals betray much uneasiness at human approach, disappearing in no time, and skulking in their holes till the intruder has passed. They seem, too, to possess abundance of self-complacence and resource ; for I have frequently seen a monkey seated on a rock by himself, chattering and crying merely for his own amusement and gratification ".

The Kra, or Crab-eating Macaque (*Macaca irus*), is one of the most widely distributed species, being found throughout Arakan, Burma, Siam, and the Malay Peninsula and islands. As might be expected in a species with so wide a range, several varieties or local races exist. For example, there is one in which the dominant colour is golden-red (*Macaca aureus*) ; another in which the naked parts of the face, hands, feet, and sternal callosities are blackish-brown (*Macaca carbonarius*) ; and yet a third which has light-yellow fur and a slight crest of hair on top of the head (*Macaca cristatus*). Generally the colour of the fur on the upper parts of the body and limbs of a typical Crab-eating Macaque varies from a dusky or greyish-brown to a ruddy or golden-brown, the underparts being either almost white or pale greyish-brown, while the naked parts of the face, hands, feet, and sternal callosities are flesh-coloured or a dusky flesh tint. The tail is long and hairy, and the eyelids are either bluish or pure white, a feature peculiar to the next group, the Mangabeys

(*Cercocebus*). The Crab-eating Macaques usually go about in small family parties numbering from five to fifteen or twenty individuals, an average party including an old male and four females with their young. They frequent the forests near the river mouths and the coastal mangrove swamps, where they may be seen wading about in the mud searching for shrimps and crabs, which constitute their favourite food, though molluscs, insects, fruits and young shoots are included in their diet. From the constant presence of native boats on the waterways near which they live, the monkeys show little fear when approached from the waterside; and as they swim and dive with ease, they can readily make good their escape if taken by surprise on shore.

The Bonnet Macaque (*Macaca radiata*) is found throughout southern India, and derives its name from the crest of hair on the crown of the head, which, instead of coming over the forehead, as a rule stops short and assumes a bonnet or toque-like form, the short hair on the forehead itself being usually parted down the middle line. The dominant colour of the moderately long, straight hair of the body is brown or greyish-brown above, and whitish, or pale brown, on the underparts, the face, ears, sternal callosities, and other naked parts being flesh-coloured. The Bonnet Macaque is social in habit, living in tribes in the forests and jungles everywhere throughout its range; and on account of its docility in captivity, and powers of mimicry, it is a very popular pet.

The Toque Macaque (*Macaca sinica*) replaces the Bonnet Macaque in Ceylon, and appears to differ in colour chiefly, being both lighter and more ruddy in tint, while there is a tendency for the long hair forming the crest to be continued on to the forehead. The native name for this monkey is "Rilawa", and its comical grimaces and graceful movements make it a popular favourite with both the native and the resident Europeans. The Tamil conjurers teach the Toque to dance, and in their journeying carry it from village to village, often clad in grotesque garb, to exhibit its lovely performances. So far as is known, its habits, under natural conditions of life in the forests of Ceylon, closely resemble those of the Bonnet Macaque.

The Mangabeys constitute a group of West African Monkeys which may be considered as forming a connecting link between the typical Macaques and the Guenons or Grimacing Monkeys. The popular name of Mangabey was first applied to these monkeys by Buffon from the mistaken idea that

Grey-cheeked Mangabey (*Cercocebus albigena*)

[*Face page* 75

they came from the region of Mangabe, or Manongabe, in Madagascar, and has ever since remained in use. The most characteristic features of the typical Mangabeys are an oval-shaped head with a somewhat long muzzle, white upper eyelids, and the hairs differing from those of the Guenons in not being ringed with different colours. They are more slenderly built than the Macaques, and all of them possess long tails. Like their relatives the Macaques and Guenons, they are social and arboreal in habit, living in troops in their forest haunts, and feeding chiefly upon fruits.

The Sooty Mangabey (*Cercocebus fuliginosus*), as its popular name implies, has the fur on the upper surface of the body and limbs sooty black, while the chin, throat, undersurface of the body and limbs are ashy-grey. The face is a livid brownish colour, the ears, hands and feet being darker, and the long tail dark grey. The hair on the crown of the head is directed backwards, but does not stand up to form a crest. This monkey is found in the forests of Liberia and Sierra Leone, West Africa. Very little has been recorded regarding its habits in the wild, but in captivity it usually displays a gentle, happy disposition, though at times becoming rather petulant, indulging in the most grotesque grimaces and antics, and giving vocal expression to its anger. Nevertheless, if kindly treated it will become devoted to its owner, and can be a most amusing and delightful companion.

Whether the White-collared Mangabey (*Cercocebus collaris*) and the White-crowned Mangabey (*Cercocebus torquatus*) will continue to be regarded as truly distinct species seems doubtful. The first ranges from Nigeria to the French Congo, while the latter is found in Sierra Leone, Liberia, and the Gold Coast, and is probably more correctly to be regarded as a variety or local race. The White-collared Mangabey has the whole of the upper surface of the body and limbs, feet and tail greyish slate-coloured, while the throat, sides of the face and nape of the neck, chest, and undersurface of the body and limbs are white, the hair on the head being directed backwards but not forming a crest. The chief difference to be seen in the White-crowned Mangabey is its slightly darker colour above, and a greyish-white spot on the back of the head and extending as a narrow streak down the back.

The Grey-cheeked Mangabey (*Cercocebus albigena*) is found in West and Central Africa from the Cameroons and Lower Congo to Uganda and Tanganyika. The general body colouring is black, while the cheeks, neck,

chest and shoulders are greyish. The black face is naked save for a few scattered hairs on the cheeks and lips, and the very characteristic tufts of long, stiff projecting hairs forming the eyebrows. The hair on the crown of the head and nape of the neck is long, and is directed backwards so as to form a crest, from which the animal is sometimes called the Crested Mangabey. There are several local races displaying slight variations both in size and colour.

The monkeys belonging to the genus *Cercopithecus*, popularly known as Guenons, are all natives of Africa, where they range from the Gambia to the Congo, and from Abyssinia to the Zambesi, the genus including a large number of species, sub-species, and local races or varieties. They have received their French name of Guenon from their habit of showing their teeth and grimacing. They are characterized by their round heads, lithe but muscular bodies, narrow loins and long hind limbs and tails. Many of them are remarkable for the beauty and colour of their coats, due to the hairs being ringed by different, often brilliant bars of colour. They inhabit the forests of Africa, leading a truly arboreal life, rarely descending to earth but passing from tree to tree, swinging and leaping across from branch to branch with extraordinary agility and speed, always displaying great restlessness and activity, except when trying to conceal themselves from danger when they will remain hidden and quiescent amidst the dense foliage for a considerable length of time. They feed chiefly upon fruits, young shoots and leaves, wild honey, and occasionally on the eggs and nestlings of small birds. In addition, they make raids upon the native cultivated gardens and fields of grain. They are shy, keen-sighted and suspicious, making it very difficult to approach or to keep them under observation; but they appear usually to be social in their habits, wandering through their native forests in small bands numbering ten or a dozen individuals with one old male as the dominant leader of the party. The Guenons are usually docile and easily taught to perform simple tricks, and their comparatively hardy constitutions help them to thrive and to breed in captivity. It is recorded that in some species of Guenons in the wild state each family party or band has its own particular strip of forest territory which will be vehemently held against all intruders. It would be entirely beyond the intended scope and function of this book to attempt a detailed account of all the numerous species and local races of Guenons, therefore a selection of some of the most typical or

frequently exhibited species of these interesting Old World Monkeys follows.

One of the best known of these monkeys is the Vervet Guenon (*Cercopithecus pygerythrus*), which is generally distributed throughout South-East Africa, with closely allied forms extending into east Central Africa and northward into the southern Sudan about 5° N. latitude. Naturally with so wide a distribution considerable variation in colour and quality of coat exists among individuals from different localities, and in the past led to their being described, in some instances, as separate species. Where a good series of specimens have become available it has been possible to see how these variations merge into a common type. In the typical Vervet the fur is greenish-grey in colour, finely speckled with black on the upper part of the body, while the cheeks, throat, and undersurface of the body are reddish-white, the root of the tail and adjacent parts being red. The face, hands and feet, and the end of the tail, which is not terminated by a tuft of hair, are deep black, while there is a distinctive band of white hair on the forehead. The Vervet is social in habit, usually moving about among the branches of the tall forest trees in small bands or family parties with an old male leader. In some regions it is to be seen at dawn sitting on exposed branches or on top of high termite mounds, enjoying the warmth of the early morning sunshine. It is frequently met with in the forests bordering the Great Fish River and other streams between Algoa Bay and the Cape, while the late Sir H. H. Johnston found it to be common at 5,000 feet on the slopes of Kilimanjaro, where parties boldly raided the cultivated fields and gardens round the native villages, often doing considerable damage, and displaying remarkably little fear of man. Fruits, young shoots, and the gum of various species of acacias form the chief articles of diet. Although frequently imported into Europe, the Vervet Guenon is by no means docile or easily tamed, but is usually bad-tempered, treacherous and savage, displaying its teeth and using them to good effect on the least provocation.

The Grivet (*Cercopithecus aethiops*) belongs to a group of Guenons inhabiting North-East Africa and including the Sudan, Abyssinia, Senaar, and Kordofan. It is easily recognized by the olive-green colour of the fur, speckled with yellow and black; the chin, whiskers, and underparts of the body are white, and the root of the tail grey, while the face is black, and the forehead has a broad, more or less distinctive band of whitish hairs. The

Grivet appears to be typically a forest dweller, rarely being met with elsewhere, and to be social in habit, travelling among the branches of the tall trees in small bands that rarely exceed twenty or thirty individuals. Very little, however, seems to be known concerning the natural habits of this monkey, which appear to differ but little from those of the Macaques, except that the Grivet is said to be a quieter and less mischievous animal. In captivity, young specimens are generally good-tempered, docile, and easily trained.

Closely allied to the Grivet is the Green Guenon (*Cercopithecus sabaeus*), which inhabits West Africa from Senegambia to the Niger. The colour of the fur is a mixture of black and yellow, which gives a rich yellowish-green effect to the upper parts of the body, the hue becoming darker on the crown of the head, the hands and feet, and the root of the long tail, while the undersurfaces of the body and limbs are white, tinted with yellow. It is easily distinguished from the Grivet by its yellowish whiskers, the absence of the distinctive white band on the forehead, and the more yellowish-green colour of the upper surface of the body. The Green Guenon lives among the branches of the high trees in the great tropical forests, wandering alone or associated only in small family parties. It is a difficult monkey to keep under observation in the wild on account of its silent and retiring habits; for, no matter whether cornered or wounded, it seems always to remain silent, apparently voiceless, only giving visible expression of anger or pain by grimacing and gnashing its teeth. It is one of the commonest African monkeys imported into this country, on account of its hardy nature and ability to withstand the sudden changes of our northern climate. Docile and gentle when young, it is apt to become treacherous and surly as it grows older, requiring great caution in handling if kept as a pet. In Nigeria the Green Guenon is represented by the Tantalus or White-browed Guenon (*Cercopithecus tantalus*), which is distinguished by the very conspicuous band of white hairs across its forehead.

Sykes's Guenon (*Cercopithecus albogularis*) may serve as an example of a group of some eight very closely allied species or local races, widely distributed through East and West Africa. The first specimen was brought to England by Col. W. Henry Sykes in 1831, and living specimens have since that time been constantly imported. In his account of this monkey Col. Sykes states that "its manners in captivity are grave and sedate. Its

disposition is gentle, but not affectionate ; and though free from that capricious petulance and mischievous irascibility characteristic of so many African species, still it quickly resents irritating treatment, and evinces its resentment by very smart blows with its hands. It never bit any person on board ship, but so seriously lacerated three monkeys, its fellow passengers, that two of them died of their wounds. It readily ate meat, and would choose to pick a bone even when plentifully supplied with vegetables and dried fruit". This Guenon Monkey is found across the African continent from the east coast to the Gold Coast on the west, and from Nyasaland to the Transvaal. It is said to be difficult to obtain specimens alive on account of its wariness, and to be essentially a forest dweller, rarely visiting open country, feeding upon fruits, seeds, and young shoots, and living in troops composed of varying numbers of individuals of both sexes and all ages. The animal has a short, rounded head, with deep-set eyes, and small ears that are nearly concealed by long fur. The whiskers are thick and bushy enough to hide the small cheek pouches even when these are well filled with food. The sternal callosities are small, and the tail about half as long as the body. The upper surface of the body is usually of a black and yellow tint, the hairs being ringed from base to tip with black and yellow, while a most characteristic feature distinguishing this Guenon is the pure white of the underparts and chest, extending to the throat, and thus suggesting its scientific name. What are now considered to be other forms of this species, and which in the past have been described under different names, include Stairs' Guenon (*Cercopithecus stairsi*), Kolb's Guenon (*C. kolbi*), Kandt's Guenon (*C. kandti*), and the Samango Guenon (*C. samango*).

The Patas Guenon (*Cercopithecus patas*) is a West African species with many local races, found in Senegambia and extending westwards to the Cameroons, and probably Lower Congoland. It is a large long-legged monkey characterized by the red coloration of the fur on the greater part of the body, and by the pinkish colour of the ears and face in contrast with the blackish nose. Whitish hairs clothe the lower portions of the limbs, while the outer surfaces of the arms are blackish, and there is an arched band of blackish hair on the forehead. The dusky brown hands have very short fingers, and the thumb is reduced to a mere tubercle. According to the traveller De la Brue's account, the Patas inhabits its native forests in large troops which unite against a common enemy. He relates that,

as he passed along a river in his boat, the Patas Monkeys came down to the tip of the overhanging branches, drawn there by curiosity, but that, after watching his party for some time, the monkeys started to throw down branches and other objects at them until one or two were shot. This so infuriated the survivors that they promptly redoubled their attack, showering down every available missile and giving vent to the most frightful howls of rage!

In Nubia and Somaliland the typical Patas Monkey is replaced by a closely allied Guenon known as the Nisnas (*Cercopithecus pyrrhonotus*), which probably may best be considered as a local race. It is distinguished from the true Patas by the nose in the adult being pure white instead of black, and by the red colour of the body being continued on to the shoulders and outer sides of the arms, replacing the blackish hue of these parts in the typical Patas Guenon. This monkey is of some historic interest, as there is good reason for considering it to represent the Cebus Monkey described by Ælian as inhabiting the Red Sea littoral, and as being bright red or flame-coloured with whitish whiskers and underparts. It also appears to have been familiar to the ancient Egyptians, and to be the small monkey frequently depicted on their monuments.

The Diadem, or Pluto Guenon (*Cercopithecus leucampyx*), is a tropical African species, ranging from Angola and the Belgian Congo to Uganda and southern Abyssinia. The colour of the fur is black faintly grizzled with grey, and there is a characteristic whitish band on the forehead from which the popular name of Diadem originates. It is a handsome, slenderly built monkey, of rather grave aspect when quiet, but, like all the Guenons, it has a restless nature, chattering and grimacing continually, and somewhat uncertain in temper. It is arboreal in habit, wandering among the branches of the tall forest trees in small troops in search of food, which consists chiefly of fruits, leaves and young shoots.

Perhaps the best known of the Guenons is the handsome little Mona (*Cercopithecus mona*), which inhabits the forests of Nigeria and the Cameroons. Some years ago it was introduced into the West Indian islands and has established itself in St. Kitts and Grenada. It is a smallish monkey, the general hue of the fur being a blackish olive, finely grizzled with yellow, the tonal effect being produced by the alternate bands of colour between the root and the tip of the hair, which is very characteristic of the Guenons.

Diana (Roloway) Monkey (*Cercopithecus diana roloway*)

Face page 80]

The colour gradually darkens towards the hinder parts of the body, so that the outer surfaces of the limbs and tail are nearly black. The undersurface is nearly pure white, the division between black and white being sharply contrasted, while there is a large oval-shaped white patch situated on each hip, immediately in front of the root of the tail, a distinctive feature peculiar to this species. The bushy whiskers are straw-coloured, and grow forwards so as to conceal a great part of the cheeks, which are a purplish flesh-colour. The Mona is most graceful and active in its movements, very restless and playful, but quickly vexed, when it will grimace and chatter with rage, and bite and scratch. Very little has been recorded concerning its habits in the tropical forests that form its native home, but, so far as is known, its way of life seems closely to resemble that of other Guenons.

The Diana Monkey (*Cercopithecus diana*) is another familiar West African Guenon, and derives its name from the white crescent of hair on the forehead above the eyebrows. There are two forms or races of this monkey; one peculiar to Liberia, which is the true Diana, and the other from the Gold Coast. The true Diana Monkey, as originally described by Linnaeus, can be recognized by the possession of a short beard that is black at the base and white at the free end; it has tufted ears, and the inner sides of the thighs and anal region are a bright bay colour, with a white streak on the haunches near the root of the tail. The general colour of the body fur is black, finely speckled with white, which gives it a grizzled appearance; the face, hands and feet, and the tail are black. The other form of this monkey is known as the Roloway (*Cercopithecus roloway*), which ranges from the Gold Coast to Guinea; it is at once distinguished by its long and pure white beard, tuftless ears, and the pale orange or white colour of the inner sides of the thighs.

There are a number of Guenon Monkeys inhabiting tropical Africa which the late Dr. P. L. Sclater suggested should be grouped together under the title *Cercopitheci Rhinosticti*, or Nose-spotted Guenons, all being distinguished by possessing a distinct coloured nose-spot, red, white, or blue in hue. We take as our example of this group the White-nosed Guenon (*Cercopithecus nictitans*), which is a well-known West African species inhabiting the forests of Liberia and extending to the Congo. The upper surface of the body is blackish in hue, speckled with white or pale yellow, due to the hairs being grey at their roots, then banded with black, tipped

with white or yellowish-white; the face is purplish in hue, from which the white nose-spot stands out in startling contrast. The undersurface of the body and the basal part of the tail tend to a blackish-grey. Little has been recorded concerning the natural life and habits of the White-nosed Guenon beyond the fact of its being social and leading an arboreal existence; but in captivity it is usually friendly and docile in disposition, though restless and very agile. Individuals from different regions display some appreciable variation of colour and size, and this led to their being described as separate species or sub-species in the early days of African exploration before sufficient material had been collected over their entire geographical range to show how they grade into one another. Two other types of this group frequently exhibited in Zoological Gardens are the Black-cheeked White-nosed Guenon (*Cercopithecus ascanius*) and the closely allied Schmidt's White-nosed Guenon (*Cercopithecus ascanius schmidti*), probably a local race, living in the forests of Uganda and the Upper Congo, and which is a slightly larger animal.

The Black-cheeked White-nosed Guenon is a handsome, gentle-mannered, active little monkey inhabiting West Africa from the Congo to Angola. Its head, the back of the body and upper surface of the tail are olive green, the undersurface of the body and limbs being white, while the naked parts of the chin, ears, hands and feet are purplish-black, the lower part of the nose and parts of the upper lip bearing the characteristic white spot. Although frequently imported into this country, and exceedingly popular on account of its gentle disposition and lively ways, very little seems to have been recorded concerning its habits under natural conditions beyond the bare facts of it living a social and arboreal life similar to that of other species of Guenon Monkeys.

The Guereza Monkeys are pretty evenly distributed between the east and west coasts of Africa in the central portion of the continent, being found from Abyssinia to Nyasaland on the east, and from the Gambia and Lake Chad, Nigeria to Angola on the west. They are large and handsome animals, possessing exceedingly long tails which, in the black-and-white-coated species, are heavily tufted and fringed, while the long, flowing white hair that forms a mantle in some species stands out in marked contrast to their black bodies. Striking as this vivid contrast of pure white and sombre black may be, these monkeys are by no means easy to detect amidst the foliage of the tall forest trees, where intense light and deep shadow

Schmidt's White-nosed Guenon (*Cercopithecus ascanius schmidti*)

Face page 82]

alternate abruptly; indeed, they may serve as good examples of the fact that brilliantly and contrastingly coloured animals are not such conspicuous objects when at home in their natural surroundings. In the various species and local races of the black-and-white-coated Guerezas can be traced the development of a very distinctive type of dazzle pattern, from a wholly black animal through a gradual transition to one in which the side of the face, flanks, and hindquarters, and nearly the whole length of the tail, are furnished with long fringes of white hair that harmonize to a remarkable degree with the long, pendent, white lichens which drape the branches of the trees among which this particular species dwell. Another striking feature in the Guereza Monkeys is the absence, or extremely rudimentary condition, of the thumb, which, when present, takes the form of a small tubercle with or without a minute nail. The generic name *Colobus*, derived from a Greek word meaning "docked", refers to this rudimentary condition of the thumb, while the common name Guereza is of native origin. These monkeys can be roughly divided into two groups according to their colouring, namely the better known Black-and-white species, and the less familiar red species.

The Guerezas are essentially forest-dwelling animals, and they do not appear to combine into large bands but rather to keep together in small family groups that frequent the tops of the loftiest trees. Their food consists of various fruits and leaves, great quantities of the latter making up the major portion of their diet, their stomachs being modified in form to enable them to digest such masses of foliage. It is interesting to note, in connection with this somewhat specialized diet, that the cheek pouches are very small, while the stomach is elongated with several pouches, and that there is no vermiform appendix. The Black-and-white Guerezas appear to bear extremes of temperature easily, being found at an elevation of 9,000 foot on the great Ruwenzori Mountain, and on the Elgon Plateau, while they are equally at home in the tropical forests of the Uganda Protectorate. Of the life and habits of the Red Guerezas little or nothing has been recorded, as they are not only much rarer animals, but very few Europeans have seen them in the wild state. Because of their specialized diet and strictly arboreal habits, Guerezas rarely live long in captivity, and they require much care and attention. Very sensitive in disposition, they seem to resent being deprived of their natural arboreal existence and quite unable to reconcile themselves to the restriction of movement and sedentary life imposed by captivity. A pair

that were given ample quarters and tree branches on which to climb and rest at Regent's Park, however, did very well for some time and appeared to be quite happy and contented, particularly during the summer months when they were supplied with an abundance of fresh foliage. At first rather shy and reserved, I managed to win their confidence and friendship, and their rather sedate and gentle manners were very pleasing.

The Abyssinian Guereza (*Colobus abyssinicus*) occurs typically in Central Abyssinia, and ranges thence through Somaliland to the south-west into the Niam-Niam district, north-west of Albert Nyanza, and southwards to Kilimanjaro; westwards it ranged into the upper part of the Congo. It is a very handsome monkey, its head, body, and limbs clothed in glossy jet-black hair of moderate length; while on either side of the back there arises a line of long, intensely white hair which, hanging down below the flanks, forms a lovely mantle. The dark face is also surrounded with a fringe of white hair which forms into long whiskers lying flat on the cheeks and directed downwards. The stout, long tail terminates in a tuft of white hairs. This Guereza lives in small companies, and is constantly on the move through the forest during the daytime. It is extremely agile, taking tremendous leaps from tree to tree, and at night retires to the topmost branches of the tall forest trees to sleep.

In the East African forests there lives a very beautiful black-and-white form known as the White-tailed Guereza (*Colobus caudatus*), which is remarkable for its mantle and large bushy tail. The first three or four inches of the root of the tail are clothed with short black hair, while the remaining portion is covered with long creamy-white hair for a length of some twenty inches, each hair measuring eight to ten inches in length. In addition, the long hairs of the mantle completely hide the black basal portions of the tail, so that the mantle and tail fringe appear to be continuous. This handsome monkey frequents the forests clothing the slopes of Mount Kilimanjaro, and high on Mount Kenya, and is also recorded from Kisongo, south-east of Lake Victoria, and in Uniamuezi. Though so striking in appearance when seen in captivity, it is extremely difficult to detect in its home amidst the forest trees at high altitudes on these mountains where all the branches are draped in fringes of long grey-beard lichens, with which its fur closely harmonizes. It feeds upon fruits and young leaves, and is said to spend much time in grooming its beautiful coat.

Abyssinian Guereza (*Colobus abyssinicus*)

Face page 84]

The King Guereza (*Colobus polykomos*) is a West African species found in Sierra Leone and Liberia, with local races distributed from Senegambia to the Gaboon. It has no crest on its head, but a long mane on the throat and chest. The general colour of the body is black, but the forehead and sides of the face, the mane, and the whole of the tail are a dazzling glossy white. The Gold Coast form, known as the White-thighed Guereza (*Colobus vellerosus*), is distinguished by the absence of the mane on the head and throat, this being replaced by an immense bushy, pure white fringe completely encircling the black face. The most distinctive feature, however, is the silvery white hair on the thighs, which is shorter than that on the body, and from which this monkey derives its popular name.

The skins of the Black-and-white Guerezas are in great request among the Masai warriors for their robes, capes, and also as coverings for their shields. The late Sir Harry H. Johnston, in describing Mandara's warriors, wrote: "On their heads were crescents made of ostrich feathers, or caps of the *Colobus* monkey skin. This last mentioned animal also supplied them with mantles of long black and white fur, and contributed the heavily plumed tails which the Çaga soldiers fixed to that part of their bodies where tails should rightly appear if man had not dispensed with such appendages."

Of very different colouring and appearance is the Bay Guereza (*Colobus badius*), which may be taken as an example of the ruddy-hued species. It lives amidst the branches of the tall forest trees of the Gold Coast and the Gambia, and very little has so far been recorded concerning its habits, for it appears to be both a very shy and comparatively rare animal, leading an entirely arboreal life. It is a handsome monkey clothed with relatively short hair which, on the crown of the head, the back, and upper parts of the sides of the body, is blackish-grey; while the cheeks and throat, as well as the underparts of the limbs are a beautiful ferruginous bay colour. The ears and the greater part of the face are bluish, while the nose and lips are flesh-coloured, the root and upper part of the tail being black, and the remainder of its length a reddish-brown. The first living specimen was brought to England in 1890 and exhibited in the Zoological Society's Gardens at Regent's Park. It was a female, and appeared to be friendly and of a gentle disposition. Unfortunately, arriving in poor health and in the middle of October, the raw damp and fogs of late autumn proved fatal, and within a few days of its reception the monkey died.

The Red Toro Guereza (*Colobus tephrosceles*) is another interesting example of the ruddy-coloured species. It is a mountain dweller, and lives in the forests fringing the Ruahara River in the Toro district on the east side of Mount Ruwenzori, at an altitude of 4,000 feet, and is a handsome monkey with a fine coat in which soft browns and reds are the predominating colours. Sir Harry H. Johnston, in his notes on this Guereza, writes: "The Red Colobus of Toro answers to its Greek name in the adults, which have only four fingers on the hands and the minutest trace of a thumb-nail in the place where the thumb is missing. But the young Colobuses of this species have a complete thumb, only a little smaller than this finger would be in the *Cercopitheci*. As the animal grows to maturity so the thumb dwindles, until in a very old male there may be absolutely no trace left of the missing finger." This Guereza appears to be quite a rare animal even in its native haunts, and consequently little or nothing is known concerning its habits. Like many of its relatives, it is very shy and avoids the neighbourhood of man, probably spending its life amidst the topmost branches of the tall forest trees, where it is most likely to escape detection.

The great island of Borneo is the home of the curious Proboscis Monkey (*Nasalis larvatus*), which is interesting as being something of a link, in some of its anatomical structure, between the African Guerezas and the Asiatic Langurs, and also attracts attention on account of its extraordinary appearance, due to the enormous development of its nose, which, in the adult male, attains a size out of all proportion to the rest of the face. This grotesque nasal organ is capable of considerable distention, is pear-shaped, the bulbous end reaching well below the chin and being furrowed down the middle, and has the appearance of being double tipped. In the young of both sexes the nose is much shorter and turns upward like the spout of a teapot; nor does it ever reach such exaggerated proportions in the adult female. Of what particular use this extraordinary development of the nose may be to the male, it is difficult to form an opinion, for there appears to be very little individual variation in either size or colour; certainly not sufficient to warrant any supposition of sexual adornment playing any part in its development.

The Proboscis Monkey is rather a large animal, a full-grown male averaging thirty inches in length, from the crown of the head to the end of the body, while the long and slender tail measures another twenty-seven inches. The

general body colour is a brownish shade of yellow-ochre, with chestnut brown on the upper parts of the body and head, the underparts being a lighter yellowish hue. By the natives it is variously known as the "Blanda" and the "Rasong"; "Blanda", literally translated, meaning "white man". It appears to be entirely arboreal in its habits, living socially in small bands which frequent the forests fringing the banks of rivers, streams, and lakes. Mr. W. T. Hornaday, in describing his experiences in Borneo, gives the following account of this remarkable monkey: "I saw altogether, during my ramblings in the forests of Borneo perhaps a hundred and fifty Proboscis Monkeys; and, without a single exception, all were over water, either river, lake, or submerged forest. As long as they are within sight they are conspicuous objects, choosing the most commanding positions in the open tree-tops. Once I saw thirteen in one tree, sitting lazily on the branches, as is their habit, sunning themselves and enjoying the scenery. It was the finest sight I ever saw in which Monkeys played a part. The cry of the 'Blanda' is peculiar and unmistakable. Written phonetically it would be 'Honk', and occasionally 'Kee-honk', long-drawn and deeply resonant, quite like the tone of a bass viol." It would seem quite possible that in Mr. Hornaday's observations on the "peculiar and unmistakable" cry and its "long-drawn and deeply resonant" quality we may have one at least of the reasons for the great development of the animal's nose.

In the highlands of north-western China lives another monkey remarkable for the shape of its nose, but otherwise more closely related to the Langurs. The Moupin, or Snub-nosed Monkey (*Rhinopithecus roxellanæ*), as this animal is called, is the handsomest of the four species that have been discovered inhabiting central and north-western China and Thibet. The Moupin lives in the forests that clothe the slopes of the high mountains of the western region of Moupin in north-western China, to Kokonoor and Kansu Kansu, north-western Sechuen, and also in eastern Thibet. It is a large and handsome animal, the striking facial feature being the tip-tilted nose, depressed in the middle, and terminating in a leaf-like point. The upper surface of the body, the crown of the head, the outer sides of the limbs, and the tail are all olive brown flecked with golden yellow, while the sides of the face and the underparts of the body and inner sides of the arms and legs are a brilliant ruddy ochre, the naked parts of the face, in strange contrast, being bluish-grey. The males develop very long winter coats, ornamented with beautiful

tufts of long, silky, golden hair on the back. These handsome and remarkable monkeys are social in habit, living together in large companies among the branches of the highest trees of the forest regions, where snow often lies on the ground throughout the greater part of the year. Their food appears to consist chiefly of fruits, leaves, and buds of the forest trees, and the young shoots of the bamboos.

The Langurs have a wide Asiatic distribution, being found throughout the Indian Peninsula, in Ceylon, Thibet, the countries east of the Bay of Bengal, from Assam throughout the Malay Peninsula, Cochin China, Annam, Siam, and the great islands of Borneo, Sumatra, and Java. They are characterized by their extremely slender build, by their legs being longer than their arms, the great length of their tails, and the absence of cheek pouches. The hands and feet are long and slender, and the thumb, though shorter than in the Guenons and Macaques, is a good prehensile digit with a flat nail, while the great-toe is thick and well developed. The fur is generally long, beautifully soft, and often glossy, while a very characteristic feature is a ridge of stiff hairs projecting outwards from above the eyebrows. Internally they differ from all the other Old World Monkeys, with the exception of the Guerezas, in possessing a large, many-pouched stomach. The modification in shape and structure of this organ is connected with the food of these monkeys, which primarily consists of leaves and tender young shoots of trees, together, though probably in lesser quantities, with fruits and certain kinds of grain. They live chiefly in the forests, and are social in habits, going about in bands, sometimes of considerable size, and are generally peacefully inclined among themselves, though old males occasionally indulge in fierce fights that terminate fatally or in the serious injury of one of the combatants. They do not usually live very long in captivity, and although the young are gentle and easily trained, the old adults are apt to turn sulky and spiteful; possibly the result of failing health, or of bad treatment when first captured.

Probably the best known of all the Langurs is the Hanuman (*Pithecus entellus*), held in great veneration in many parts of India, where it has a wide range, being found on the southern banks of the Ganges and Jumna Rivers, parts of the Gangetic Provinces down to the Malabar coast, in south-western Bengal, Orissa, Central Provinces, Bombay, Guzerat, southern Rajputana, and part of the North-West Provinces to Kathiawar. Naturally with so

Hanuman Langur (*Pithecus entellus*)

Face page 88]

wide a geographical range considerable variations in size and colour exist within the species, so that in many cases individuals which in the past received separate specific rank are now considered as merely local races or varieties. The typical Hanuman is a large but slenderly built animal, clothed with soft, pale greyish-brown fur, but with coal-black face, ears, hands and feet, and a fringe of long, stiff, black hairs projecting outwards and upwards from the brow ridge, while white whiskers clothe the sides of the face.

Throughout northern and central India the Hanuman Monkey is constantly in evidence, showing no fear of man, as it is generally protected and looked upon as sacred by many of the Hindu inhabitants. It frequents the groves near the villages quite as commonly as the depths of the forests, and may be seen sitting on the roofs of the houses and descending from those vantage-points to pilfer grain from the grain-dealer's shop, or to raid the gardens and fields with impunity, for as a rule the natives will not kill them, though at times they will ask European residents to shoot the intruders and save their crops from destruction.

The Hanuman Langur feeds upon fruit and grain, seeds, leaves and young shoots, these last two items constituting the major portion of its food. It is social in habit and usually to be found in communities composed of a varying number of individuals of both sexes and all ages, the youngest clinging tightly to their mother's fur, and being carried by them, especially when alarmed. The story that the males and females live in separate troops is not supported by fact, and probably originated from the habit of the females with very young offspring keeping temporarily together and apart from the main band to which they belong. Away from the vicinity of cultivated land, the high trees on the banks of streams and, in parts of central India, the rocky hills are the favourite haunts of these Langurs, and never very far from water. Their agility is remarkable, and they will often, when leaping from one tree to another, clear a space of twenty to thirty feet. It is very interesting to find how, even in the wildest forest regions where human beings rarely penetrate, these Langurs apparently recognize that men are their friends, or at least their allies, against their old hereditary foe the tiger, and by jumping from tree to tree uttering their harsh cry and by gesture indicate the whereabouts of the common enemy. In confinement the Hanuman is not very active or responsive, displaying a rather indolent and sedate habit well in keeping

with its grave, almost venerable appearance. While the young are docile and friendly, older animals are not infrequently inclined to be morose and savage, requiring cautious handling. The native name "Hanuman" signifies "long-jaw", and, according to Indian mythology, it was the original bearer of this name, a member of the Monkey Kingdom of southern India, who is said to have aided Rama in his conquest of Ceylon.

The Hanuman is represented in the Himalayas by the so-called Himalayan Langur (*Pithecus entellus schistaceus*), which is so closely related as now to be regarded as merely a local race, the chief points of difference being its large size, the ears entirely concealed by the hairs of the cheeks, and the lighter colour of the feet. It is typically a mountain-dweller, ranging from Bhutan in the south-east to the Kashmir valley in the north-west, never being found below 5,000 feet and ranging as high as 12,000 feet in the interior of Sikkim, probably descending to the lower valleys during the late autumn and winter.

In Madras and Ceylon the typical Hanuman is replaced by a form known as the Madras Langur (*Pithecus priamus*), which is distinguished by a distinct crest of hair on the head, and by the upper surfaces of the feet and hands not being black. In Ceylon, according to Sir J. Emerson Tennent, "it inhabits the northern and eastern districts, and the wooded hills which occur in these portions of the island. At Jaffna, and in other parts of the island where the population is numerous, these monkeys become so familiarized with the presence of man as to exhibit the utmost daring and indifference. A flock of them will take possession of a palmyra palm; and so effectually can they crouch and conceal themselves among the leaves that, on the slightest alarm, the whole party becomes invisible in an instant. The presence of a dog, however, excites such an irrepressible curiosity that, in order to watch his movements, they never fail to betray themselves. They may frequently be seen congregated on the roof of a native hut".

Yet another form of the Hanuman, varying slightly in size and colour, and locally known as the Malabar Langur (*Pithecus entellus hypoleucus*), is common in the forests and also on the cultivated lands fringing the Malabar coast. It is social in habit, and feeds on leaves, young shoots, fruit and grain.

The Purple-faced Langur (*Pithecus senex*) is common in the southern and western provinces of Ceylon, rarely, if ever, being found at a higher elevation than 1,300 feet. The hands and feet of this Langur are black, and the body

and limbs a dusky smoky brown, while the long and conspicuous white whiskers conceal the base of the ears and form a ruff encircling the purplish-black face. The long tail is dark grey with a tufted white tip. This is a small monkey, the average length of the body of an adult male being about twenty-one inches. Sir J. E. Tennent describes it as "an active and intelligent creature, little larger than the common Bonneted Macaque, and far from being so mischievous as others of the monkeys in the island. When observed in their native wilds, a party of twenty or thirty of these creatures is generally busily engaged in the search for berries and buds. They seldom are to be seen on the ground, except when they may have descended to recover seeds or fruits which have fallen at the foot of their favourite trees. When disturbed their leaps are prodigious; but, generally speaking, their progress is made, not so much by leaping, as by swinging from branch to branch, using their powerful arms alternately; and when baffled by distance, flinging themselves obliquely so as to catch the lower branches of an opposite tree, the momentum acquired by their descent being sufficient to cause a rebound of the branch which carries them up again, till they can grasp a higher and more distant one, and thus continue their headlong flight. In these perilous achievements, wonder is excited, less by the surpassing agility of the little creatures frequently encumbered as they are by their young, which cling to them in their career, than by the quickness of eye, and the unerring accuracy with which they seem almost to calculate the angle at which a descent will enable them to cover a given distance, and the recoil to attain a higher altitude".

In captivity the Purple-faced Langur is docile and gentle, displaying great affection towards anyone who fondles and takes a kindly interest in it, giving vent to low, plaintive little cries of appreciation and contentment, while about its movements there are a gravity and air of melancholy in keeping with its snowy-white whiskers and general demeanour. Sir Emerson Tennent states that those kept at his house near Colombo "were chiefly fed upon plantains and bananas, but for nothing did they evince greater partiality than the rose-coloured flowers of the red hibiscus (*Hibiscus rosa-sinensis*). These they devoured with unequivocal gusto; they likewise relished the leaves of many other trees, and even the bark of a few of the more succulent ones. They are very cleanly in their habits, much time being given to toilet operations and to divesting the hair of particles of dust".

It is now known that this species is liable to considerable variation of colour, and that the two forms locally known as the White and the Bear Langurs may be regarded as nothing more than well-marked races or varieties, the so-called Nilgiri Langur (*Pithecus johnii*) being regarded as the southern Indian form, found living in the forests on the Nilgiri Hills, south of Cape Comorin, in small bands or family parties.

The Mitred or Capped Langur (*Pithecus aygula*) inhabits Assam and the neighbouring districts of north-eastern India and Upper Burma. It is readily distinguished from the other Langurs by the striking arrangement of the hair on the crown of the head being longer than that on the occiput and temples, and standing erect presents the appearance of a peaked cap or mitre, from which this monkey has derived its popular name. The general colour varies from dusky grey to a brownish ash-grey, with the upper part of the back, and sometimes the crown of the head, darker in hue. The young Capped Langurs are delightful little creatures, clad in long, soft, silky fur of delicate pearl-grey and creamy-white colour. They are sedate and affectionate, responding at once to kindly sympathy, and becoming very attached to their owners. In the wild state they are social and arboreal in habit, keeping to the branches of the forest trees, where they live together in small bands. Their food consists of leaves and young shoots, fruits and seeds. Other species of Langurs are found in Siam, the Malay Peninsula, Tenasserim, and Borneo; and while varying in size and colour, they, for the most part, resemble very closely in habits the species already described.

The Gibbons are the smallest of the so-called man-like or Anthropoid Apes, the highest division of the Monkey Tribe, which also includes the Orang-utan, the Chimpanzees, and the Gorilla. The Gibbons gained their generic name *Hylobates*, or Tree-walkers, from their arboreal habits, for their entire life is passed amidst the branches of the forest trees, where they move with incredible grace and swiftness. Though in their natural home high up in the trees they swing from bough to bough with effortless ease and rapidity, on the ground their mode of progress is most awkward and only accomplished with apparent difficulty, either waddling along, holding their long arms above their heads to balance themselves, bending slightly forward and hurrying as if obliged to move as quickly as possible in order to maintain their equilibrium, or walking more or less erect by clasping their hands behind the neck, as an aid to keeping their balance. They are slenderly

Mitred or Capped Langur (*Pithecus aygula*)

Face page 92]

built animals, with a small, round, well-shaped head, and an exceedingly long fore-arm which so adds to the length of the entire arm that the tips of the fingers can rest on the ground when the animal stands erect. Cheek pouches are absent, and they have no external tail. The hands are long and slender, longer than the feet, and the thumbs and great-toes are both long and well developed.

The Gibbons comprise several species inhabiting the warmer regions of south-eastern Asia, particularly in and around the Malay Peninsula. They are moderate in size, the largest species only slightly exceeding three feet in height, while the others barely reach thirty inches. They are subject to great individual variation in colour; so marked in some instances as to have lead to different coloured specimens being given separate specific rank. Indeed, to quote the late Mr. Oldfield Thomas, " with the exception of the Siamang, all the so-called species of *Hylobates* are so closely allied to each other, and differ by characters of such slight importance, that they seem to be hardly worthy of specific distinction. In colour the Gibbons vary from jet black to pale greyish or yellowish white, these variations of hue not infrequently occurring in different individuals of the same species. These specimens, so different in colour to type, are not restricted to any particular region, but are found, not only among the members of the same troop, but in the same region from which the original type was obtained, proving conclusively that such colour variations are merely individual vagarisms and of no specific value; in fact uniformity of colour is not a tenet of the Gibbon. Of the liability to change colour in the individual we have a good example in the case of a pair of Black Gibbons (*Hylobates nasutus*) which were sent to the Zoological Society's Gardens at Regent's Park some years ago. On arrival both animals were jet black, but later, when their coats were shed, one, the female, gradually assumed a pale silvery grey dress, and retained its hue for the rest of her life ".

The Gibbons are social in their habits, travelling through the forest trees in bands of varying size, and uplifting their voices in chorus at sunrise and sunset, and often on the approach of bad weather. Their vocal powers are considerable, and, given suitable conditions, may be heard at a great distance, the volume of sound produced by a company in full cry being truly astonishing. A single young one is produced at birth, and is carried by the mother under her body, the little one clinging to her fur with hands and feet,

its weight seeming not to impede the swift movement of the female in the least as she swings from bough to bough, and tree to tree, through the forest glades. She is a devoted mother and carries the little one about for months, until it has grown sufficiently strong to fend for itself.

The Hoolock Gibbon (*Hylobates hoolock*) takes its name from its characteristic cry. The general and typical colour of this Gibbon is black with a pale-grey or white band of hairs across the forehead above the eyebrows. Many varieties, from the typical black to almost entirely creamy-white individuals, have been recorded, such varieties apparently being most frequently females. It is an Indian species confined to a comparatively limited range which is bounded by the Brahmaputra and the Irrawaddy rivers. Like all Gibbons, the Hoolock leads an entirely arboreal life, and frequents the dense jungle where the ground is everywhere covered with tangled vegetation. It is an extremely shy animal, and almost impossible to keep under continuous observation in its natural haunts, as it is more or less concealed by the network of leaves and branches high up in the tops of the bamboo clumps and forest trees. The Hoolocks live in communities, constantly on the move in search of food, which chiefly consists of fruits and succulent young shoots of bamboo and other trees, and some insects and spiders.

The cry of the Hoolock is rather a pleasing sound, but difficult to transcribe on to paper, although "Hooloo! hooloo! hooloo!", with the accent on the first syllable, is supposed to describe it; but, rising and falling, both in intensity and pitch, the typical "hooloo!" changes, and, when the animal is excited, might be written "Whoop-poo! whoop-poo! whoop-poo!", changing to "Whoko! whoko!" shortly and sharply repeated, with the accent on the whok.

In some districts the tea-planters make pets of the Hoolock Gibbons, allowing them to run loose about the compound. They are agile, gentle, good-tempered, very intelligent and cleanly in their habits, and quickly learn good table manners.

On the ground the Hoolock has a very characteristic gait, going along in a sort of shambling waddle, with legs bowed and knees bent, and the soles of the feet applied to the ground, while both arms are held aloft to act as balancers. This mode of progress, so slow and ungainly, becomes transformed into movements of extraordinary grace and swiftness directly the

Hoolock swings himself up into the trees. Dr. G. Candler, in a paper dealing with the habits of the Hoolock, draws attention to a very interesting point which may well account for the relatively restricted range of this species. He had been told by both natives and Europeans that the Hoolock could not swim, but, feeling very sceptical, he decided to try out some experiments himself to clear the matter up. On placing a full-grown Hoolock into a big tank in ten feet of water, the animal " struggled helplessly, as a boy would when he learns to swim. He sank twice, with head thrown back and arms waving frantically, and we were obliged to rescue him, almost asphyxiated, and choking in the most human way. This weakness he shares with man, but I do not know whether it has been noted in other anthropoids. It is a significant fact that the range of the Hoolock is bounded by two vast rivers, the Brahmaputra on the north and the Irrawaddi on the south. It may well be that, with his natural aversion to water, these rivers confine him to the comparatively limited stretch of country he occupies. Travelling high up in the jungle, he could easily swing across the ordinary streams which would come in his path without having to take to water ".

The White-handed Gibbon (*Hylobates lar*) has a wide distribution in south-east Asia, being met with throughout the Malay Peninsula as far north as the Province of Tenasserim, and in Sumatra, Java, and Borneo. It may be recognized by the white or pale yellowish-white colour of the upper surface of the hands and feet, and the characteristic fringe of greyish-white hair encircling the black skin of the naked face; the body and limbs in a typical specimen being covered with black hair. As with the Hoolock, however, there is considerable variation of colour in different individuals. In the Province of Tenasserim the White-handed Gibbons dwell in the forests on the slopes of the hills up to an elevation of 3,000 to 3,500 feet above sea level, but not higher, and are usually seen in small bands numbering eight to twenty individuals of all ages and both sexes. Occasionally an old male may elect to lead a solitary life, and may sometimes be seen at dawn or sunset, perched on the crown of some vast forest tree, giving vent to vocal exercises which can be heard for miles around. Bands of these Gibbons also resort to the extreme summits of the loftiest trees to indulge in song, and from sunrise to about 9 a.m. the forest resounds to their cries. At 9 or 10 a.m. they become silent and are then engaged on feeding on fruits, young shoots and leaves, and insects, while towards sunset the chorus is

resumed. When approached in the forest, if alone, the Gibbon will sometimes sit close, doubled up on a thick tuft of foliage, or behind the fork of a tree trunk near the top, so screened as to be quite safe from the shot of the hunter; but if put to flight, it swings from branch to branch rapidly with its long arms, and, flinging itself from great heights into dense foliage, quickly disappears from view. On the whole, the White-handed Gibbon does not appear to be so light and active in its movements as is the Hoolock, nor does it walk as easily erect when on the ground.

The Grey or Silver Gibbon (*Hylobates leuciscus*) is confined to the island of Java, where it is known to the Malays as the " Wau-wau ". It is uniformly grey in colour, the top of the head in some individuals being blackish. The fur is thick, rather woolly in texture, and longer than in the other species described. The traveller in the upland forest regions of Java soon becomes familiar with the plaintive long-drawn cry of the Silver Gibbon. The chorus starts at sunrise and is continued until the sun has climbed above the tree-tops, when it ceases as the Gibbons go off in search of food, resuming their vocal exercises again just before sundown. The native name is derived from the characteristic call " Woo—oo—ut, woo-ut, woo—oo—ut, wut-wut-wut ", which becomes more drawn-out and dolorous on dull cloudy mornings, signalling the approach of rain. In the stillness of the forest the wailing cry carries far, and seems well in keeping with the somewhat sorrowful cast of countenance so characteristic of these Gibbons.

The Siamang (*Symphalangus syndactylus*) is the largest of the Gibbons, measuring more than three feet in height when standing erect. It is more stoutly built than the Hoolock, and is clothed entirely with silky and fairly long black hair. The animal derives its scientific name from the second and third toes of its foot being joined together by a thin web of skin which, in the male, reaches up to the last joint, but in the female only as far as the middle joint. Another characteristic feature peculiar to the Siamang is the possession of a large dilatable laryngeal sac which, when fully extended, looks like a huge goitre, and gives additional volume to the vocal efforts of the animal. It is also of interest to note that in the Siamang the hair of the forearm is directed backwards towards the elbow, while in all other Gibbons it points towards the wrist. The Siamang inhabits the island of Sumatra, frequenting the great forest trees growing on the slopes of the hills from between 200 or 300 to 4,000 feet above sea level. It is social in

Grey or Silver Gibbon (*Hylobates leucescus*)

Face page 96]

habit, leading an entirely arboreal life, but, probably because of its larger build, appears to be less active and agile than the other species. Bands of Siamangs make the forests resound with their howls at dawn and sunset, uttered apparently for the sheer love of noise. The one or two Siamangs that I have known in captivity were docile, friendly creatures, and certainly seemed inclined to be less restless than their lighter-built relations. One in particular loved to be nursed, and would sit contentedly on my lap for a long time, leaning back against my left arm, and apparently quite interested in watching my right hand at work, drawing or writing, occasionally looking up into my face with a puzzled expression, obviously wondering what I was doing.

The three other members of the Monkey Tribe forming with the Gibbons the so-called man-like or Anthropoid Apes are the Asiatic Orang-utan and the African Gorilla and Chimpanzee.

The Orang-utan, or Mias (*Pongo pygmaeus*), is a native of the two great islands of Borneo and Sumatra in the East Indian Archipelago, being far less common on the latter island. In Borneo it inhabits the low, forest-clad swamp-lands between the coast and the mountains of the interior, where, except in the breeding season, it leads a more or less solitary life among the leafy upper branches of the forest trees, feeding during the daytime upon leaves and fruits, especially the fruits of the durian, the rambutan, and the mangosteen, and sleeping at night in a rude nest in the tree-tops composed of slender branches bent over and roughly interlaced. Although not definitely established, it seems probable that the same nest may be used for several nights in succession when the Orang is feeding in its immediate neighbourhood.

The male Orang usually wanders alone among the branches of the great forest trees, while the female is generally accompanied by one or two of her offspring, the second being a half-grown youngster, for the young do not shift for themselves until about two years old. Only one is produced at a birth, and the infant clings to its mother by grasping the long hair of her armpits, while its legs tightly embrace her sides above the hips when she is climbing about among the branches.

The Orang-utan varies considerably in size, the males being larger than the females and weighing from 120 to 160 pounds. A large male may measure four feet six inches in height from crown to heel, while the largest

female rarely exceeds four feet in height. The colour of the hair is a brick or yellowish-red all over the limbs and body, and is relatively coarse on the arms, thighs, and shoulders, where it reaches twelve to sixteen inches in length. The face, ears, and throat are bare, the naked skin being reddish or yellowish-brown, becoming almost black in old adults. In some old males enormous fleshy cheek callosities are developed, and these, together with the great goitre-like air pouch beneath the skin, add to the grotesque appearance of the animal. There is a thin beard on the chin, and the backs of the hands and feet are thickly covered with hair. Two striking features in the anatomy of the Orang are the great length of the arms—their span being twice the animal's height—in contrast with the short, bandy legs that seem almost too weak to support the large, stout body.

It would be difficult to conceive a greater contrast in movement than that between the swift, slender and graceful Gibbon, and the clumsy, heavy and slow-moving Orang. But although so slow and deliberate in all its movements, the very long arms and the hook-like fingers, which close with an amazing rigidity of grip, enable the Orang to lift and swing its large body with great precision from branch to branch and tree to tree, swinging along beneath the largest branches at a rapid rate, the hand-like feet often being employed in grasping and carrying the fruits and leaves upon which the animal feeds. On the ground the Orang walks in a most ungainly fashion, using his long arms as crutches, bearing his weight on his knuckles as he swings his body between the arms. The naked face has a somewhat melancholy expression; the ears are small and flat, and the lips are extremely mobile, being thrust far out when the animal is eating or drinking.

Wallace, in his account of the habits in the wild of the Orang, states that "it is a singular and very interesting sight to watch a Mias making his leisurely way through the forest. He walks deliberately along some of the larger branches, in the semi-erect attitude which the great length of his arms and the shortness of his legs cause him naturally to assume; and the disproportion between these limbs is increased by his walking on his knuckles, not on the palm of the hand. He seems always to choose those branches which intermingle with an adjoining tree, on approaching which he stretches out his long arms, and, seizing the opposing branches, grasps them together with both hands, seems to try their strength, and then deliberately swings himself across to the next branch, on which he walks as before. He

Orang Utan (*Pongo pygmaeus*)

Face page 98]

never jumps or springs, or even appears to hurry himself, and yet manages to get along almost as quickly as a person can run through the forest. The long and powerful arms are of the greatest use to the animal, enabling it to climb easily up the loftiest trees, to seize the fruits and young leaves from the slender boughs which will not bear its weight, and to gather the leaves and branches with which it forms its nest. This is placed low down, however, on a small tree, not more than twenty to fifty feet from the ground, probably because it is warmer and less exposed to the wind than higher up. The Orang does not leave his bed till the sun has well risen and has dried the dew upon the leaves. He feeds all through the middle of the day, but seldom returns to the same tree two days running".

Normally the Orang does not appear to be at all an aggressive animal or to show much alarm at the presence of human beings in his vicinity, but will stare down from his vantage-point high up among the screening branches before moving off to another tree. If wounded, or cornered on the ground, and unable to retreat up a tree, he will fight fiercely for his life, and, if a full-grown animal, is quite capable of killing his foe. In fighting among themselves, the Orangs appear to seize and bite each other's fingers, for many shot specimens have been found to have lost one or more of their fingers and toes, in addition to scars on their faces and bodies obviously made by the teeth of their antagonists. The female, when alarmed or enraged, will break off branches and fruits, sending down such a shower of missiles as effectually to keep her human foe at a distance. There is not any attempt at deliberate aim at the enemy, but just a wholesale showering down of everything within reach, which in the end proves equally effective.

Of all the Anthropoid Apes the Orang has the brain which in general appearance most resembles that of Man, but it is much inferior in weight; the cerebrum is more symmetrically convoluted and less complicated by tertiary convolutions, and the cerebral hemispheres are more elongated and depressed. Moreover, while the cranial capacity of the skull in Man is never less than fifty-five cubic inches in any normal human being, in the Orang it only reaches twenty-six cubic inches.

In captivity the young Orang is friendly, docile, and usually rather deliberate and slow in its movements, rarely exhibiting the restless, cheerful vivacity so characteristic of the young and healthy Chimpanzee. With care they will live well in captivity, becoming devoted to their guardians, and

displaying considerable adaptability, quickly learning to sit up at table, to drink out of a cup, eat food with a spoon, and other " parlour tricks ". But the Orang, having a more reserved and quieter disposition, does not keep up that continual display of monkey tricks for the sheer love of showing off, as does the young Chimpanzee; nor, by the same token, does it, with increasing age, give vent to such appalling outbursts of temper. The old Anthropoid House at Regent's Park was for some years the home of an elderly Chimpanzee and an old Orang-utan; and the contrast in temperament and behaviour between the two great Apes was most striking. When angry the Chimpanzee would stamp on the floor and violently shake the bars of his cage, while giving vent to the most blood-curdling shrieks and howls of rage, so that the whole house resounded with his fury. The ancient Orang, on the other hand, if offended, would give vent to sundry low grunts of dissatisfaction, and retire from public view by completely burying himself in the midst of a pile of straw in the centre of his cage, and would remain there until soothed by the kindly voice of his keeper, accompanied by a peace-offering of fruit. He was a peace-loving old fellow, and on many occasions I have seen him display, to the best of his ability, his disapproval at the " goings on " of his neighbour. Of the Orangs I have known, one three-year-old became a very devoted little friend. She displayed a marked interest in coloured pictures of plant and insect life, and would sit contentedly on my lap slowly turning over the pages of a book and pausing to study each picture in turn as she came to it, and occasionally looking up into my face and placing her hand on a particular picture as if to show her approval. She was the only member of the monkey tribe that I have known to show absolutely no fear at the sight of a snake. In fact she greatly enjoyed handling and playing with a small pet boa that I had at the time and which, being used to constant handling, was quite friendly. She would sit on the floor, and placing the snake round her neck, as she had seen me do on many occasions, chuckle with glee as it slithered down again on to the floor; evidently enjoying the slight tickling sensation against her neck. Next a game of hide-and-seek would follow, the snake being allowed to slip away under one of the folds of a blanket spread on the floor until its tail was on the point of disappearing, when it would be grasped and hauled back into view.

The Chimpanzees inhabit West and Central Africa, from the west coast between the rivers Gambia and Coanza, and across the continent eastwards

to Uganda. They are, for the most part, forest-dwelling animals, spending much time on the ground amidst the dense undergrowth and thickets, but readily climbing the taller trees in search of fruit. They move about in small family parties, continually shifting their haunts in search of fresh feeding-grounds, and not infrequently raiding deserted native plantations. They build temporary nests not far from the ground, composed of twigs and branches, and in these the female and her young spend the night, while the male, it is stated, rests on the ground at the foot of the tree. At dawn and at sunset, and often during the night, they indulge in a chorus of yells and howls which echo through the forest glades for a great distance. There is much still to be learned about their mode of life under natural conditions, for most of the published accounts are based on the habits of young captive animals.

Although the Chimpanzee can stand or run erect, it prefers to advance leaning forward and supporting itself on the knuckles of the hands. The legs are longer in proportion to the body than in the Orang, while the arms are relatively shorter, reaching only a little below the knee when the animal stands erect. The hands are long, comparatively slender, and less hook-like than in the Orang, the Chimpanzee being far less strictly arboreal in habit. The thumb is short, and the broad fingers are united by a web reaching up to the first joint. The foot has an opposable thumb-like great-toe, the other four toes being united, as in the hand, by a web. The skull is elongated and small in proportion to the body, the forehead being smaller and the crown of the head more rounded than in the Gorilla. The volume of the cranium is from twenty-six to twenty-seven cubic inches, or about one-half the lowest capacity of any normal human cranium. The brain, in its convolutions and in many other respects, conforms with that of the Orang; and while the ridges and grooves bear a strong resemblance to those seen in the human brain, they are simpler, more symmetrical, and larger in proportion to the brain as a whole.

Much doubt and uncertainty prevails as to the actual number of species of Chimpanzees existing; for although a number of specimens obtained from different regions have been credited with specific rank, it is extremely doubtful whether the majority will not eventually prove to be merely local races or varieties of a common species. The most typical species, and that most frequently imported into this country, is the common West African Chimpanzee (*Pan satyrus*), found in western tropical Africa, from the Gambia

to Congoland. It has a coat of sleek black hair, longest in the region of the neck and shoulders, shorter on the arms and legs. The face in infancy is pale flesh-colour, merging to a yellowish-brown and assuming a darker shade as the animal increases in size and age. The skin of the body in some individuals is of a light rather muddy flesh-colour, while in others it is decidedly brown. The hair on the front of the head may, or may not, show a distinct parting, this feature varying markedly in different individuals, while round the sides of the face the hairs grow downwards, forming a fringe of whiskers and a slight beard. The sexes resemble each other in colour and general appearance, the male Chimpanzee not exceeding the female in size to the same marked degree as is the case with the Gorilla, and when full grown rarely reaching more than five feet in height.

In captivity the young Chimpanzees are generally gentle, intelligent, and affectionate. They are much more restless and vivacious in their habits than either the Orang or the Gorilla, and quickly learn to dress up, drink out of a glass or cup, and to pass a plate and feed themselves with a spoon. Apart from what may be termed the professional training of these Apes for music-hall shows, in which they are taught to ride bicycles, move about on roller-skates, thump drums, jump through hoops, and other familiar circus tricks, a great deal of care and trouble has been expended during recent years, particularly in America, on elaborate laboratory experiments designed to determine how far Chimpanzee intelligence can be educated, and its limitations. The details of these experiments and the results obtained have been published at great length, and with their masses of tabular matter and graphs present, on the surface, a very impressive appearance. But after wading through them one emerges with a feeling that the actual results could, with advantage, have been stated in a quarter of the space, and that it is all rather " much ado about nothing " ; in fact that the bulk of the work only confirms what was already known, namely that the Chimpanzee, like a good many other animals, is very teachable, and possesses latent intelligence that is capable of responding to careful training. Indeed there have long existed numerous modest records of carefully trained dogs, horses, and other animals which have displayed quite as high a level of intelligence as these much advertised Apes.

The Bald-headed Chimpanzee (*Pan calvus*) was first described by Du Chaillu under its native designation " nshiego mbouwe ", in his book

Chimpanzee (*Pan satyrus*)

Face page 102]

Equatorial Africa, published in 1861. This Chimpanzee is readily distinguished by the baldness of its head, the very dark blackish colour of the face, hands, and feet, and the size of the large, flat ears. The first specimen to reach this country alive appears to have been the famous "Sally", a young female purchased by the Zoological Society of London in 1883. In his account of this animal, the late Mr. A. D. Bartlett, at that time Superintendent of the Gardens at Regent's Park, stated that while "the colour of the face, hands, and feet in the true Chimpanzee are white or flesh-coloured, the same parts of the animal under consideration are black or blackish brown. Another well-marked difference is to be found in the hair on the head and face—in the new specimen the front, top, and sides of the head are nearly naked, having only a few short hairs on the head quite destitute of parting. Another striking difference may be noticed in the size and form of the head and ears. The form of the head, the expression of the face, the expanded nostrils, the thicker lips, especially the lower lip, together with the more elevated skull, cannot fail to distinguish this animal from the true Chimpanzee. Again, the habits of this animal differ entirely from those of the common Chimpanzee. She has always shown a disposition to live upon animal food. Soon after her arrival I found she would kill and eat small birds; seizing them by the neck, she would bite off the head and eat the bird, skin, feathers and all; for some months she killed and ate a small pigeon every night. After a time we supplied her with cooked mutton and beef-tea; upon this food she has done well. I have never found any ordinary Chimpanzee that would eat any kind of flesh. Another singular habit is the producing of pellets or 'quids', resembling the castings thrown up by birds of prey. They are composed of feathers and other indigestible substances that had been taken as food. Her intelligence is far above that of the ordinary Chimpanzee. With but little trouble she can be taught to do many things that require considerable thought and understanding".

Sally lived in the Zoological Gardens for some eight years, during which time her cheerful disposition and intelligence won her many friends. The late Prof. J. G. Romanes, having enlisted the co-operation of her keepers, succeeded in teaching her to pick up, from the litter on the floor of her cage, one to five separate straws, according to the number demanded. No constant order was observed in making these requests, but whenever Sally handed a number of straws not asked for, her offer was refused, while, if she gave

the correct number, they were accepted and she received a piece of fruit in payment. Once Sally had realized what was required, and learned to associate these five numbers with their names, she never failed to give the correct number of straws asked for. Later an attempt was made to extend her education as far as the number ten; but while she appeared to understand that the words seven, eight, nine, and ten betokened numbers higher than six, and would accordingly hand out some numbers of straws above six and not exceeding ten, she never displayed the same constant accuracy in handing out the exact number as when asked for less than six, showing that her computation of the higher numbers became vague and suggestive of guess work.

A third very distinct species is Schweinfurth's Chimpanzee (*Pan schweinfurthii*), which ranges from the Sudan into East Africa, and on the west shore of Lake Tanganyika in the Congo Free State. It is characterized by possessing very long hair and beard, by the length of its limbs, a high, narrow head, and an olive-brown face. Not very much is known about the natural habits of this Chimpanzee, but it appears to lead a rather more arboreal life, very like that of the Orang, among the branches of the forest trees on the banks of the rivers and lakes, passing its life in comparative solitariness, living either in pairs or family parties, never in large companies.

There are probably two species of Gorilla, namely the Gaboon Gorilla (*Gorilla gorilla*) and the East African or Kivu Gorilla (*Gorilla berengeri*). These two have little in common with each other, while their widely separated habitats preclude all likelihood of contact. A number of doubtful species and races have been described at various times on what must be regarded as very inadequate material—often on a single immature or fully adult specimen—reliance for their establishment resting on such uncertain characters as the colour of the pelage and its pattern, which may be entirely due to the age or sex of the individual. Obviously unless there is complete knowledge of the colouring of the pelage from infancy to old age, and in both sexes, the claim for specific rank must remain uncertain; for it can safely be said that there are no cranial characters that can be depended upon for specific or racial differences, so greatly do individual skulls vary one from another, even when obtained in the same locality.

The Gorilla is peculiar to Africa, and is confined within the regions covered by the evergeen forests across Equatorial Africa from the

Cameroons and Gaboon eastward as far as the Birunga Mountains in the eastern Belgian Congo. Within this wide geographical range, as is only to be expected, certain variations in size, colour and length of hair occur, as well as of habit, which, in most instances, are probably to be interpretated more correctly as variations of a single species in response to local environment, rather than of truly sufficient importance to warrant being given specific rank.

The species inhabiting the west coast regions seems to have been known to the earliest explorers, for in the *Periplus*, or Voyage of Hanno, a Carthaginian who, about the sixth century B.C., sailed along the western coast of Africa on a voyage of discovery, we find the earliest record of the name Gorilla as applied to these great apes; though Hanno's Gorillas were in all probability a troop of Baboons, judging from the description of the males, which, according to the account, "all escaped, being able to climb the precipices, and defended themselves with pieces of rock". From that distant and uncertain date, onward through the centuries, rumours and stories about the great Apes were brought back to Europe by succeeding generations of voyagers and explorers, but it was not until 1846 that, thanks to the exertions of two American missionaries, Dr. Wilson and Dr. Savage, the first accurate account of the skull of a Gorilla appeared, complete descriptions of the entire skeleton and external anatomy by Sir Richard Owen being published a few years later, when more material had become available. The Kivu Gorilla (*Gorilla berengeri*) was discovered in the northern Kivu region in 1902.

Although the existence of these huge Apes in Equatorial Africa has so long been known, our actual knowledge of their habits and life is still very incomplete, much of it being based upon native stories rather than careful first-hand observation by experienced field naturalists. Nor is this altogether surprising, for the very nature of the country, and the shy, retiring habits of the Gorilla, combine to make it a most difficult animal to keep under constant observation. Moreover, as one might expect, there appear to be marked differences, both in habit and temperament, between Gorillas living in different regions, judging by the conflicting accounts given by hunters and explorers. The one tragic fact that does seem to have been established beyond all doubt is that the Gorillas, never very numerous, appear to be steadily diminishing in numbers, and that, unless strict measures for their

protection can be enforced, these unique and most interesting animals may ere long become extinct.

The first circumstantial account of the habits of the Gorilla we owe to the pioneer work of Paul Du Chaillu, who, in his book *Exploration and Adventures in Equatorial Africa*, published in 1861, records his experiences during his first expedition, 1852–9, with particular reference to the last four years which were devoted to the systematic exploration of what was then unknown Equatorial Africa. The book created widespread interest and a great deal of speculation, not always generous, as to the accuracy of some of the statements made by the author. There appear to have been feelings of bitter jealousy and resentment against Du Chaillu in certain quarters, and as a result his work became almost universally regarded with suspicion and the last years of his life sadly embittered. While he cannot be held entirely blameless, the observations made by hunters and naturalists in recent years have fully vindicated the general truth of his statements regarding the habits of the Gorilla.

A century has nearly passed since Du Chaillu made known the results of his first expedition into Equatorial Africa; and as a small act of homage to the memory of a brave and much maligned man, I give the following extracts from his original account of the habits of the Gorilla, observations the accuracy of which have been fully confirmed during recent years: "It is a restless and nomadic beast, wandering from place to place, and scarce ever found for two days together in the same neighbourhood. In part this restlessness is caused by the struggle it has to find its favourite food. The Gorilla, though it has such immense canines, and though its vast strength doubtless fits it to capture and kill almost any animal which frequents the forests, is a strict vegetarian. I examined the stomachs of all which I was ever lucky enough to kill, and never found there aught but berries, pine-apple leaves, and other vegetable matter. It is a huge feeder, and no doubt soon eats up the scant supply of its natural food which is found in any limited space, and is then forced to wander on in constant battle with famine.

"The adult animal is also shy, and I have hunted all day at times without coming upon my quarry, when I felt sure that they were carefully avoiding me. When, however, at last fortune favours the hunter, and he comes accidentally or by good management upon his prey, he need not fear its

Young Gorilla, John Daniel in thoughtful mood

Face page 106]

running away. In all my hunts and encounters with this animal I never knew a grown male to run off. The Gorilla advances by short stages, stopping to utter his diabolical roar, and to beat his vast breast with his paws, which produces a dull reverberation as of an immense bass-drum. Sometimes from the standing position he seats himself and beats his chest, looking fiercely at his adversary. The common walk of the Gorilla is not on his hind legs, but on all-fours. In this posture, the arms are so long that the head and breast are raised considerably, and, as it runs, the hind legs are brought far beneath the body. The leg and arm on the same side move together, which gives the beast a curious waddle. His walk is a waddle from side to side, his legs—which are very short—being evidently somewhat inadequate to the proper support of the huge superincumbent body."

In his book dealing with his second expedition to Equatorial Africa, *A Journey to Ashango-Land*, Du Chaillu gives the following interesting account of a raid by Gorillas on a native plantation : " I had not been at the village long before news came that Gorillas had been recently seen in the neighbourhood of a plantation only half a mile distant. The plantation was a large one, and situated on very broken ground, surrounded by virgin forest. When I reached the place, I had first to pick my way through a maze of tree-stumps and half-burnt logs by the side of a field of cassada. I was going quietly along the borders of this, when I heard, in the grove of plantain-trees towards which I was walking, a great crashing noise like the breaking of trees. I immediately hid myself behind a bush, and was soon gratified with the sight of a female Gorilla ; but before I had time to notice its movements, a second and a third emerged from the masses of colossal foliage ; at length no less than four came into view. They were all busily engaged in tearing down the larger trees. One of the females had a young one following her. I had an excellent opportunity of watching the movements of the impish-looking band. The shaggy hides, the protuberant abdomens, the hideous features of these strange creatures, whose forms so nearly resemble man, made up a picture like a vision in some morbid dream. In destroying a tree, they first grasped the base of the stem with one of their feet and then with their powerful arms pulled it down, a matter of not much difficulty with so loosely formed a stem as that of the plantain. They then set upon the juicy heart of the tree at the bases of the leaves, and devoured it with great voracity. While eating they made a kind of clucking noise, expressive

of contentment. Many trees they destroyed apparently out of pure mischief. Now and then they stood still and looked around. Once or twice they seemed on the point of starting off in alarm, but recovered themselves and continued their work. Gradually they got nearer to the edge of the dark forest, and finally disappeared. I had excellent opportunity of observing the manner in which the Gorillas walked when on the ground. They move along with great rapidity and on all-fours, that is with the knuckles of their hands touching the ground. When the Gorillas that I watched left the plantain-trees, they moved off at a great pace over the ground, with their arms extended straight forwards towards the ground, and moving rapidly."

The Gorillas described by Du Chaillu belong to the west coast species (*Gorilla gorilla*), and are a blackish-brown in general colour; a full-grown large male may stand six feet in height, but the female rarely exceeds four feet.

The reactions to different conditions of environment are demonstrated by a comparison of the observations made by Dr. Dyce Sharp on the Mamfe Gorillas, and Capt. C. R. S. Pitman's records of the Gorillas inhabiting the Kayonsa regions, western Kigezi, in South-West Uganda. Capt. Pitman states that with the Gorillas inhabiting the Kayonsa region tree-climbing is customary, and that their beds are normally constructed well above the ground and probably used on several consecutive nights. "Several were measured and found to vary in size from three feet by two and a half feet, to four feet by three feet; the latter presumably the sleeping quarters of the big males. The thickness of the 'bed' platforms ranged from eight to fifteen inches. Three groups of beds—many more were seen—were critically examined. The lowest bed was six feet above the ground, the majority ten feet or over, and four (two in one group, and one in each of the others) between twenty and twenty-five feet. The highest bed seen was nearly fifty feet from the ground and evidently constructed the previous night. Its foundation consisted of sturdy, upright tree-tops as much as two and a half inches in diameter, which had been snapped like matchsticks." Capt. Pitman found that these groups of nests were invariably so arranged as to be clearly visible from each other, and always in a singularly filthy condition, "the edges often festooned with excrement". He also strongly scouts the alleged ferocity of the Gorillas, at least those dwelling in this particular region—"awful tales of super-ferocity served up for world consumption

by the very people so well armed that they can interfere and disturb as freely as they like in absolute safety. And, if the Gorilla, suspicious and resentful of constant interference and undue disturbance, is no longer content with demonstration but prone to carry home his 'charge', who is to blame, the Gorilla or the persistent disturber?" Capt. Pitman considers that, "like most wild creatures, the Gorilla normally is peacefully disposed, and not aggressive. More than most possibly is this the case with the Kayonsa representative, for, owing to constant close contact with human settlement and the wandering charcoal-burners who operate in the heart of its western haunts, it can be regarded as almost semi-domestic, while I am reliably informed that at times the old males are absurdly contemptuous of the local populace". In support of this opinion Capt. Pitman gives the following interesting extract from a report received from a prospector working in the Kayonsa forests, who regarded the Gorillas as quite harmless: "My work has at times taken me into places where they were in residence. I have found them very peaceful, and it is possible to get within twenty feet of them. I have only been attacked once, by an old male, but he was not a savage brute. He was first attacked by my dog, and his sole aim was to catch the dog, otherwise he could have easily caught and killed my 'boy'. As far as I know, they travel about in bands of six or eight. They do not make much noise, but just grunt. I maintain that unless provoked they are docile. I have seen about eighty during a long period prospecting in the impenetrable forest (Kayonza-Kigezi). The Gorillas sometimes raid nearby shambas (gardens), but I never heard of them attacking the natives, and the natives leave them alone except to chase them away from their property. Normally the troops vary in size from five to eight or nine, and consist of one full-grown male, the father of the flock, and, according to the size of the band, two or three females, the remainder being juveniles of varying sizes."

Dr. Neville A. Dyce Sharp, in his notes on the Gorillas inhabiting the Mamfe Division of the Cameroons, states that "an average troop, which for feeding purposes will habitually year after year patrol the same area of twenty to forty square miles, consists of one old adult male, possibly one immature male, and four to six females with their young. Such a troop will remain together for years, until it is broken up by raids on its female members by some young and bold male. From native accounts this fight for female

followers is one of the most thrilling and often bloody events that can occur in the forest. Here, then, is a most pronounced difference between the marital affairs of the Gorilla and the Chimpanzee. For while the Gorilla is fiercely polygamous, the Chimpanzee is usually monogamous, and only the older members of a Chimpanzee party (which to my knowledge may number forty or more) have even two female followers. A further difference is found in the Mamfe area, where Chimpanzees are very timid and only dangerous when wounded, while all male Gorillas attack man on sight".

Referring to the Gorilla's almost human love of a bed, Dr. Dyce Sharp states that the big male "invariably makes his bed on the ground while he sends his female belongings and young offspring up trees within sight of his bed, which may measure as much as nine feet by six feet. To make it, he selects, clearly with some care, a suitable site where by stretching out his long arms he can encircle, bend down, and break several young saplings of two- to four-inch diameter. Across these he places stout branches brought from neighbouring trees, and over the whole spreads a thick layer of leaves and twigs, so as to make a couch a foot to eighteen inches deep. At the same time he takes care to have at one side of the bed a stout tree against which he reclines in a semi-recumbent position. His wives, in appropriate trees, select suitable forks on which, by reaching out and collecting smaller branches and leaves, they make beds three to four feet in diamater". It was noticeable in all the beds which Dr. Dyce Sharp examined, between seventy and eighty in number, that the bed itself was always kept free from droppings, another interesting point of difference compared with Capt. Pitman's account of the Kayonsa Gorillas.

The observations of the well-known African big-game hunter, the late Mr. T. A. Barnes, on the great Kivu Gorilla confirm Capt. Pitman's opinion that the male is not usually an aggressive animal. In his notes on the habits of these animals, Mr. Barnes states that "the Gorilla, shunning observation at all times, is of a silent, morose, and even phlegmatic disposition. He seldom utters a sound unless thoroughly alarmed, and then his screaming roar is quite terrifying. The Gorilla is a great bluffer, and if he cannot frighten you away by his uncanny screaming roars or by beating on his great chest, he leaves it at that—he is certainly not looking for trouble. Authentic cases of Gorillas attacking man are exceedingly rare. Native superstition, so easily aroused, is accountable for the bad name the Gorilla possesses; all

Old Male Gorilla (*Gorilla gorilla*)

Face page 110]

kinds of horrible practices are attributed to this inoffensive giant, such as waiting along forest tracks to pounce on and kill the unsuspecting wayfarer, and the carrying off of women and children from the fields and mutilating them in a horrible manner".

That a full-grown male Kivu Gorilla is a truly formidable and awe-inspiring creature there can be no doubt. Living as it does at a high elevation on the mist-covered mountains, and seldom descending to below an altitude of 7,000 feet, the Kivu Gorilla carries a thick and long coat of hair, except upon its chest, which is bare greyish-coloured skin. The hair on the arms and shoulders is black, the lower part of the back in the old male, however, having across it a broad saddle-like band of shorter grey hair, while the head and lower limbs become greyish-brown when fully adult. Another remarkable feature is the development of an elongated crest of thickened skin surmounting the head, which is now known to be a characteristic of the completely adult male, and often bears scars, probably caused by the teeth of other males when fighting. Mr. Barnes' largest specimen measured in height from crown to sole of foot 6 feet 2 inches, and had a chest girth of 61 inches; while the span of the great arms was 90 inches, and its weight approximated 450 pounds (over 32 stone).

Despite their great size, and their large, well-developed canine teeth, the Gorillas appear to be entirely vegetarian in habit, their food consisting of the leaves of various forest trees, young bamboo leaves and shoots, the giant sorrels, the shoots and stems of a species of scitamin, which resembles sugar-cane, and, when raiding the native village fields, plantains and other crops, while soft fruits, both wild and cultivated, are relished, but nuts and hard seeds rejected.

While the Orang and the Chimpanzee, if carefully fed and housed, thrive in captivity, and appear to be quite happy and contented, few Gorillas have ever lived for any appreciable number of years under such conditions; in fact it is only during the past few years that any success has attended the keeping of young Gorillas in captivity. The temperament of the Gorilla appears to be quite different from that of the Chimpanzee, and generally inclines to be shy, sullen and morose. Even when apparently healthy, happy and contented, there is rarely any exhibition of that childlike joyousness so typical of the young Chimpanzee, but in its place an undercurrent of grimness and reserve. At the same time the young Gorilla does become

deeply, really passionately attached to its owner, displaying every sign of sorrow and despondency when parted from its friend and protector.

One of the most successful experiments in keeping a young Gorilla in captivity was that carried out by Major R. Penny and Miss Cunningham, who kept one in their flat in Sloane Street, some eighteen years ago. John Daniel, as this two-year-old Gorilla was called, was, in the first instance, purchased from a Frenchman in West Africa by the well-known importer of wild animals the late Mr. J. Hamlin, and was bought from him by a popular Kensington store as a special attraction for their Christmas bazaar. The poor little creature showing signs of sickness, and, not displaying the humorous behaviour anticipated, the store people were only too glad to find a willing purchaser in Major Penny, who carried the unhappy little animal home to his flat. Properly fed and tended, John Daniel rapidly recovered, and under careful tuition and sympathy soon established himself as a very intelligent and interesting member of the household, learning to open and close windows and doors, to switch on the electric light when told to do so, and to sit up at table and show good manners at meal-time. During two successive summers he was brought in a taxi-cab several days each week, when weather conditions were warm and sunny, to the Zoological Gardens in Regent's Park, where a large out-of-door cage was placed at his disposal. Here John Daniel would spend happy sunlit hours playing with Miss Cunningham, to whom he was devoted, or with a boy friend, with whom he enjoyed a rough-and-tumble game. It was during these frequent visits to the Society's Gardens that I was enabled to keep John Daniel under observation, to note his reactions to his surroundings, and to make sketches and to take photographs and cinematograph films of his movements. He did not seem in the least alarmed by the presence of large crowds of visitors in front of his cage, and in fact I think that he rather liked having an audience when indulging in gymnastic performances. It was most interesting to see him from time to time pause in the midst of his play and sit up and drum vigorously on his chest with his hands. If Miss Cunningham was called away, or had left him for the time being in charge of his boy friend, it was noticeable that John Daniel was not entirely happy in his mind, for he would break off from his play from time to time, to go to that side of the cage from which he could obtain the clearest view across the lawns to the pathway by which his beloved mistress would return, and eagerly look out to see if she were

coming. But as was inevitable, the time came when John Daniel's ever-increasing strength and size no longer made him an entirely safe or suitable companion within the confines of a London flat, and Major Penny and Miss Cunningham very reluctantly had to part from their pet. He was finally purchased for one of the Zoological Gardens in the United States of America, and was seen safely into his new home by Miss Cunningham. But although he appeared to be settling down all right in his new quarters before his mistress finally left him, it was not long after Miss Cunningham's return to London that the sad news came through that poor John Daniel, inconsolable at being parted from her, had just pined away and died.

My friend, Mr. Ivan T. Sanderson, who spent some time studying the animal life of the Mamfe forests in the British Cameroons, brought back much valuable information concerning the Gorillas inhabiting that region, confirming that they display remarkable individual variations, all sufficient to account for those single specimens brought back to Europe in the early days of African exploration having been accorded sub-specific rank. In the Mamfe Division of the Cameroons these Gorillas inhabit the densely forest-clad mountains, and each family party appears to possess certain peculiarities —what is often commonly termed a family likeness—readily recognized by the natives, and by which they are usually able correctly to distinguish an individual Gorilla as belonging to a particular troop. As these Gorilla family parties regularly pass to and fro across the region they inhabit, from one feeding ground to another, their individualistic traits have naturally become familiar to the natives dwelling in the same country and whose cultivated ground they occasionally raid.

INDEX TO POPULAR NAMES

Abyssinian Guereza, 84.
Allen's Bush-baby, 12.
Angwantibo, 18.
Anubis Baboon, 64.
Arabian or Sacred Baboon, 62.
Avahi, or Woolly Lemur, 28.
Aye-aye, 2.

Bald-headed Chimpanzee, 102.
Bald Uakari, 45.
Barbary Ape, 68.
Bay Guereza, 85.
Bengal or Bander Rhesus Monkey, 72.
Black Ape, 66.
Black-cheeked White-nosed Guenon, 82.
Black-faced Spider Monkey, 48.
Black Gibbon, 93.
Black-headed Uakari, 45.
Black Saki Monkey, 45.
Black-tailed Marmoset, 35.
Bonnet Macaque, 74.
Bosman's Potto, 16.
Broad-nosed Gentle Lemur, 24.
Brown Capuchin, 52.
Brown-headed Tamarin, 38.
Brown Lemur, 27.
Brown Stump-tailed Monkey, 69.
Brown Woolly Spider Monkey, 50.
Burmese Pig-tailed Macaque, 71.

Chacma Baboon, 63.
Chimpanzee, 100.
Common Marmoset, 34.
Coquerel's Dwarf Lemur, 20.
Crab-eating Macaque, 73.
Crowned Sifaka, 30.

Diana Monkey, 81.
Demidoff's Bush-baby, 12.
Diadem or Pluto Guenon, 80.
Diademed Sifaka, 29.
Drill, 61
Dusky Gelada Baboon, 66.

Feline Douroucouli, 43.
Fork-marked Dwarf Lemur, 21.

Gelada Baboon, 65.
Geoffroy's Spider Monkey, 49.
Great Galago, 10.
Greater Mouse Lemur, 19.
Gorilla, 104.
Green Guenon, 78.
Grey or Silver Gibbon, 96.
Grey-cheeked Mangabey, 75.
Grey Gentle Lemur, 23.
Grivet Guenon, 77.
Guatemalan Howler Monkey, 57.
Guinea Baboon, 65.

Hanuman Langur, 88.
Himalayan Langur, 90.
Hoolock Gibbon, 94.
Humboldt's Saki Monkey, 43.
Humboldt's Woolly Monkey, 50.

Indris, 30.

Japanese Macaque, 70.

Kandt's Guenon, 79.
King Guereza, 85.
Kivu Gorilla, 105, 119.
Kolb's Guenon, 79.

Lesser Dwarf Lemur, 20.
Lion Marmoset, 38.
Lion-tailed Macaque, 71.

Madras Langur, 90.

Malabar Langur, 90.
Mandrill, 60.
Mantled Howler Monkey, 57.
Marmosets, 34, 35.
Mitred or Capped Langur, 92.
Moholi's Galago, 11.
Moloch Titi, 40.
Mona Guenon, 80.
Mongoose Lemur, 27.
Monteiro's Galago, 11.
Moor Macaque, 69.
Moustached Tamarin, 38.

Negro Tamarin, 36.
Nilgiri Langur, 92.
Nisnas Guenon, 80.

Orang-utan, 97.
Ornate Titi, 40.

Patas Guenon, 79.
Pig-tailed Macaque, 70.
Pinché Marmoset, 38.
Proboscis Monkey, 86.
Purple-faced Langur, 90.

Red-backed Saki Monkey, 44.
Red-faced Spider Monkey, 47.
Red-faced Uakari, 46.
Red-footed Douroucouli, 43.
Red Howler Monkey, 56.
Red Titi, 39.
Red Toro Guereza, 86.
Ring-tailed Lemur, 25.
Roloway Monkey, 81.
Round-faced or Formosan Rock Macaque, 72.
Ruffed Lemur, 26.
Rufous Stump-tailed Monkey, 69.

Samango Guenon, 79.
Samat's Fat-tailed Lemur, 22.
Schmidt's White-nosed Guenon, 82.
Schweinfurth's Chimpanzee, 104.
Siamang Gibbon, 96.
Silky Marmoset, 35.
Slender Loris, 13.
Slow Loris, 13.
Snub-nosed Monkey, 87.
Sooty Mangabey, 75.
Squirrel Monkey, 41.
Stairs' Guenon, 79.
Sykes' Guenon, 78.

Tantalus Guenon, 78.
Tarsier, 7.
Thomas's Fat-tailed Lemur, 22.
Three-banded Douroucouli, 43.
Toque Macaque, 74.

Variegated Spider Monkey, 48.
Verreaux's Sifaka, 30.
Vervet Guenon, 77.

Weasel Lemur, 22.
Weeper Capuchin, 52.
White-collared Mangabey, 75.
White-collared Titi, 39.
White-crowned Mangabey, 75.
White-fronted Capuchin, 53.
White-handed Gibbon, 95.
White-nosed Guenon, 81.
White-tailed Guereza, 84.
White-thighed Guereza, 85.
White-throated Capuchin, 54.

Yellow Baboon, 64.

INDEX TO SCIENTIFIC NAMES

Alouatta palliata, 57.
Alouatta seniculus, 56.
Alouatta villosa, 57.
Altililemur medius, 22.
Altililemur thomasi, 22.
Aotes felinus, 43.
Aotes rufipes, 43.
Aotes trivirgatus, 43.
Arctocebus calabarensis, 18.
Ateles ater, 48.
Ateles geoffroyi, 49.
Ateles paniscus, 47.
Ateles variegatus, 48.

Brachyteles arachnoides, 50.

Cacajao calvus, 45.
Cacajao melanocephalus, 45.
Cacajao rubicundus, 46.
Callicebus cupreus, 39.
Callicebus moloch, 40.
Callicebus ornatus, 40.
Callicebus torquatus, 39.
Cebus albifrons, 53.
Cebus apella, 52.
Cebus capucina, 54.
Cebus fatuellus, 52.
Cercocebus albigena, 75.
Cercocebus collaris, 75.
Cercocebus fuliginosus, 75.
Cercocebus torquatus, 75.
Cercopithecus aethiops, 77.
Cercopithecus albogularis, 78.
Cercopithecus ascanius, 82.
Cercopithecus ascanius schmidti, 82.
Cercopithecus diana, 81.
Cercopithecus kandti, 79.
Cercopithecus kolbi, 79.
Cercopithecus leucampyx, 80.
Cercopithecus mona, 80.
Cercopithecus nictitans, 81.
Cercopithecus patas, 79.
Cercopithecus pygerythrus, 77.
Cercopithecus pyrrhonotus, 80.
Cercopithecus roloway, 81.
Cercopithecus sabaeus, 78.
Cercopithecus samango, 79.
Cercopithecus stairsi, 79.
Cercopithecus tantalus, 78.
Chirogaleus major, 19.
Chirogaleus milii, 19.
Chiropotes chiropotes, 44.
Chiropotes satanas, 45.
Colobus abyssinicus, 84.
Colobus badius, 85.
Colobus caudatus, 84.
Colobus polykomos, 85
Colobus tephrosceles, 86.
Colobus vellerosus, 85.
Cynopithecus niger, 66.

Daubentonia madagascariensis, 2.

Galago alleni, 12.
Galago crassicaudatus, 10.
Galago demidoffi, 12.
Galago moholi, 11.
Galago monteiri, 11.
Gorilla berengeri, 105.
Gorilla gorilla, 104.

Hapale argentata, 35.
Hapale chrysoleucos, 35.
Hapale jacchus, 34.
Hapalemur griseus, 23.
Hapalemur simus, 24.
Hylobates hoolock, 94.
Hylobates lar, 95.

Hylobates leuciscus, 96.
Hylobates nasutus, 93.

Indris indris, 30.

Lagothrix humboldtii, 50.
Lemur catta, 25.
Lemur fulvus, 27.
Lemur mongoz, 27.
Lemur ruba, 26.
Lemur variegatus, 26.
Leontocebus rosalia, 38.
Lepidolemur mustelinus, 22.
Lichanotus laniger, 28.
Loris tardigradus, 13.

Macaca andamanensis, 71.
Macaca arctoides, 69.
Macaca cyclopis, 72.
Macaca fuscata, 70.
Macaca irus, 73.
Macaca maurus, 69.
Macaca mulatta, 72.
Macaca nemestrina, 70.
Macaca radiata, 74.
Macaca rufescens, 69.
Macaca silenus, 71.
Macaca sinica, 74.
Macaca sylvana, 68.
Mandrillus leucophaeus, 61.
Mandrillus sphinx, 60.
Microcebus coquereli, 20.
Microcebus furcifer, 21.
Microcebus murinus, 20.
Midas fusticollis, 38.
Midas labiatus, 38.
Midas oedipus, 38.
Midas ursulus, 36.

Nasalis larvatus, 86.
Nycticebus coucang, 13.

Pan calvus, 102.
Pan satyrus, 101.
Pan schweinfurthii, 104.
Papio anubis, 64.
Papio cynocephalus, 64.
Papio hamadryas, 62.
Papio papio, 65.
Papio porcarius, 63.
Perodicticus potto, 16.
Pithecia monachus, 43.
Pithecus aygula, 92.
Pithecus entellus, 88.
Pithecus entellus hypoleucus, 90.
Pithecus entellus schistaceus, 90.
Pithecus johnii, 92.
Pithecus priamus, 90.
Pithecus senex, 90.
Pongo pygmaeus, 97.
Propithecus coronatus, 30.
Propithecus diadema, 29.
Propithecus verreauxi, 30.

Rhinopithecus roxellanae, 87.

Saimiri sciurea, 41.
Symphalangus syndactylus, 96.

Tarsius spectrum, 7.
Theropithecus gelada, 65.
Theropithecus obscurus, 66.