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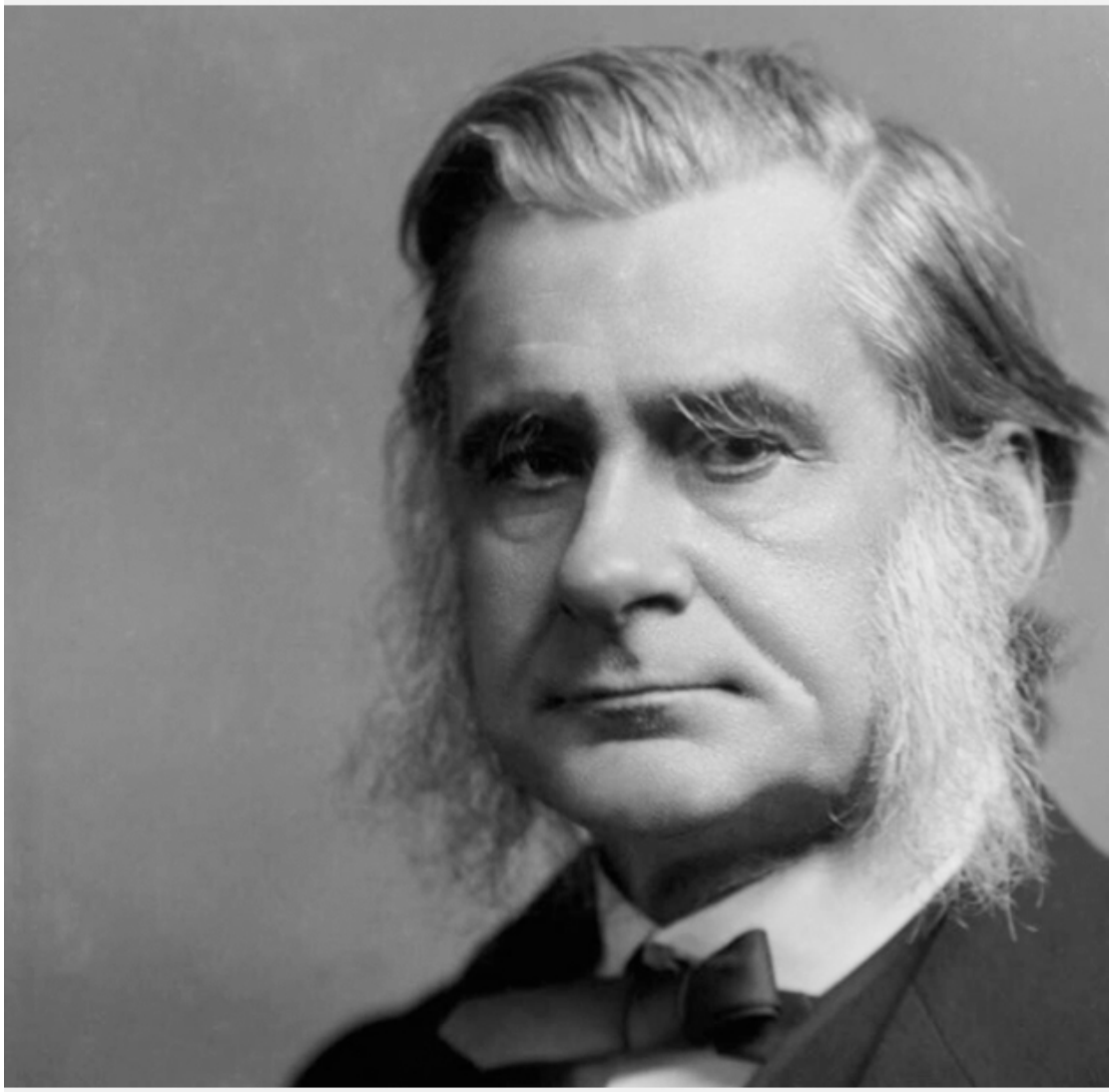

Series Fifteen

The Collected Works of

THOMAS HENRY HUXLEY

(1825-1895)

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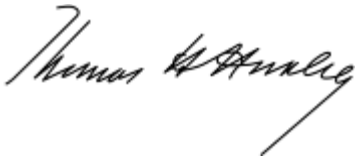

Version 1

The Collected Works of

THOMAS HENRY HUXLEY

By Delphi Classics, 2025

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Collected Works of Thomas Henry Huxley

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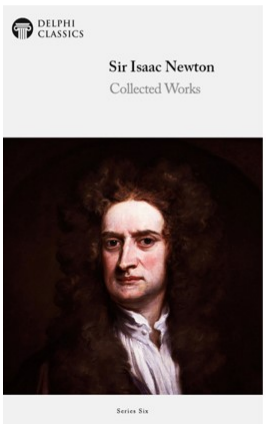

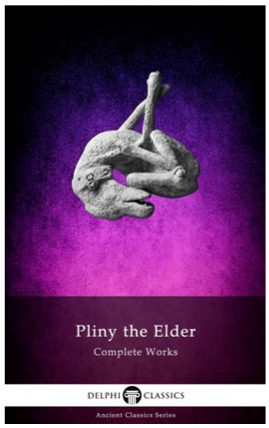

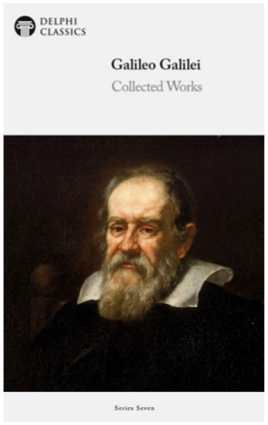

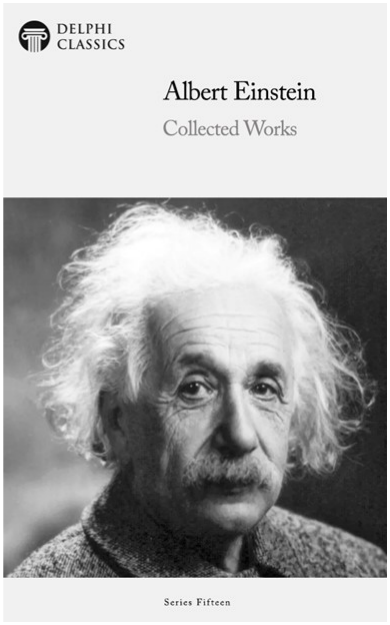

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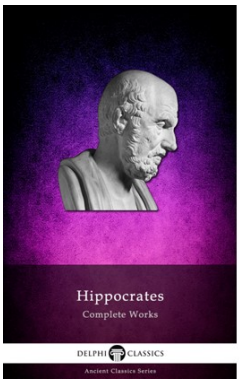
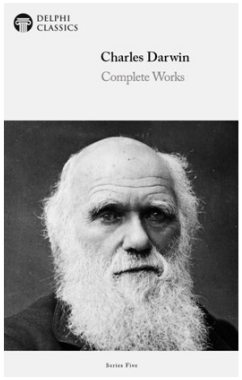
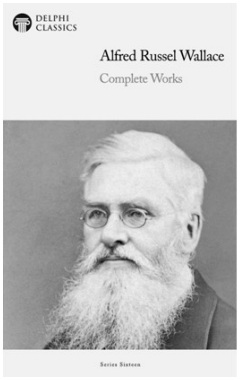
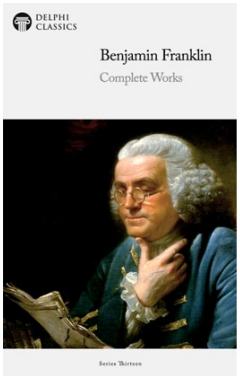
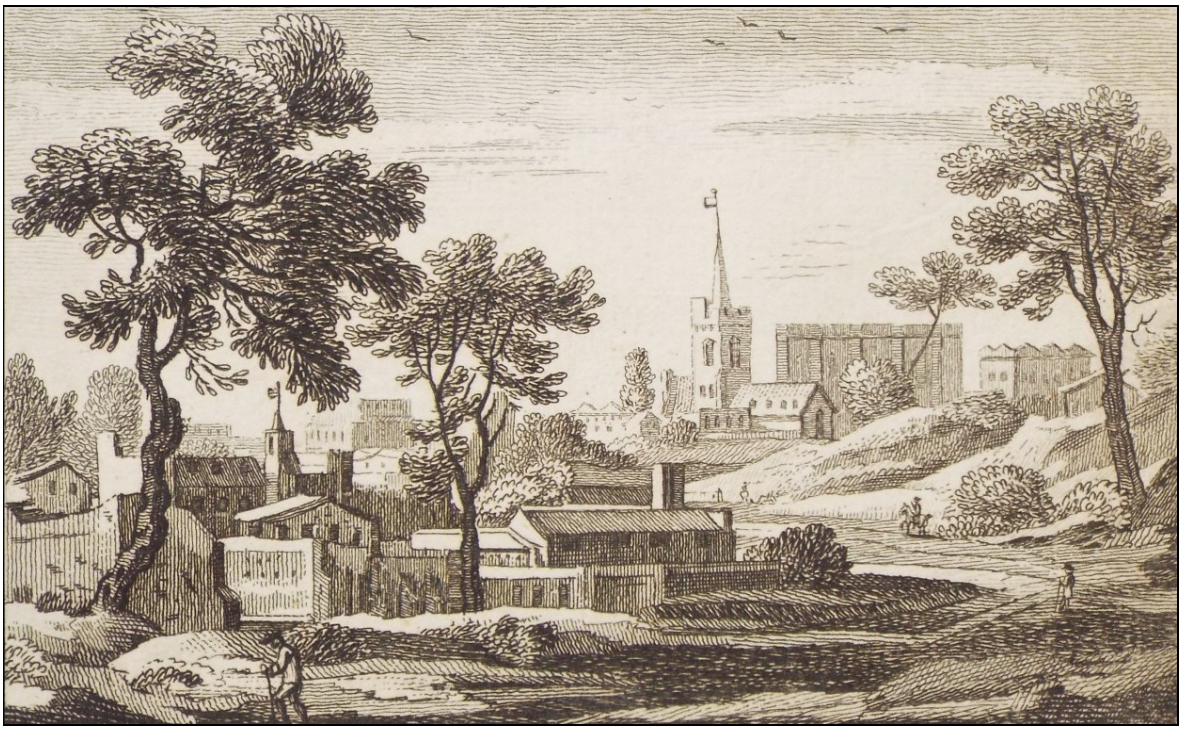








The Books



View of Ealing by Jean Baptiste Claude Chatelain, c. 1750 — in 1825 Thomas Henry Huxley was born in Ealing, then a village in Middlesex, now a district of west London.

Ealing today

Huxley as a young man

Evidence as to Man's Place in Nature (1863)

The great biologist and anthropologist, known colloquially as 'Darwin's Bulldog' for his advocacy of evolution, Thomas Henry Huxley was born the second youngest of eight children of George Huxley and Rachel Withers. His parents were members of the Church of England, but he sympathised with nonconformists. Like other notable scientists of the nineteenth century such as Alfred Russel Wallace, Huxley was brought up in a literate middle-class family that had fallen on hard times. His father was a mathematics schoolmaster at Great Ealing School until it closed, which left the family in financial difficulties. As a result, Thomas left school at the age of ten, after only two years of formal schooling. In spite of this, Huxley was determined to educate himself; he would become one of the great autodidacts of the nineteenth century. At first he read Thomas Carlyle, James Hutton's *Geology* and Hamilton's *Logic*. In his teenage years, he taught himself German, eventually becoming fluent — he was used by Darwin as a translator of scientific material in German. Huxley also learned Latin and enough Greek to read Aristotle in the original.

As a young adult, he made himself an expert in science, first teaching himself about invertebrates and later on vertebrates. He produced many of the illustrations himself for his publications on marine invertebrates. In his later debates and writing on science and religion, his grasp of theology was better than many of his clerical opponents.

At the age of twenty, when he was still too young to apply to the Royal College of Surgeons for a licence to practise, he was deeply in debt and so took a friend's advice to apply for the Royal Navy. Huxley was made Assistant Surgeon ('surgeon's mate', but in practice marine naturalist) to HMS Rattlesnake, then about to set sail on a voyage of discovery and surveying to New Guinea and Australia. The Rattlesnake left England on 3 December 1846 and, once it arrived in the southern hemisphere, Huxley devoted his time to the study of marine invertebrates. He sent many details of his discoveries back to England, where publication was arranged by the learned naturalist Edward Forbes, who had also been a pupil of Knox. Both before and after the voyage Forbes was something of a mentor to Huxley.

After close to nine years service in the Navy, Huxley effectively resigned by refusing to return to active service and in July 1854 he became professor of natural history at the Royal School of Mines and naturalist to the British Geological Survey in the following year.

His first book, *Evidence as to Man's Place in Nature* was published in 1863, providing scientific evidence for the evolution of humans and apes from a common ancestor. It was the first book devoted to the topic of human evolution, analysing a great deal of anatomical evidence. It proposes to a wide readership that evolution applied as fully to man as to all other life. It was printed five years after Charles Darwin and Alfred Russel Wallace announced their theory of evolution by means of natural selection and four years after the publication of Darwin's *Origin of Species*. So far, Darwin had deliberately avoided tackling human evolution, but left a gnomic trailer: "Light will be thrown on the origin of man and his history". Darwin's sequel came eight years later, with *The Descent of Man* and *Selection in Relation to Sex* (1871).

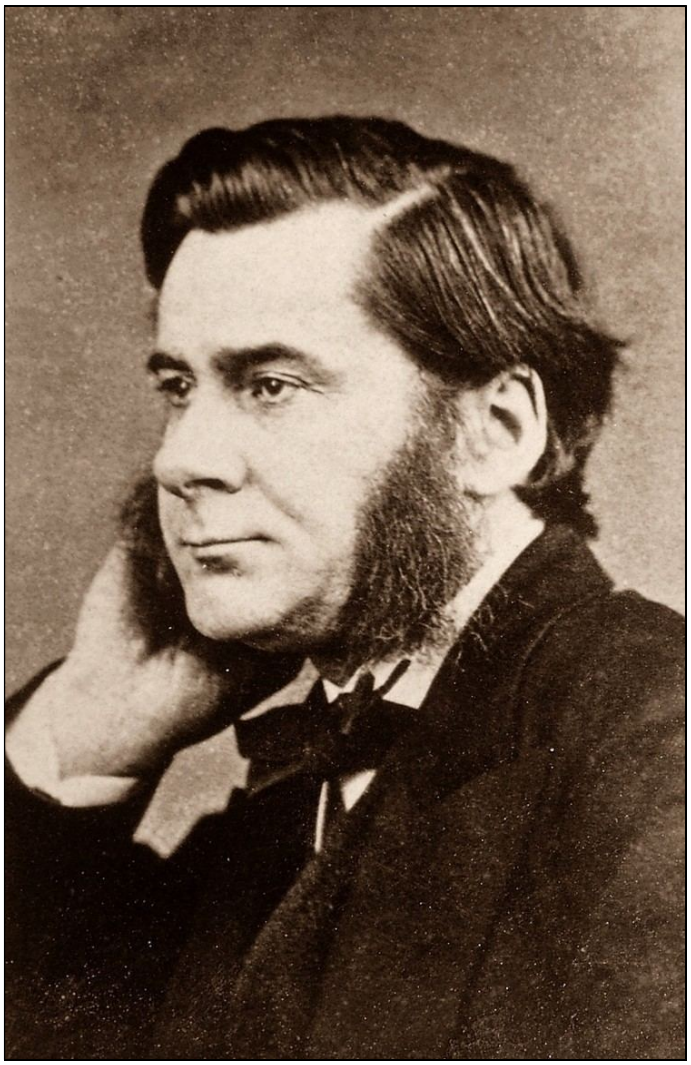
Huxley's *Evidence as to Man's Place in Nature* comprises three chapters. The first is titled "On the Natural History of the Man-like Apes" and provides a summary of

what was known of the great apes at that time. The second chapter, “On the Relations of Man to the Lower Animals” and its addendum, ‘A succinct history of the controversy respecting the cerebral structure of Man and the apes’, contains most of the controversial material, which is still important today. The final chapter, ‘On Some Fossil Remains of Man’, describes how a Neanderthal skull-cap and other bones had been found and various remains of early Homo sapiens. Huxley compares these remains with existing human races.

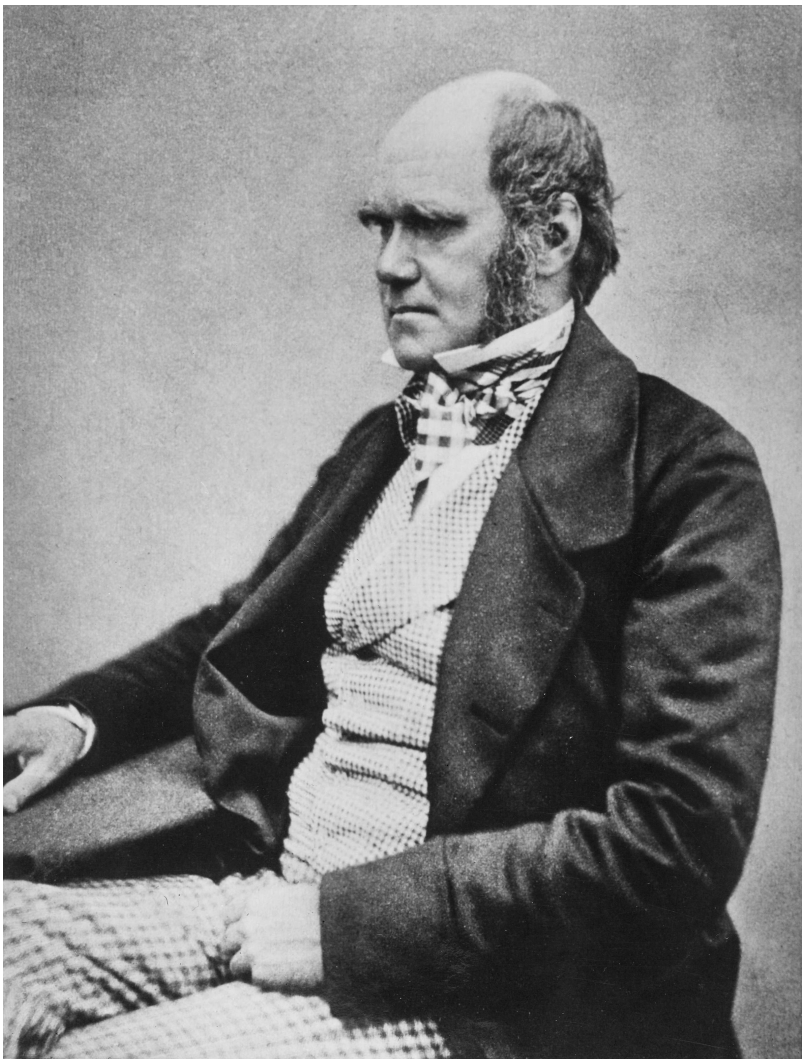
The second chapter contains the basic evidence for man as an animal. After half a dozen preliminary pages, Huxley introduces the study of development: “that every living creature commences its existence under a form different from, and simpler to, that which it eventually attains”. This follows from fertilisation taking place in a single cell. Huxley explains the embryological development of a dog, and its similarities with other vertebrates, before turning to man. “Without question... man’s early stages of development... are far nearer the apes, than apes are to the dog”.

Huxley begins a comparison of the adult anatomy of apes with man, asking, “Is man so different from any of these apes that he must form an order by himself?... It is quite certain that the ape which most nearly approaches man is either the chimpanzee, or the gorilla...” Huxley rejects the idea that man should occupy an order separate from the apes. Therefore, they must be primates.

Huxley’s conclusion argues that man differs from apes at the level of a family, which may be compared with the opinion today that the distinction between the great apes and man is at the level of a subfamily, the *Homininae* or at the level of the tribe, *Hominini* or even at the level of a subtribe: the *Hominina*. The Australopithecines separate man from the great apes, and the genus Homo is almost certainly an offshoot of the early australopithecines, upright apes of the wooded savannah. The general opinion today is that man is more closely related to apes than even Huxley thought.



Huxley, close to the time of publication



Charles Darwin, c. 1854, when he was preparing 'On the Origin of Species'

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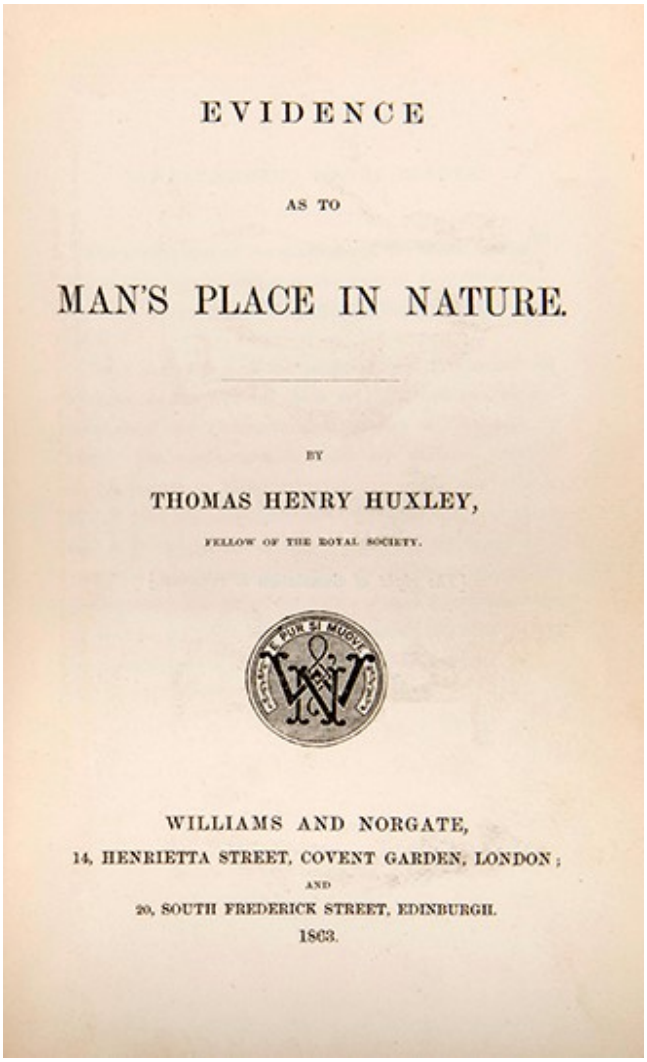


EVIDENCE

AS TO

MAN'S PLACE IN NATURE.

BY

THOMAS HENRY HUXLEY,

FELLOW OF THE ROYAL SOCIETY.

WILLIAMS AND NORGATE,

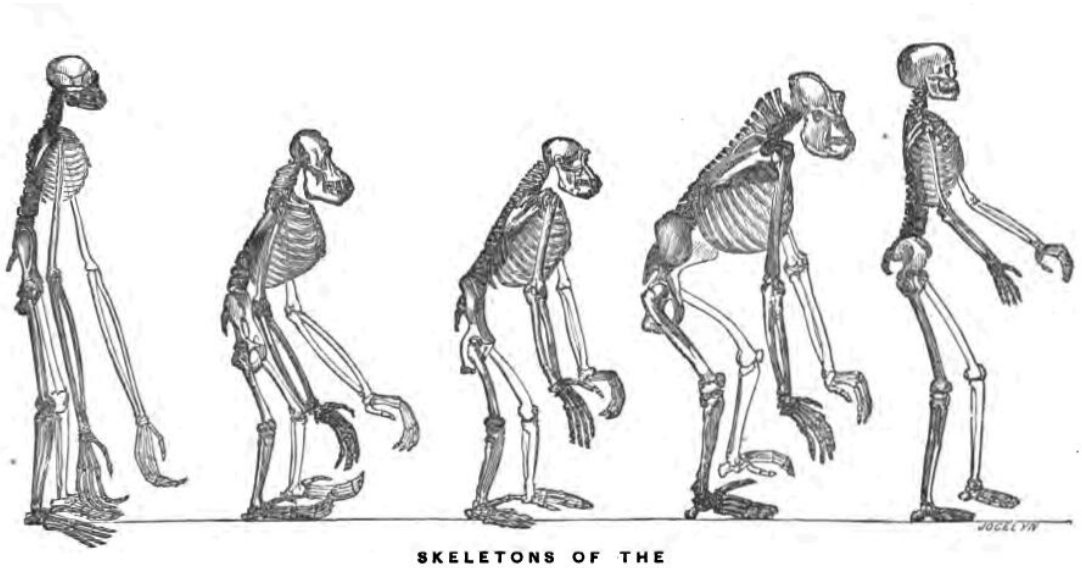
14, HENRIETTA STREET, COVENT GARDEN, LONDON;

AND

20, SOUTH FREDERICK STREET, EDINBURGH.

1863.

The first edition's title page



SKELETONS OF THE

GIBBON. ORANG. CHIMPANZEE. GORILLA. MAN.

Photographically reduced from Diagrams of the natural size (except that of the Gibbon, which was twice as large as nature), drawn by Mr. Waterhouse Hawkins from specimens in the Museum of the Royal College of Surgeons.

The original frontispiece: Skeletons of the Gibbon. Orang. Chimpanzee. Gorilla. Man. 'Photographically reduced from Diagrams of the natural size (except that of the Gibbon, which was twice as large as nature), drawn by Mr. Waterhouse Hawkins from specimens in the Museum of the Royal College of Surgeons.

I. ON THE NATURAL HISTORY OF THE MAN-LIKE APES

ANCIENT TRADITIONS, WHEN tested by the severe processes of modern investigation, commonly enough fade away into mere dreams: but it is singular how often the dream turns out to have been a half-waking one, presaging a reality. Ovid foreshadowed the discoveries of the geologist: the Atlantis was an imagination, but Columbus found a western world: and though the quaint forms of Centaurs and Satyrs have an existence only in the realms of art, creatures approaching man more nearly than they in essential structure, and yet as thoroughly brutal as the goat's or horse's half of the mythical compound, are now not only known, but notorious.

I have not met with any notice of one of these MAN-LIKE APES of earlier date than that contained in Pigafetta's 'Description of the Kingdom of Congo,' [1] drawn up from the notes of a Portuguese sailor, Eduardo Lopez, and published in 1598. The tenth chapter of this work is entitled "De Animalibus quae in hac provincia reperiuntur," and contains a brief passage to the effect that "in the Songan country, on the banks of the Zaire, there are multitudes of apes, which afford great delight to the nobles by imitating human gestures." As this might apply to almost any kind of apes, I should have thought little of it, had not the brothers De Bry, whose engravings illustrate the work, thought fit, in their eleventh 'Argumentum,' to figure two of these "Simiae magnatum deliciae." So much of the plate as contains these apes is faithfully copied in the woodcut (Fig. 1), and it will be observed that they are tail-less, long-armed, and large-eared; and about the size of Chimpanzees.

It may be that these apes are as much figments of the imagination of the ingenious brothers as the winged, two-legged, crocodile-headed dragon which adorns the same plate; or, on the other hand, it may be that the artists have constructed their drawings from some essentially faithful description of a Gorilla or a Chimpanzee. And, in either case, though these figures are worth a passing notice, the oldest trustworthy and definite accounts of any animal of this kind date from the 17th century, and are due to an Englishman.

Fig. 1.—Simiæ magnatum deliciæ.—De Bry, 1598.

The first edition of that most amusing old book, 'Purchas his Pilgrimage,' was published in 1613, and therein are to be found many references to the statements of one whom Purchas terms "Andrew Battell (my neere neighbour, dwelling at Leigh in Essex) who served under Manuel Silvera Perera, Governor under the King of Spaine, at his city of Saint Paul, and with him went farre into the countrey of Angola"; and again, "my friend, Andrew Battle, who lived in the kingdom of Congo many yeares," and who, "upon some quarell betwixt the Portugals (among whom he was a sergeant of a band) and him, lived eight or nine moneths in the woodes." From this weather-beaten old soldier, Purchas was amazed to hear "of a kinde of Great Apes, if they might so bee termed, of the height of a man, but twice as bigge in feature of their limmes, with strength proportionable, hairie all over, otherwise altogether like men and women in their whole bodily shape. [2] They lived on such wilde fruits as the trees and woods yielded, and in the night time lodged on the trees."

This extract is, however, less detailed and clear in its statements than a passage in the third chapter of the second part of another work— 'Purchas his Pilgrimes,' published in 1625, by the same author — which has been often, though hardly ever quite rightly, cited. The chapter is entitled, "The strange adventures of Andrew Battell, of Leigh in Essex, sent by the Portugals prisoner to Angola, who lived there and in the adjoining regions neere eighteene yeeres." And the sixth section of this chapter is headed— "Of the Provinces of Bongo, Calongo, Mayombe, Manikesocke,

Motimbas: of the Ape Monster Pongo, their hunting: Idolatries; and divers other observations."

"This province (Calongo) toward the east bordereth upon Bongo, and toward the north upon Mayombe, which is nineteen leagues from Longo along the coast.

"This province of Mayombe is all woods and groves, so over-growne that a man may travaile twentie days in the shadow without any sunne or heat. Here is no kind of corne nor graine, so that the people liveth onely upon plantanes and roots of sundrie sorts, very good; and nuts; nor any kinde of tame cattell, nor hens.

"But they have great store of elephant's flesh, which they greatly esteeme, and many kinds of wild beasts; and great store of fish. Here is a great sandy bay, two leagues to the northward of Cape Negro, [3] which is the port of Mayombe. Sometimes the Portugals lade logwood in this bay. Here is a great river, called Banna: in the winter it hath no barre, because the generall winds cause a great sea. But when the sunne hath his south declination, then a boat may goe in; for then it is smooth because of the raine. This river is very great, and hath many ilands and people dwelling in them. The woods are so covered with baboones, monkies, apes and parrots, that it will feare any man to travaile in them alone. Here are also two kinds of monsters, which are common in these woods, and very dangerous.

"The greatest of these two monsters is called Pongo in their language, and the lesser is called Engeco. This Pongo is in all proportion like a man; but that he is more like a giant in stature than a man; for he is very tall, and hath a man's face, hollow-eyed, with long haire upon his browes. His face and eares are without haire, and his hands also. His bodie is full of haire, but not very thicke; and it is of a dunnish colour.

"He differeth not from a man but in his legs; for they have no calfe. Hee goeth alwaies upon his legs, and carrieth his hands clasped in the nape of his necke when he goeth upon the ground. They sleepe in the trees, and build shelters for the raine. They feed upon fruit that they find in the woods, and upon nuts, for they eate no kind of flesh. They cannot speake, and have no understanding more than a beast. The people of the countrie, when they travaile in the woods make fires where they sleepe in the night; and in the morning when they are gone, the Pongoes will come and sit about the fire till it goeth out; for they have no understanding to lay the wood together. They goe many together and kill many negroes that travaile in the woods. Many times they fall upon the elephants which come to feed where they be, and so beate them with their clubbed fists, and pieces of wood, that they will runne roaring away from them. Those Pongoes are never taken alive because they are so strong, that ten men cannot hold one of them; but yet they take many of their young ones with poisoned arrowes.

"The young Pongo hangeth on his mother's belly with his hands fast clasped about her, so that when the countrie people kill any of the females they take the young one, which hangeth fast upon his mother.

"When they die among themselves, they cover the dead with great heaps of boughs and wood, which is commonly found in the forest." [4]

It does not appear difficult to identify the exact region of which Battell speaks. Longo is doubtless the name of the place usually spelled Loango on our maps. Mayombe still lies some nineteen leagues northward from Loango, along the coast; and Cilongo or Kilonga, Manikesocke, and Motimbas are yet registered by geographers. The Cape Negro of Battell, however, cannot be the modern Cape Negro in 16 degrees S. since Loango itself is in 4 degrees S. latitude. On the other hand, the "great river called Banna" corresponds very well with the "Camma" and "Fernand Vas," of modern geographers, which form a great delta on this part of the African coast.

Now this “Camma” country is situated about a degree and a-half south of the Equator, while a few miles to the north of the line lies the Gaboon, and a degree or so north of that, the Money River — both well known to modern naturalists as localities where the largest of man-like Apes has been obtained. Moreover, at the present day, the word Engeco, or N’schego, is applied by the natives of these regions to the smaller of the two great Apes which inhabit them; so that there can be no rational doubt that Andrew Battell spoke of that which he knew of his own knowledge, or, at any rate, by immediate report from the natives of Western Africa. The “Engeco,” however, is that “other monster” whose nature Battell “forgot to relate,” while the name “Pongo” — applied to the animal whose characters and habits are so fully and carefully described — seems to have died out, at least in its primitive form and signification. Indeed, there is evidence that not only in Battell’s time, but up to a very recent date, it was used in a totally different sense from that in which he employs it.

For example, the second chapter of Purchas’ work, which I have just quoted, contains “A Description and Historicall Declaration of the Golden Kingdom of Guinea, etc. etc. Translated from the Dutch, and compared also with the Latin,” wherein it is stated (p. 986) that —

“The River Gaboon lyeth about fifteen miles northward from Rio de Angra, and eight miles northward from Cape de Lope Gonsalves (Cape Lopez), and is right under the Equinoctial line, about fifteene miles from St. Thomas, and is a great land, well and easily to be knowne. At the mouth of the river there lieth a sand, three or foure fathoms deepe, whereon it beateth mightily with the streame which runneth out of the river into the sea. This river, in the mouth thereof, is at least four miles broad; but when you are about the Iland called ‘Pongo’, it is not above two miles broad.... On both sides the river there standeth many trees.... The Iland called ‘Pongo’, which hath a monstrous high hill.”

Fig. 2.—The Orang of Tulpius, 1641.

The French naval officers, whose letters are appended to the late M. Isidore Geoff. Saint Hilaire's excellent essay on the Gorilla [5], note in similar terms the width of the Gaboon, the trees that line its banks down to the water's edge, and the strong current that sets out of it. They describe two islands in its estuary; — one low, called Perroquet; the other high, presenting three conical hills, called Coniquet; and one of them, M. Franquet, expressly states that, formerly, the Chief of Coniquet was called 'Meni-Pongo', meaning thereby Lord of 'Pongo'; and that the 'N'Pongues' (as, in agreement with Dr. Savage, he affirms the natives call themselves) term the estuary of the Gaboon itself 'N'Pongo'.

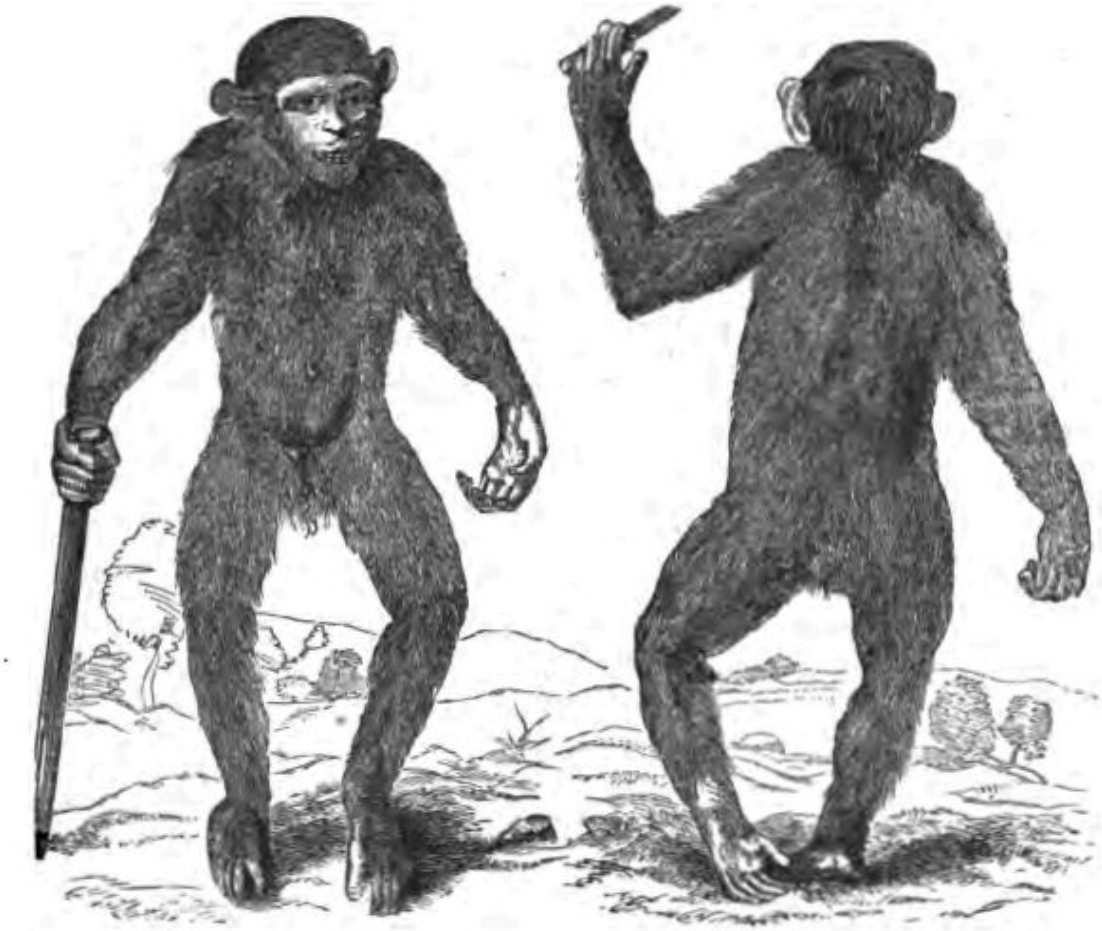
It is so easy, in dealing with savages, to misunderstand their applications of words to things, that one is at first inclined to suspect Battell of having confounded the name of this region, where his "greater monster" still abounds, with the name of the animal itself. But he is so right about other matters (including the name of the "lesser monster") that one is loth to suspect the old traveller of error; and, on the other hand, we shall find that a voyager of a hundred years' later date speaks of the name "Boggoe," as applied to a great Ape, by the inhabitants of quite another part of Africa — Sierra Leone.

But I must leave this question to be settled by philologers and travellers; and I should hardly have dwelt so long upon it except for the curious part played by this word 'Pongo'in the later history of the man-like Apes.

The generation which succeeded Battell saw the first of the man-like Apes which was ever brought to Europe, or, at any rate, whose visit found a historian. In the third book of Tulpius' 'Observationes Medicae', published in 1641, the 56th chapter or section is devoted to what he calls 'Satyrus indicus', "called by the Indians Orang-autang or Man-of-the-Woods, and by the Africans Quoias Morrou." He gives a very good figure, evidently from the life, of the specimen of this animal, "nostra memoria ex Angola delatum," presented to Frederick Henry Prince of Orange. Tulpius says it was as big as a child of three years old, and as stout as one of six years: and that its back was covered with black hair. It is plainly a young Chimpanzee.

In the meanwhile, the existence of other, Asiatic, man-like Apes became known, but at first in a very mythical fashion. Thus Bontius (1658) gives an altogether fabulous and ridiculous account and figure of an animal which he calls "Orang-outang"; and though he says "vidi Ego cujus effigiem hic exhibeo," the said effigies (see Fig. 6 for Hoppius' copy of it) is nothing but a very hairy woman of rather comely aspect, and with proportions and feet wholly human. The judicious English anatomist, Tyson, was justified in saying of this description by Bontius, "I confess I do mistrust the whole representation."

It is to the last mentioned writer, and his coadjutor Cowper, that we owe the first account of a man-like ape which has any pretensions to scientific accuracy and completeness. The treatise entitled, "'Orang-outang, sive Homo Sylvestris'; or the Anatomy of a Pygmie compared with that of a 'Monkey', an 'Ape', and a 'Man'," published by the Royal Society in 1699, is, indeed, a work of remarkable merit, and has, in some respects, served as a model to subsequent inquirers. This "Pygmie," Tyson tells us "was brought from Angola, in Africa; but was first taken a great deal higher up the country"; its hair "was of a coal-black colour and strait," and "when it went as a quadruped on all four, 'twas awkwardly; not placing the palm of the hand flat to the ground, but it walk'd upon its knuckles, as I observed it to do when weak and had not strength enough to support its body."— "From the top of the head to the heel of the foot, in a strait line, it measured twenty-six inches."



Figs. 3 & 4.—The 'Pygmie' reduced from Tyson's figures 1 and 2, 1699.

These characters, even without Tyson's good figures (Figs. 3 and 4), would have been sufficient to prove his "Pygmie" to be a young Chimpanzee. But the opportunity of examining the skeleton of the very animal Tyson anatomised having most unexpectedly presented itself to me, I am able to bear independent testimony to its being a veritable 'Troglodytes niger' [6], though still very young. Although fully appreciating the resemblances between his Pygmie and Man, Tyson by no means overlooked the differences between the two, and he concludes his memoir by summing up first, the points in which "the Ourang-outang or Pygmie more resembled a Man than Apes and Monkeys do," under forty-seven distinct heads; and then giving, in thirty-four similar brief paragraphs, the respects in which "the Ourang-outang or Pygmie differ'd from a Man and resembled more the Ape and Monkey kind."

After a careful survey of the literature of the subject extant in his time, our author arrives at the conclusion that his "Pygmie" is identical neither with the Orangs of Tulpius and Bontius, nor with the Quoias Morrou of Dapper (or rather of Tulpius), the Barris of d'Arcos, nor with the Pongo of Battell; but that it is a species of ape probably identical with the Pygmies of the Ancients, and, says Tyson, though it "does so much resemble a 'Man' in many of its parts, more than any of the ape kind, or any other 'animal' in the world, that I know of: yet by no means do I look upon it as the product of a 'mixt' generation— 'tis a 'Brute-Animal sui generis', and a particular 'species of Ape'."

The name of "Chimpanzee," by which one of the African Apes is now so well known, appears to have come into use in the first half of the eighteenth century, but

the only important addition made, in that period, to our acquaintance with the man-like apes of Africa is contained in ‘A New Voyage to Guinea’, by William Smith, which bears the date 1744.

In describing the animals of Sierra Leone, p. 51, this writer says: —

“I shall next describe a strange sort of animal, called by the white men in this country Mandrill [7], but why it is so called I know not, nor did I ever hear the name before, neither can those who call them so tell, except it be for their near resemblance of a human creature, though nothing at all like an Ape. Their bodies, when full grown, are as big in circumference as a middle-sized man’s — their legs much shorter, and their feet larger; their arms and hands in proportion. The head is monstrously big, and the face broad and flat, without any other hair but the eyebrows; the nose very small, the mouth wide, and the lips thin. The face, which is covered by a white skin, is monstrously ugly, being all over wrinkled as with old age; the teeth broad and yellow; the hands have no more hair than the face, but the same white skin, though all the rest of the body is covered with long black hair, like a bear. They never go upon all fours, like apes; but cry, when vexed or teased, just like children....”

Fig. 5.—Facsimile of William Smith’s figure of the “ Mandrill,” 1744.

“When I was at Sherbro, one Mr. Cummerbus, whom I shall have occasion hereafter to mention, made me a present of one of these strange animals, which are called by the natives Boggoe: it was a she-cub, of six months’ age, but even then larger than a Baboon. I gave it in charge to one of the slaves, who knew how to feed and nurse it, being a very tender sort of animal; but whenever I went off the deck the sailors began to teaze it — some loved to see its tears and hear it cry; others hated its snotty nose; one who hurt it, being checked by the negro that took care of it, told the slave he was very fond of his country-woman, and asked him if he should not like her for a wife? To which the slave very readily replied, ‘No, this no my wife; this a white

woman — this fit wife for you.' This unlucky wit of the negro's, I fancy, hastened its death, for next morning it was found dead under the windlass."

William Smith's 'Mandrill,' or 'Boggoe,' as his description and figure testify, was, without doubt, a Chimpanzee.

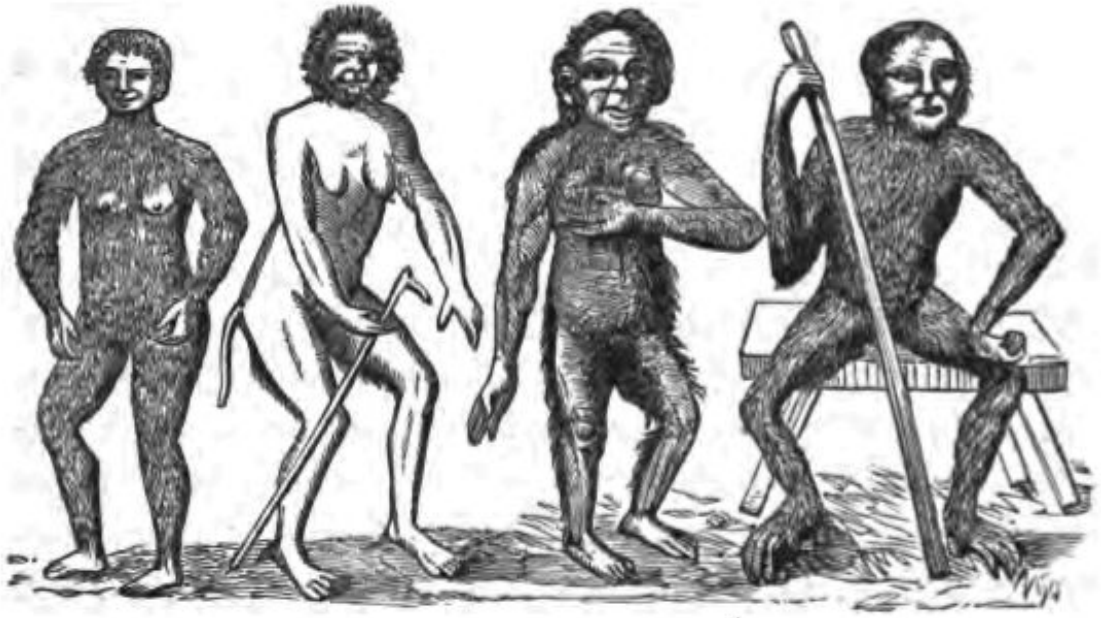


Fig. 6.—The Anthropomorpha of Linnæus.

Linnaeus knew nothing, of his own observation, of the man-like Apes of either Africa or Asia, but a dissertation by his pupil Hoppius in the 'Amoenitates Academicae' (VI. 'Anthropomorpha') may be regarded as embodying his views respecting these animals.

The dissertation is illustrated by a plate, of which the accompanying woodcut, Fig, 6, is a reduced copy, The figures are entitled (from left to right) 1. 'Troglodyta Bontii'; 2. 'Lucifer Aldrovandi'; 3. 'Satyrus Tulpii'; 4. 'Pygmaeus Edwardi'. The first is a bad copy of Bontius' fictitious 'Ourang-outang,' in whose existence, however, Linnaeus appears to have fully believed; for in the standard edition of the 'Systema Naturae', it is enumerated as a second species of Homo; "H. nocturnus." 'Lucifer Aldrovandi' is a copy of a figure in Aldrovandus, 'De Quadrupedibus digitatis viviparis', Lib. 2, p. 249 (1645), entitled "Cercopithecus formae rarae 'Barbilius' vocatus et originem a china ducebat." Hoppius is of opinion that this may be one of that cat-tailed people, of whom Nicolaus Koping affirms that they eat a boat's crew, "gubernator navis" and all! In the 'Systema Naturae' Linnaeus calls it in a note, 'Homo caudatus', and seems inclined to regard it as a third species of man. According to Temminck, 'Satyrus Tulpii' is a copy of the figure of a Chimpanzee published by Scotin in 1738, which I have not seen. It is the 'Satyrus indicus' of the 'Systema Naturae', and is regarded by Linnaeus as possibly a distinct species from 'Satyrus sylvestris'. The last, named 'Pygmaeus Edwardi', is copied from the figure of a young "Man of the Woods," or true Orang-Utan, given in Edwards' 'Gleanings of Natural History' (1758).

Buffon was more fortunate than his great rival. Not only had he the rare opportunity of examining a young Chimpanzee in the living state, but he became

possessed of an adult Asiatic man-like Ape — the first and the last adult specimen of any of these animals brought to Europe for many years. With the valuable assistance of Daubenton, Buffon gave an excellent description of this creature, which, from its singular proportions, he termed the long-armed Ape, or Gibbon. It is the modern 'Hylobates lar'.

Thus when, in 1766, Buffon wrote the fourteenth volume of his great work, he was personally familiar with the young of one kind of African man-like Ape, and with the adult of an Asiatic species — while the Orang-Utan and the Mandrill of Smith were known to him by report. Furthermore, the Abbe Prevost had translated a good deal of Purchas' Pilgrims into French, in his 'Histoire generale des Voyages' (1748), and there Buffon found a version of Andrew Battell's account of the Pongo and the Engeco. All these data Buffon attempts to weld together into harmony in his chapter entitled "Les Orang-outangs ou le Pongo et le Jocko." To this title the following note is appended: —

"Orang-outang nom de cet animal aux Indes orientales: Pongo nom de cet animal a Lowando Province de Congo.

"Jocko, Enjocko, nom de cet animal a Congo que nous avons adopte. 'En' est l'article que nous avons retranche."

Thus it was that Andrew Battell's "Engeco" became metamorphosed into "Jocko," and, in the latter shape, was spread all over the world, in consequence of the extensive popularity of Buffon's works. The Abbe Prevost and Buffon between them, however, did a good deal more disfigurement to Battell's sober account than 'cutting off an article.' Thus Battell's statement that the Pongos "cannot speake, and have no understanding more than a beast," is rendered by Buffon "qu'il ne peut parler 'quoiqu'il ait plus d'entendement que les autres animaux'"; and again, Purchas' affirmation, "He told me in conference with him, that one of these Pongos tooke a negro boy of his which lived a moneth with them," stands in the French version, "un pongo lui enleva un petit negre qui passa un 'an' entier dans la societe de ces animaux."

After quoting the account of the great Pongo, Buffon justly remarks, that all the 'Jockos' and 'Orangs' hitherto brought to Europe were young; and he suggests that, in their adult condition, they might be as big as the Pongo or 'great Orang'; so that, provisionally, he regarded the Jockos, Orangs, and Pongos as all of one species. And perhaps this was as much as the state of knowledge at the time warranted. But how it came about that Buffon failed to perceive the similarity of Smith's 'Mandrill' to his own 'Jocko,' and confounded the former with so totally different a creature as the blue-faced Baboon, is not so easily intelligible.

Twenty years later Buffon changed his opinion, [8] and expressed his belief that the Orangs constituted a genus with two species, — a large one, the Pongo of Battell, and a small one, the Jocko: that the small one (Jocko) is the East Indian Orang; and that the young animals from Africa, observed by himself and Tulpius, are simply young Pongos.

In the meanwhile, the Dutch naturalist, Vosmaer, gave, in 1778, a very good account and figure of a young Orang, brought alive to Holland, and his countryman, the famous anatomist, Peter Camper, published (1779) an essay on the Orang-Utan of similar value to that of Tyson on the Chimpanzee. He dissected several females and a male, all of which, from the state of their skeleton and their dentition, he justly supposes to have been young. However, judging by the analogy of man, he concludes that they could not have exceeded four feet in height in the adult condition.

Furthermore, he is very clear as to the specific distinctness of the true East Indian Orang.

"The Orang," says he, "differs not only from the Pigmy of Tyson and from the Orang of Tulpius by its peculiar colour and its long toes, but also by its whole external form. Its arms, its hands, and its feet are longer, while the thumbs, on the contrary, are much shorter, and the great toes much smaller in proportion." [9] And again, "The true Orang, that is to say, that of Asia, that of Borneo, is consequently not the Pithecus, or tailless Ape, which the Greeks, and especially Galen, have described. It is neither the Pongo nor the Jocko, nor the Orang of Tulpius, nor the Pigmy of Tyson,— 'it is an animal of a peculiar species', as I shall prove in the clearest manner by the organs of voice and the skeleton in the following chapters" (l. c. p. 64).

A few years later, M. Radermacher, who held a high office in the Government of the Dutch dominions in India, and was an active member of the Batavian Society of Arts and Sciences, published, in the second part of the Transactions of that Society, [10] a Description of the Island of Borneo, which was written between the years 1779 and 1781, and, among much other interesting matter, contains some notes upon the Orang. The small sort of Orang-Utan, viz. that of Vosmaer and of Edwards, he says, is found only in Borneo, and chiefly about Banjermassing, Mampauwa, and Landak. Of these he had seen some fifty during his residence in the Indies; but none exceeded 2 1/2 feet in length. The larger sort, often regarded as a chimaera, continues Radermacher, would perhaps long have remained so, had it not been for the exertions of the Resident at Rembang, M. Palm, who, on returning from Landak towards Pontiana, shot one, and forwarded it to Batavia in spirit, for transmission to Europe.

Palm's letter describing the capture runs thus:— "Herewith I send your Excellency, contrary to all expectation (since long ago I offered more than a hundred ducats to the natives for an Orang-Utan of four or five feet high) an Orang which I heard of this morning about eight o'clock. For a long time we did our best to take the frightful beast alive in the dense forest about half way to Landak. We forgot even to eat, so anxious were we not to let him escape; but it was necessary to take care that he did not revenge himself, as he kept continually breaking off heavy pieces of wood and green branches, and dashing them at us. This game lasted till four o'clock in the afternoon, when we determined to shoot him; in which I succeeded very well, and indeed better than I ever shot from a boat before; for the bullet went just into the side of his chest, so that he was not much damaged. We got him into the prow still living, and bound him fast, and next morning he died of his wounds. All Pontiana came on board to see him when we arrived." Palm gives his height from the head to the heel as 49 inches.

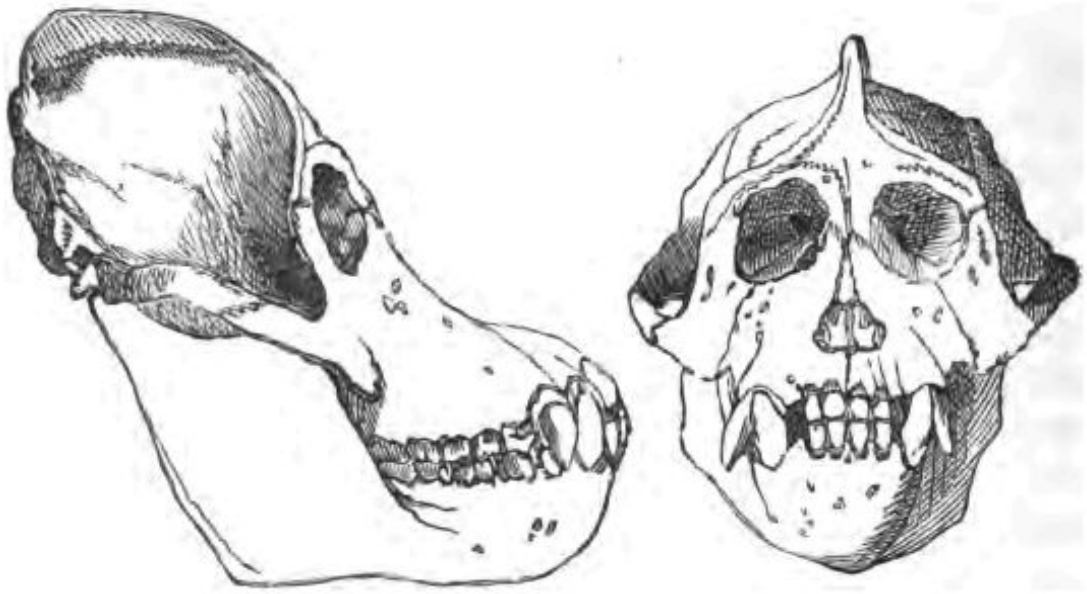


Fig. 7.—The Pongo Skull, sent by Radermacher to Camper, after Camper's original sketches, as reproduced by Lucæ.

A very intelligent German officer, Baron Von Wurmb, who at this time held a post in the Dutch East India service, and was Secretary of the Batavian Society, studied this animal, and his careful description of it, entitled "Beschrijving van der Groote Borneosche Orang-outang of de Oost-Indische Pongo," is contained in the same volume of the Batavian Society's Transactions. After Von Wurmb had drawn up his description he states, in a letter dated Batavia, Feb. 18, 1781, [11] that the specimen was sent to Europe in brandy to be placed in the collection of the Prince of Orange; "unfortunately," he continues, "we hear that the ship has been wrecked." Von Wurmb died in the course of the year 1781, the letter in which this passage occurs being the last he wrote; but in his posthumous papers, published in the fourth part of the Transactions of the Batavian Society, there is a brief description, with measurements, of a female Pongo four feet high.

Did either of these original specimens, on which Von Wurmb's descriptions are based, ever reach Europe? It is commonly supposed that they did; but I doubt the fact. For, appended to the memoir 'De l'Ourang-outang,' in the collected edition of Camper's works, tome i. pp. 64-66, is a note by Camper himself, referring to Von Wurmb's papers, and continuing thus:— "Heretofore, this kind of ape had never been known in Europe. Radermacher has had the kindness to send me the skull of one of these animals, which measured fifty-three inches, or four feet five inches, in height. I have sent some sketches of it to M. Soemmering at Mayence, which are better calculated, however, to give an idea of the form than of the real size of the parts."

These sketches have been reproduced by Fischer and by Lucae, and bear date 1783, Soemmering having received them in 1784. Had either of Von Wurmb's specimens reached Holland, they would hardly have been unknown at this time to Camper, who, however, goes on to say— "It appears that since this, some more of these monsters have been captured, for an entire skeleton, very badly set up, which had been sent to the Museum of the Prince of Orange, and which I saw only on the 27th of June, 1784, was more than four feet high. I examined this skeleton again on the 19th December, 1785, after it had been excellently put to rights by the ingenious Onymus."

It appears evident, then, that this skeleton, which is doubtless that which has always gone by the name of Wurmb's Pongo, is not that of the animal described by him, though unquestionably similar in all essential points.

Camper proceeds to note some of the most important features of this skeleton; promises to describe it in detail by-and-bye; and is evidently in doubt as to the relation of this great 'Pongo' to his "petit Orang."

The promised further investigations were never carried out; and so it happened that the Pongo of Von Wurmb took its place by the side of the Chimpanzee, Gibbon, and Orang as a fourth and colossal species of man-like Ape. And indeed nothing could look much less like the Chimpanzees or the Orangs, then known, than the Pongo; for all the specimens of Chimpanzee and Orang which had been observed were small of stature, singularly human in aspect, gentle and docile; while Wurmb's Pongo was a monster almost twice their size, of vast strength and fierceness, and very brutal in expression; its great projecting muzzle, armed with strong teeth, being further disfigured by the outgrowth of the cheeks into fleshy lobes.

Eventually, in accordance with the usual marauding habits of the Revolutionary armies, the 'Pongo' skeleton was carried away from Holland into France, and notices of it, expressly intended to demonstrate its entire distinctness from the Orang and its affinity with the baboons, were given, in 1798, by Geoffroy St. Hilaire and Cuvier.

Even in Cuvier's 'Tableau Elementaire', and in the first edition of his great work, the 'Regne Animal', the 'Pongo' is classed as a species of Baboon. However, so early as 1818, it appears that Cuvier saw reason to alter this opinion, and to adopt the view suggested several years before by Blumenbach, [12] and after him by Tilesius, that the Bornean Pongo is simply an adult Orang. In 1824, Rudolphi demonstrated, by the condition of the dentition, more fully and completely than had been done by his predecessors, that the Orangs described up to that time were all young animals, and that the skull and teeth of the adult would probably be such as those seen in the Pongo of Wurmb. In the second edition of the 'Regne Animal' (1829), Cuvier infers, from the 'proportions of all the parts' and 'the arrangements of the foramina and sutures of the head,' that the Pongo is the adult of the Orang-Utan, 'at least of a very closely allied species,' and this conclusion was eventually placed beyond all doubt by Professor Owen's Memoir published in the 'Zoological Transactions' for 1835, and by Temminck in his 'Monographies de Mammalogie'. Temminck's memoir is remarkable for the completeness of the evidence which it affords as to the modification which the form of the Orang undergoes according to age and sex. Tiedemann first published an account of the brain of the young Orang, while Sandifort, Muller and Schlegel, described the muscles and the viscera of the adult, and gave the earliest detailed and trustworthy history of the habits of the great Indian Ape in a state of nature; and as important additions have been made by later observers, we are at this moment better acquainted with the adult of the Orang-Utan, than with that of any of the other greater man-like Apes.

It is certainly the Pongo of Wurmb; [13] and it is as certainly not the Pongo of Battell, seeing that the Orang-Utan is entirely confined to the great Asiatic islands of Borneo and Sumatra.

And while the progress of discovery thus cleared up the history of the Orang, it also became established that the only other man-like Apes in the eastern world were the various species of Gibbon — Apes of smaller stature, and therefore attracting less attention than the Orangs, though they are spread over a much wider range of country, and are hence more accessible to observation.

Although the geographical area inhabited by the ‘Pongo’ and Engeco of Battell is so much nearer to Europe than that in which the Orang and Gibbon are found, our acquaintance with the African Apes has been of slower growth; indeed, it is only within the last few years that the truthful story of the old English adventurer has been rendered fully intelligible. It was not until 1835 that the skeleton of the adult Chimpanzee became known, by the publication of Professor Owen’s above-mentioned very excellent memoir ‘On the osteology of the Chimpanzee and Orang’, in the ‘Zoological Transactions’ — a memoir which, by the accuracy of its descriptions, the carefulness of its comparisons, and the excellence of its figures, made an epoch in the history of our knowledge of the bony framework, not only of the Chimpanzee, but of all the anthropoid Apes.

By the investigations herein detailed, it became evident that the old Chimpanzee acquired a size and aspect as different from those of the young known to Tyson, to Buffon, and to Traill, as those of the old Orang from the young Orang; and the subsequent very important researches of Messrs. Savage and Wyman, the American missionary and anatomist, have not only confirmed this conclusion, but have added many new details. [14]

One of the most interesting among the many valuable discoveries made by Dr. Thomas Savage is the fact, that the natives in the Gaboon country at the present day, apply to the Chimpanzee a name— “Enche-eko” — which is obviously identical with the “Engeko” of Battell; a discovery which has been confirmed by all later inquirers. Battell’s “lesser monster” being thus proved to be a veritable existence, of course a strong presumption arose that his “greater monster,” the ‘Pongo,’ would sooner or later be discovered. And, indeed, a modern traveller, Bowdich, had, in 1819, found strong evidence, among the natives, of the existence of a second great Ape, called the ‘Ingena,’ “five feet high, and four across the shoulders,” the builder of a rude house, on the outside of which it slept.

In 1847, Dr. Savage had the good fortune to make another and most important addition to our knowledge of the man-like Apes; for, being unexpectedly detained at the Gaboon river, he saw in the house of the Rev. Mr. Wilson, a missionary resident there, “a skull represented by the natives to be a monkey-like animal, remarkable for its size, ferocity, and habits.” From the contour of the skull, and the information derived from several intelligent natives, “I was induced,” says Dr. Savage (using the term Orang in its old general sense) “to believe that it belonged to a new species of Orang. I expressed this opinion to Mr. Wilson, with a desire for further investigation; and, if possible, to decide the point by the inspection of a specimen alive or dead.” The result of the combined exertions of Messrs. Savage and Wilson was not only the obtaining of a very full account of the habits of this new creature, but a still more important service to science, the enabling the excellent American anatomist already mentioned, Professor Wyman, to describe, from ample materials, the distinctive osteological characters of the new form. This animal was called by the natives of the Gaboon “Enge-ena,” a name obviously identical with the “Ingena” of Bowdich; and Dr. Savage arrived at the conviction that this last discovered of all the great Apes was the long-sought “Pongo” of Battell.

The justice of this conclusion, indeed, is beyond doubt — for not only does the ‘Enge-ena’ agree with Battell’s “greater monster” in its hollow eyes, its great stature, and its dun or iron-grey colour, but the only other man-like Ape which inhabits these latitudes — the Chimpanzee — is at once identified, by its smaller size, as the “lesser monster,” and is excluded from any possibility of being the ‘Pongo,’ by the fact that it

is black and not dun, to say nothing of the important circumstance already mentioned that it still retains the name of 'Engeko,' or "Enche-eko," by which Battell knew it.

In seeking for a specific name for the "Enge-ena," however, Dr. Savage wisely avoided the much misused 'Pongo'; but finding in the ancient Periplus of Hanno the word "Gorilla" applied to certain hairy savage people, discovered by the Carthaginian voyager in an island on the African coast, he attached the specific name "Gorilla" to his new ape, whence arises its present well-known appellation. But Dr. Savage, more cautious than some of his successors, by no means identifies his ape with Hanno's "wild men." He merely says that the latter were "probably one of the species of the Orang;" and I quite agree with M. Brulle, that there is no ground for identifying the modern 'Gorilla' with that of the Carthaginian admiral.

Since the memoir of Savage and Wyman was published, the skeleton of the Gorilla has been investigated by Professor Owen and by the late Professor Duvernoy, of the Jardin des Plantes, the latter having further supplied a valuable account of the muscular system and of many of the other soft parts; while African missionaries and travellers have confirmed and expanded the account originally given of the habits of this great man-like Ape, which has had the singular fortune of being the first to be made known to the general world and the last to be scientifically investigated.

Two centuries and a half have passed away since Battell told his stories about the 'greater' and the 'lesser monsters' to Purchas, and it has taken nearly that time to arrive at the clear result that there are four distinct kinds of Anthropoids — in Eastern Asia, the Gibbons and the Orangs; in Western Africa, the Chimpanzees and the Gorilla.

The man-like Apes, the history of whose discovery has just been detailed, have certain characters of structure and of distribution in common. Thus they all have the same number of teeth as man — possessing four incisors, two canines, four false molars, and six true molars in each jaw, or 32 teeth in all, in the adult condition; while the milk dentition consists of 20 teeth — or four incisors, two canines, and four molars in each jaw. They are what are called catarrhine Apes — that is, their nostrils have a narrow partition and look downwards; and, furthermore, their arms are always longer than their legs, the difference being sometimes greater and sometimes less; so that if the four were arranged in the order of the length of their arms in proportion to that of their legs, we should have this series — Orang (1 4/9:1), Gibbon (1 1/4:1), Gorilla (1 1/5:1), Chimpanzee (1 1/16:1). In all, the fore limbs are terminated by hands, provided with longer or shorter thumbs; while the great toe of the foot, always smaller than in Man, is far more movable than in him and can be opposed, like a thumb, to the rest of the foot. None of these apes have tails, and none of them possess the cheek pouches common among monkeys. Finally, they are all inhabitants of the old world.

The Gibbons are the smallest, slenderest, and longest-limbed of the man-like apes: their arms are longer in proportion to their bodies than those of any of the other man-like Apes, so that they can touch the ground when erect; their hands are longer than their feet, and they are the only Anthropoids which possess callosities like the lower monkeys. They are variously coloured. The Orangs have arms which reach to the ankles in the erect position of the animal; their thumbs and great toes are very short, and their feet are longer than their hands. They are covered with reddish brown hair, and the sides of the face, in adult males, are commonly produced into two crescentic, flexible excrescences, like fatty tumours. The Chimpanzees have arms which reach below the knees; they have large thumbs and great toes, their hands are longer than their feet; and their hair is black, while the skin of the face is pale. The Gorilla, lastly,

has arms which reach to the middle of the leg, large thumbs and great toes, feet longer than the hands, a black face, and dark-grey or dun hair.

For the purpose which I have at present in view, it is unnecessary that I should enter into any further minutiae respecting the distinctive characters of the genera and species into which these man-like Apes are divided by naturalists. Suffice it to say, that the Orangs and the Gibbons constitute the distinct genera, 'Simia' and 'Hylobates'; while the Chimpanzees and Gorillas are by some regarded simply as distinct species of one genus, 'Troglodytes'; by others as distinct genera—'Troglodytes' being reserved for the Chimpanzees, and 'Gorilla' for the Enge-ena or Pongo.

Sound knowledge respecting the habits and mode of life of the man-like Apes has been even more difficult of attainment than correct information regarding their structure.

Once in a generation, a Wallace may be found physically, mentally, and morally qualified to wander unscathed through the tropical wilds of America and of Asia; to form magnificent collections as he wanders; and withal to think out sagaciously the conclusions suggested by his collections: but, to the ordinary explorer or collector, the dense forests of equatorial Asia and Africa, which constitute the favourite habitation of the Orang, the Chimpanzee, and the Gorilla, present difficulties of no ordinary magnitude: and the man who risks his life by even a short visit to the malarious shores of those regions may well be excused if he shrinks from facing the dangers of the interior; if he contents himself with stimulating the industry of the better seasoned natives, and collecting and collating the more or less mythical reports and traditions with which they are too ready to supply him.

In such a manner most of the earlier accounts of the habits of the man-like Apes originated; and even now a good deal of what passes current must be admitted to have no very safe foundation. The best information we possess is that, based almost wholly on direct European testimony respecting the Gibbons; the next best evidence relates to the Orangs; while our knowledge of the habits of the Chimpanzee and the Gorilla stands much in need of support and enlargement by additional testimony from instructed European eye-witnesses.

It will therefore be convenient in endeavouring to form a notion of what we are justified in believing about these animals, to commence with the best known man-like Apes, the Gibbons and Orangs; and to make use of the perfectly reliable information respecting them as a sort of criterion of the probable truth or falsehood of assertions respecting the others.

Of the GIBBONS, half a dozen species are found scattered over the Asiatic islands, Java, Sumatra, Borneo, and through Malacca, Siam, Arracan, and an uncertain extent of Hindostan, on the main land of Asia. The largest attain a few inches above three feet in height, from the crown to the heel, so that they are shorter than the other man-like Apes; while the slenderness of their bodies renders their mass far smaller in proportion even to this diminished height.

Dr. Salomon Muller, an accomplished Dutch naturalist, who lived for many years in the Eastern Archipelago, and to the results of whose personal experience I shall frequently have occasion to refer, states that the Gibbons are true mountaineers, loving the slopes and edges of the hills, though they rarely ascend beyond the limit of the fig-trees. All day long they haunt the tops of the tall trees; and though, towards evening, they descend in small troops to the open ground, no sooner do they spy a man than they dart up the hill-sides, and disappear in the darker valleys.

All observers testify to the prodigious volume of voice possessed by these animals. According to the writer whom I have just cited, in one of them, the Siamang, "the voice is grave and penetrating, resembling the sounds goek, goek, goek, goek, goek ha ha ha ha haaaaa, and may easily be heard at a distance of half a league." While the cry is being uttered, the great membranous bag under the throat which communicates with the organ of voice, the so-called "laryngeal sac," becomes greatly distended, diminishing again when the creature relapses into silence.

M. Duvaucel, likewise, affirms that the cry of the Siamang may be heard for miles — making the woods ring again. So Mr. Martin [15] describes the cry of the agile Gibbon as "overpowering and deafening" in a room, and "from its strength, well calculated for resounding through the vast forests." Mr. Waterhouse, an accomplished musician as well as zoologist, says, "The Gibbon's voice is certainly much more powerful than that of any singer I have ever heard." And yet it is to be recollected that this animal is not half the height of, and far less bulky in proportion than, a man.

There is good testimony that various species of Gibbon readily take to the erect posture. Mr. George Bennett, [16] a very excellent observer, in describing the habits of a male 'Hylobates syndactylus' which remained for some time in his possession, says: "He invariably walks in the erect posture when on a level surface; and then the arms either hang down, enabling him to assist himself with his knuckles; or what is more usual, he keeps his arms uplifted in nearly an erect position, with the hands pendent ready to seize a rope, and climb up on the approach of danger or on the obtrusion of strangers. He walks rather quick in the erect posture, but with a waddling gait, and is soon run down if, whilst pursued, he has no opportunity of escaping by climbing.... When he walks in the erect posture he turns the leg and foot outwards, which occasions him to have a waddling gait and to seem bow-legged."

Dr. Burrough states of another Gibbon, the Horlack or Hooluk: "They walk erect; and when placed on the floor, or in an open field, balance themselves very prettily, by raising their hands over their head and slightly bending the arm at the wrist and elbow, and then run tolerably fast, rocking from side to side; and, if urged to greater speed, they let fall their hands to the ground, and assist themselves forward, rather jumping than running, still keeping the body, however, nearly erect."

Somewhat different evidence, however, is given by Dr. Winslow Lewis: [17]

"Their only manner of walking was on their posterior or inferior extremities, the others being raised upwards to preserve their equilibrium, as rope-dancers are assisted by long poles at fairs. Their progression was not by placing one foot before the other, but by simultaneously using both, as in jumping." Dr. Salomon Muller also states that the Gibbons progress along the ground by a short series of tottering jumps, effected only by the hind limbs, the body being held altogether upright.

But Mr. Martin (l. c. p. 418), who also speaks from direct observation, says of the Gibbons generally:

"Pre-eminently qualified for arboreal habits, and displaying among the branches amazing activity, the Gibbons are not so awkward or embarrassed on a level surface as might be imagined. They walk erect, with a waddling or unsteady gait, but at a quick pace; the equilibrium of the body requiring to be kept up, either by touching the ground with the knuckles, first on one side then on the other, or by uplifting the arms so as to poise it. As with the Chimpanzee, the whole of the narrow, long sole of the foot is placed upon the ground at once and raised at once, without any elasticity of step."

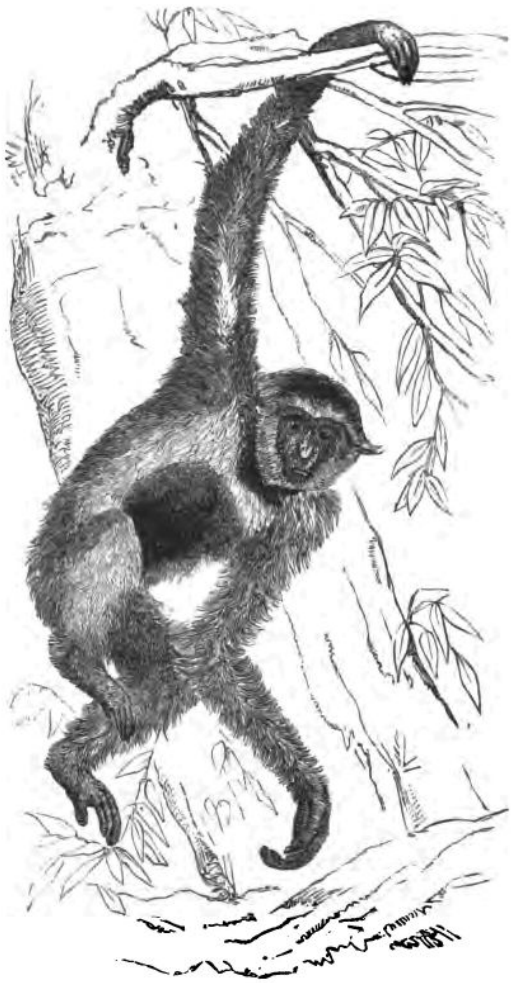


Fig. 8.—A Gibbon (*H. pileatus*), after Wolf.

After this mass of concurrent and independent testimony, it cannot reasonably be doubted that the Gibbons commonly and habitually assume the erect attitude.

But level ground is not the place where these animals can display their very remarkable and peculiar locomotive powers, and that prodigious activity which almost tempts one to rank them among flying, rather than among ordinary climbing mammals.

Mr. Martin (l.c. p. 430) has given so excellent and graphic an account of the movements of a 'Hylobates agilis', living in the Zoological Gardens, in 1840, that I will quote it in full:

"It is almost impossible to convey in words an idea of the quickness and graceful address of her movements: they may indeed be termed aerial, as she seems merely to touch in her progress the branches among which she exhibits her evolutions. In these feats her hands and arms are the sole organs of locomotion; her body hanging as if suspended by a rope, sustained by one hand (the right for example) she launches herself, by an energetic movement, to a distant branch, which she catches with the left hand; but her hold is less than momentary: the impulse for the next launch is acquired: the branch then aimed at is attained by the right hand again, and quitted instantaneously, and so on, in alternate succession. In this manner spaces of twelve and eighteen feet are cleared, with the greatest ease and uninterruptedly, for hours together, without the slightest appearance of fatigue being manifested; and it is evident that, if more space could be allowed, distances very greatly exceeding

eighteen feet would be as easily cleared; so that Duvaucel's assertion that he has seen these animals launch themselves from one branch to another, forty feet asunder, startling as it is, may be well credited. Sometimes, on seizing a branch in her progress, she will throw herself, by the power of one arm only, completely round it, making a revolution with such rapidity as almost to deceive the eye, and continue her progress with undiminished velocity. It is singular to observe how suddenly this Gibbon can stop, when the impetus given by the rapidity and distance of her swinging leaps would seem to require a gradual abatement of her movements. In the very midst of her flight a branch is seized, the body raised, and she is seen, as if by magic, quietly seated on it, grasping it with her feet. As suddenly she again throws herself into action.

"The following facts will convey some notion of her dexterity and quickness. A live bird was let loose in her apartment; she marked its flight, made a long swing to a distant branch, caught the bird with one hand in her passage, and attained the branch with her other hand; her aim, both at the bird and at the branch, being as successful as if one object only had engaged her attention. It may be added that she instantly bit off the head of the bird, picked its feathers, and then threw it down without attempting to eat it.

"On another occasion this animal swung herself from a perch, across a passage at least twelve feet wide, against a window which it was thought would be immediately broken: but not so; to the surprise of all, she caught the narrow framework between the panes with her hand, in an instant attained the proper impetus, and sprang back again to the cage she had left — a feat requiring not only great strength, but the nicest precision."

The Gibbons appear to be naturally very gentle, but there is very good evidence that they will bite severely when irritated — a female 'Hylobates agilis' having so severely lacerated one man with her long canines, that he died; while she had injured others so much that, by way of precaution, these formidable teeth had been filed down; but, if threatened, she would still turn on her keeper. The Gibbons eat insects, but appear generally to avoid animal food. A Siamang, however, was seen by Mr. Bennett to seize and devour greedily a live lizard. They commonly drink by dipping their fingers in the liquid and then licking them. It is asserted that they sleep in a sitting posture.

Duvaucel affirms that he has seen the females carry their young to the waterside and there wash their faces, in spite of resistance and cries. They are gentle and affectionate in captivity — full of tricks and pettishness, like spoiled children, and yet not devoid of a certain conscience, as an anecdote, told by Mr. Bennett (l. c. p. 156), will show. It would appear that his Gibbon had a peculiar inclination for disarranging things in the cabin. Among these articles, a piece of soap would especially attract his notice, and for the removal of this he had been once or twice scolded. "One morning," says Mr. Bennett, "I was writing, the ape being present in the cabin, when casting my eyes towards him, I saw the little fellow taking the soap. I watched him without his perceiving that I did so: and he occasionally would cast a furtive glance towards the place where I sat. I pretended to write; he, seeing me busily occupied, took the soap, and moved away with it in his paw. When he had walked half the length of the cabin, I spoke quietly, without frightening him. The instant he found I saw him, he walked back again, and deposited the soap nearly in the same place from whence he had taken it. There was certainly something more than instinct in that action: he evidently betrayed a consciousness of having done wrong both by his first and last actions — and what is reason if that is not an exercise of it?"

The most elaborate account of the natural history of the ORANG-UTAN extant, is that given in the "Verhandelingen over de Natuurlijke Geschiedenis der Nederlandsche overzeesche Bezittingen (1839-45)," by Dr. Salomon Muller and Dr. Schlegel, and I shall base what I have to say, upon this subject almost entirely on their statements, adding, here and there, particulars of interest from the writings of Brooke, Wallace, and others.

The Orang-Utan would rarely seem to exceed four feet in height, but the body is very bulky, measuring two-thirds of the height in circumference. [18]

The Orang-Utan is found only in Sumatra and Borneo, and is common in neither of these islands — in both of which it occurs always in low, flat plains, never in the mountains. It loves the densest and most sombre of the forests, which extend from the sea-shore inland, and thus is found only in the eastern half of Sumatra, where alone such forests occur, though, occasionally, it strays over to the western side.

On the other hand, it is generally distributed through Borneo, except in the mountains, or where the population is dense. In favourable places, the hunter may, by good fortune, see three or four in a day.

Fig. 9.—An adult male Orang-Utan, after Müller and Schlegel.

Except in the pairing time, the old males usually live by themselves. The old females, and the immature males, on the other hand, are often met with in twos and threes; and the former occasionally have young with them, though the pregnant females usually separate themselves, and sometimes remain apart after they have given birth to their offspring. The young Orangs seem to remain unusually long under

their mother's protection, probably in consequence of their slow growth. While climbing, the mother always carries her young against her bosom, the young holding on by his mother's hair. [19] At what time of life the Orang-Utan becomes capable of propagation, and how long the females go with young, is unknown, but it is probable that they are not adult until they arrive at ten or fifteen years of age. A female which lived for five years at Batavia, had not attained one-third the height of the wild females. It is probable that, after reaching adult years, they go on growing, though slowly, and that they live to forty or fifty years. The Dyaks tell of old Orangs, which have not only lost all their teeth, but which find it so troublesome to climb, that they maintain themselves on windfalls and juicy herbage.

The Orang is sluggish, exhibiting none of that marvellous activity characteristic of the Gibbons. Hunger alone seems to stir him to exertion, and when it is stilled, he relapses into repose. When the animal sits, it curves its back and bows its head, so as to look straight down on the ground; sometimes it holds on with its hands by a higher branch, sometimes lets them hang phlegmatically down by its side — and in these positions the Orang will remain, for hours together, in the same spot, almost without stirring, and only now and then giving utterance to its deep, growling voice. By day, he usually climbs from one tree-top to another, and only at night descends to the ground, and if then threatened with danger, he seeks refuge among the underwood. When not hunted, he remains a long time in the same locality, and sometimes stops for many days on the same tree — a firm place among its branches serving him for a bed. It is rare for the Orang to pass the night in the summit of a large tree, probably because it is too windy and cold there for him; but, as soon as night draws on, he descends from the height and seeks out a fit bed in the lower and darker part, or in the leafy top of a small tree, among which he prefers Nibong Palms, Pandani, or one of those parasitic Orchids which give the primeval forests of Borneo so characteristic and striking an appearance. But wherever he determines to sleep, there he prepares himself a sort of nest: little boughs and leaves are drawn together round the selected spot, and bent crosswise over one another; while to make the bed soft, great leaves of Ferns, of Orchids, of 'Pandanus fascicularis', 'Nipa fruticans', etc. are laid over them. Those which Muller saw, many of them being very fresh, were situated at a height of ten to twenty-five feet above the ground, and had a circumference, on the average, of two or three feet. Some were packed many inches thick with 'Pandanus' leaves; others were remarkable only for the cracked twigs, which, united in a common centre, formed a regular platform. "The rude 'hut'," says Sir James Brooke, "which they are stated to build in the trees, would be more properly called a seat or nest, for it has no roof or cover of any sort. The facility with which they form this nest is curious, and I had an opportunity of seeing a wounded female weave the branches together and seat herself, within a minute."

According to the Dyaks the Orang rarely leaves his bed before the sun is well above the horizon and has dissipated the mists. He gets up about nine, and goes to bed again about five; but sometimes not till late in the twilight. He lies sometimes on his back; or, by way of change, turns on one side or the other, drawing his limbs up to his body, and resting his head on his hand. When the night is cold, windy, or rainy, he usually covers his body with a heap of 'Pandanus', 'Nipa', or Fern leaves, like those of which his bed is made, and he is especially careful to wrap up his head in them. It is this habit of covering himself up which has probably led to the fable that the Orang builds huts in the trees.

Although the Orang resides mostly amid the boughs of great trees, during the daytime, he is very rarely seen squatting on a thick branch, as other apes, and

particularly the Gibbons, do. The Orang, on the contrary, confines himself to the slender leafy branches, so that he is seen right at the top of the trees, a mode of life which is closely related to the constitution of his hinder limbs, and especially to that of his seat. For this is provided with no callosities, such as are possessed by many of the lower apes, and even by the Gibbons; and those bones of the pelvis, which are termed the ischia, and which form the solid framework of the surface on which the body rests in the sitting posture, are not expanded like those of the apes which possess callosities, but are more like those of man.

An Orang climbs so slowly and cautiously, [20] as, in this act, to resemble a man more than an ape, taking great care of his feet, so that injury of them seems to affect him far more than it does other apes. Unlike the Gibbons, whose forearms do the greater part of the work, as they swing from branch to branch, the Orang never makes even the smallest jump. In climbing, he moves alternately one hand and one foot, or, after having laid fast hold with the hands, he draws up both feet together. In passing from one tree to another, he always seeks out a place where the twigs of both come close together, or interlace. Even when closely pursued, his circumspection is amazing: he shakes the branches to see if they will bear him, and then bending an overhanging bough down by throwing his weight gradually along it, he makes a bridge from the tree he wishes to quit to the next. [21]

On the ground the Orang always goes laboriously and shakily, on all fours. At starting he will run faster than a man, though he may soon be overtaken. The very long arms which, when he runs, are but little bent, raise the body of the Orang remarkably, so that he assumes much the posture of a very old man bent down by age, and making his way along by the help of a stick. In walking, the body is usually directed straight forward, unlike the other apes, which run more or less obliquely; except the Gibbons, who in these, as in so many other respects, depart remarkably from their fellows.

The Orang cannot put its feet flat on the ground, but is supported upon their outer edges, the heel resting more on the ground, while the curved toes partly rest upon the ground by the upper side of their first joint, the two outermost toes of each foot completely resting on this surface. The hands are held in the opposite manner, their inner edges serving as the chief support. The fingers are then bent out in such a manner that their foremost joints, especially those of the two innermost fingers, rest upon the ground by their upper sides, while the point of the free and straight thumb serves as an additional fulcrum.

The Orang never stands on its hind legs, and all the pictures, representing it as so doing, are as false as the assertion that it defends itself with sticks, and the like.

The long arms are of especial use, not only in climbing, but in the gathering of food from boughs to which the animal could not trust his weight. Figs, blossoms, and young leaves of various kinds, constitute the chief nutriment of the Orang; but strips of bamboo two or three feet long were found in the stomach of a male. They are not known to eat living animals.

Although, when taken young, the Orang-Utan soon becomes domesticated, and indeed seems to court human society, it is naturally a very wild and shy animal, though apparently sluggish and melancholy. The Dyaks affirm, that when the old males are wounded with arrows only, they will occasionally leave the trees and rush raging upon their enemies, whose sole safety lies in instant flight, as they are sure to be killed if caught. [22]

But, though possessed of immense strength, it is rare for the Orang to attempt to defend itself, especially when attacked with fire-arms. On such occasions he

endeavours to hide himself, or to escape along the topmost branches of the trees, breaking off and throwing down the boughs as he goes. When wounded he betakes himself to the highest attainable point of the tree, and emits a singular cry, consisting at first of high notes, which at length deepen into a low roar, not unlike that of a panther. While giving out the high notes the Orang thrusts out his lips into a funnel shape; but in uttering the low notes he holds his mouth wide open, and at the same time the great throat bag, or laryngeal sac, becomes distended.

According to the Dyaks, the only animal the Orang measures his strength with is the crocodile, who occasionally seizes him on his visits to the water side. But they say that the Orang is more than a match for his enemy, and beats him to death, or rips up his throat by pulling the jaws asunder!

Much of what has been here stated was probably derived by Dr. Muller from the reports of his Dyak hunters; but a large male, four feet high, lived in captivity, under his observation, for a month, and receives a very bad character.

"He was a very wild beast," says Muller, "of prodigious strength, and false and wicked to the last degree. If any one approached he rose up slowly with a low growl, fixed his eyes in the direction in which he meant to make his attack, slowly passed his hand between the bars of his cage, and then extending his long arm, gave a sudden grip — usually at the face." He never tried to bite (though Orangs will bite one another), his great weapons of offence and defence being his hands.

His intelligence was very great; and Muller remarks, that though the faculties of the Orang have been estimated too highly, yet Cuvier, had he seen this specimen, would not have considered its intelligence to be only a little higher than that of the dog.

His hearing was very acute, but the sense of vision seemed to be less perfect. The under lip was the great organ of touch, and played a very important part in drinking, being thrust out like a trough, so as either to catch the falling rain, or to receive the contents of the half cocoa-nut shell full of water with which the Orang was supplied, and which, in drinking, he poured into the trough thus formed.

In Borneo the Orang-Utan of the Malays goes by the name of "Mias" among the Dyaks, who distinguish several kinds as 'Mias Pappan', or 'Zimo', 'Mias Kassu', and 'Mias Rambi'. Whether these are distinct species, however, or whether they are mere races, and how far any of them are identical with the Sumatran Orang, as Mr. Wallace thinks the Mias Pappan to be, are problems which are at present undecided; and the variability of these great apes is so extensive, that the settlement of the question is a matter of great difficulty. Of the form called "Mias Pappan," Mr. Wallace [23] observes, "It is known by its large size, and by the lateral expansion of the face into fatty protuberances, or ridges, over the temporal muscles, which has been mis-termed 'callosities', as they are perfectly soft, smooth, and flexible. Five of this form, measured by me, varied only from 4 feet 1 inch to 4 feet 2 inches in height, from the heel to the crown of the head, the girth of the body from 3 feet to 3 feet 7 1/2 inches, and the extent of the outstretched arms from 7 feet 2 inches to 7 feet 6 inches; the width of the face from 10 to 13 1/4 inches. The colour and length of the hair varied in different individuals, and in different parts of the same individual; some possessed a rudimentary nail on the great toe, others none at all; but they otherwise present no external differences on which to establish even varieties of a species.

"Yet, when we examine the crania of these individuals, we find remarkable differences of form, proportion, and dimension, no two being exactly alike. The slope of the profile, and the projection of the muzzle, together with the size of the cranium, offer differences as decided as those existing between the most strongly marked forms

of the Caucasian and African crania in the human species. The orbits vary in width and height, the cranial ridge is either single or double, either much or little developed, and the zygomatic aperture varies considerably in size. This variation in the proportions of the crania enables us satisfactorily to explain the marked difference presented by the single-crested and double-crested skulls, which have been thought to prove the existence of two large species of Orang. The external surface of the skull varies considerably in size, as do also the zygomatic aperture and the temporal muscle; but they bear no necessary relation to each other, a small muscle often existing with a large cranial surface, and 'vice versa'. Now, those skulls which have the largest and strongest jaws and the widest zygomatic aperture, have the muscles so large that they meet on the crown of the skull, and deposit the bony ridge which supports them, and which is the highest in that which has the smallest cranial surface. In those which combine a large surface with comparatively weak jaws, and small zygomatic aperture, the muscles, on each side, do not extend to the crown, a space of from l to 2 inches remaining between them, and along their margins small ridges are formed. Intermediate forms are found, in which the ridges meet only in the hinder part of the skull. The form and size of the ridges are therefore independent of age, being sometimes more strongly developed in the less aged animal. Professor Temminck states that the series of skulls in the Leyden Museum shows the same result."

Mr. Wallace observed two male adult Orangs (Mias Kassu of the Dyaks), however, so very different from any of these that he concludes them to be specifically distinct; they were respectively 3 feet 8 1/2 inches and 3 feet 9 1/2 inches high, and possessed no sign of the cheek excrescences, but otherwise resembled the larger kinds. The skull has no crest, but two bony ridges, 1 3/4 inches to 2 inches apart, as in the 'Simia morio' of Professor Owen. The teeth, however; are immense, equalling or surpassing those of the other species. The females of both these kinds, according to Mr. Wallace, are devoid of excrescences, and resemble the smaller males, but are shorter by 1 1/2 to 3 inches, and their canine teeth are comparatively small, subtruncated and dilated at the base, as in the so-called 'Simia morio', which is, in all probability, the skull of a female of the same species as the smaller males. Both males and females of this smaller species are distinguishable, according to Mr. Wallace, by the comparatively large size of the middle incisors of the upper jaw.

So far as I am aware, no one has attempted to dispute the accuracy of the statements which I have just quoted regarding the habits of the two Asiatic man-like Apes; and if true, they must be admitted as evidence, that such an Ape —

Firstly, May readily move along the ground in the erect, or semi-erect, position, and without direct support from its arms.

Secondly, That it may possess an extremely loud voice, so loud as to be readily heard one or two miles.

Thirdly, That it may be capable of great viciousness and violence when irritated: and this is especially true of adult males.

Fourthly, That it may build a nest to sleep in.

Such being well established facts respecting the Asiatic Anthropoids, analogy alone might justify us in expecting the African species to offer similar peculiarities, separately or combined; or, at any rate, would destroy the force of any attempted 'a priori' argument against such direct testimony as might be adduced in favour of their existence. And, if the organization of any of the African Apes could be demonstrated

to fit it better than either of its Asiatic allies for the erect position and for efficient attack, there would be still less reason for doubting its occasional adoption of the upright attitude or of aggressive proceedings.

From the time of Tyson and Tulpius downwards, the habits of the young CHIMPANZEE in a state of captivity have been abundantly reported and commented upon. But trustworthy evidence as to the manners and customs of adult anthropoids of this species, in their native woods, was almost wanting up to the time of the publication of the paper by Dr. Savage, to which I have already referred; containing notes of the observations which he made, and of the information which he collected from sources which he considered trustworthy, while resident at Cape Palmas, at the north-western limit of the Bight of Benin.

The adult Chimpanzees measured by Dr. Savage, never exceeded, though the males may almost attain, five feet in height.

"When at rest, the sitting posture is that generally assumed. They are sometimes seen standing and walking, but when thus detected, they immediately take to all fours, and flee from the presence of the observer. Such is their organization that they cannot stand erect, but lean forward. Hence they are seen, when standing, with the hands clasped over the occiput, or the lumbar region, which would seem necessary to balance or ease of posture.

"The toes of the adult are strongly flexed and turned inwards, and cannot be perfectly straightened. In the attempt the skin gathers into thick folds on the back, shewing that the full expansion of the foot, as is necessary in walking, is unnatural. The natural position is on all fours, the body anteriorly resting upon the knuckles. These are greatly enlarged, with the skin protuberant and thickened like the sole of the foot.

"They are expert climbers, as one would suppose from their organization. In their gambols they swing from limb to limb to a great distance, and leap with astonishing agility. It is not unusual to see the 'old folks' (in the language of an observer) sitting under a tree regaling themselves with fruit and friendly chat, while their 'children' are leaping around them, and swinging from tree to tree with boisterous merriment.

"As seen here, they cannot be called 'gregarious', seldom more than five, or ten at most, being found together. It has been said, on good authority, that they occasionally assemble in large numbers, in gambols. My informant asserts that he saw once not less than fifty so engaged; hooting, screaming, and drumming with sticks upon old logs, which is done in the latter case with equal facility by the four extremities. They do not appear ever to act on the offensive, and seldom, if ever really, on the defensive. When about to be captured, they resist by throwing their arms about their opponent, and attempting to draw him into contact with their teeth." (Savage, l. c. p. 384.)

With respect to this last point Dr. Savage is very explicit in another place: "Biting" is their principal art of defence. I have seen one man who had been thus severely wounded in the feet.

"The strong development of the canine teeth in the adult would seem to indicate a carnivorous propensity; but in no state save that of domestication do they manifest it. At first they reject flesh, but easily acquire a fondness for it. The canines are early developed, and evidently designed to act the important part of weapons of defence. When in contact with man almost the first effort of the animal is— 'to bite'.

"They avoid the abodes of men, and build their habitations in trees. Their construction is more that of 'nests' than 'huts', as they have been erroneously termed by some naturalists. They generally build not far above the ground. Branches or twigs are bent, or partly broken, and crossed, and the whole supported by the body of a limb

or a crotch. Sometimes a nest will be found near the ‘end’ of a ‘strong leafy branch’ twenty or thirty feet from the ground. One I have lately seen that could not be less than forty feet, and more probably it was fifty. But this is an unusual height.

“Their dwelling-place is not permanent, but changed in pursuit of food and solitude, according to the force of circumstances. We more often see them in elevated places; but this arises from the fact that the low grounds, being more favourable for the natives’ rice-farms, are the oftener cleared, and hence are almost always wanting in suitable trees for their nests.... It is seldom that more than one or two nests are seen upon the same tree, or in the same neighbourhood: five have been found, but it was an unusual circumstance.”...

“They are very filthy in their habits.... It is a tradition with the natives generally here, that they were once members of their own tribe; that for their depraved habits they were expelled from all human society, and, that through an obstinate indulgence of their vile propensities, they have degenerated into their present state and organization. They are, however, eaten by them, and when cooked with the oil and pulp of the palm-nut considered a highly palatable morsel.

“They exhibit a remarkable degree of intelligence in their habits, and, on the part of the mother, much affection for their young. The second female described was upon a tree when first discovered, with her mate and two young ones (a male and a female). Her first impulse was to descend with great rapidity, and make off into the thicket, with her mate and female offspring. The young male remaining behind, she soon returned to the rescue. She ascended and took him in her arms, at which moment she was shot, the ball passing through the forearm of the young one, on its way to the heart of the mother....

“In a recent case, the mother, when discovered, remained upon the tree with her offspring, watching intently the movements of the hunter. As he took aim, she motioned with her hand, precisely in the manner of a human being, to have him desist and go away. When the wound has not proved instantly fatal, they have been known to stop the flow of blood by pressing with the hand upon the part, and when this did not succeed, to apply leaves and grass.... When shot, they give a sudden screech, not unlike that of a human being in sudden and acute distress.”

The ordinary voice of the Chimpanzee, however, is affirmed to be hoarse, guttural, and not very loud, somewhat like “whoo-whoo.” (l. c. p. 365).

The analogy of the Chimpanzee to the Orang, in its nest-building habit and in the mode of forming its nest, is exceedingly interesting; while, on the other hand, the activity of this ape, and its tendency to bite, are particulars in which it rather resembles the Gibbons. In extent of geographical range, again, the Chimpanzees — which are found from Sierra Leone to Congo — remind one of the Gibbons, rather than of either of the other man-like apes; and it seems not unlikely that, as is the case with the Gibbons, there may be several species spread over the geographical area of the genus.

The same excellent observer, from whom I have borrowed the preceding account of the habits of the adult Chimpanzee, published fifteen years ago, [24] an account of the GORILLA, which has, in its most essential points, been confirmed by subsequent observers, and to which so very little has really been added, that in justice to Dr. Savage I give it almost in full.

“It should be borne in mind that my account is based upon the statements of the aborigines of that region (the Gaboon). In this connection, it may also be proper for me to remark, that having been a missionary resident for several years, studying, from habitual intercourse, the African mind and character, I felt myself prepared to

discriminate and decide upon the probability of their statements. Besides, being familiar with the history and habits of its interesting congener (‘Trog. niger’, Geoff.), I was able to separate their accounts of the two animals, which, having the same locality and a similarity of habit, are confounded in the minds of the mass, especially as but few — such as traders to the interior and huntsmen — have ever seen the animal in question.

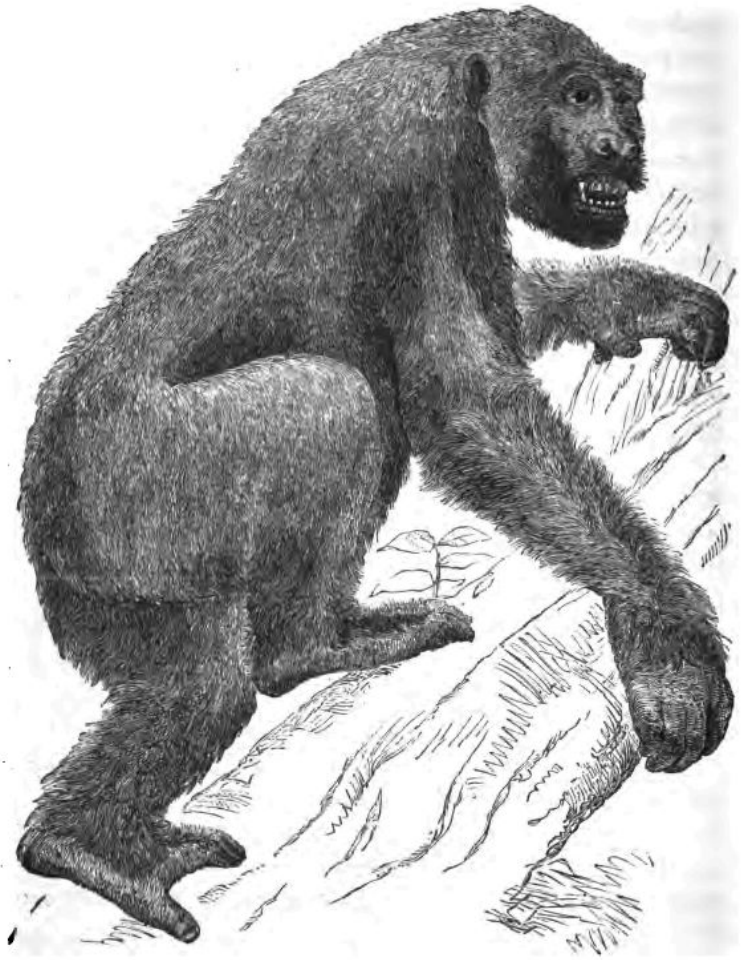


Fig. 10.—The Gorilla, after Wolf.

“The tribe from which our knowledge of the animal is derived, and whose territory forms its habitat, is the ‘Mpongwe’, occupying both banks of the River Gaboon, from its mouth to some fifty or sixty miles upward....

“If the word ‘Pongo’ be of African origin, it is probably a corruption of the word ‘Mpongwe’, the name of the tribe on the banks of the Gaboon, and hence applied to the region they inhabit. Their local name for the Chimpanzee is ‘Enche-eko’, as near as it can be Anglicized, from which the common term ‘Jocko’ probably comes. The Mpongwe appellation for its new congener is ‘Enge-ena’, prolonging the sound of the first vowel, and slightly sounding the second.

“The habitat of the ‘Enge-ena’ is the interior of lower Guinea, whilst that of the ‘Enche-eko’ is nearer the sea-board.

“Its height is about five feet; it is disproportionately broad across the shoulders, thickly covered with coarse black hair, which is said to be similar in its arrangement to that of the ‘Enche-eko’; with age it becomes grey, which fact has given rise to the report that both animals are seen of different colours.

"'Head'. — The prominent features of the head are, the great width and elongation of the face, the depth of the molar region, the branches of the lower jaw being very deep and extending far backward, and the comparative smallness of the cranial portion; the eyes are very large, and said to be like those of the Enche-eko, a bright hazel; nose broad and flat, slightly elevated towards the root; the muzzle broad, and prominent lips and chin, with scattered gray hairs; the under lip highly mobile, and capable of great elongation when the animal is enraged, then hanging over the chin; skin of the face and ears naked, and of a dark brown, approaching to black.

"The most remarkable feature of the head is a high ridge, or crest of hair, in the course of the sagittal suture, which meets posteriorily with a transverse ridge of the same, but less prominent, running round from the back of one ear to the other. The animal has the power of moving the scalp freely forward and back, and when enraged is said to contract it strongly over the brow, thus bringing down the hairy ridge and pointing the hair forward, so as to present an indescribably ferocious aspect.

"Neck short, thick, and hairy; chest and shoulders very broad, said to be fully double the size of the Enche-ekos; arms very long, reaching some way below the knee — the fore-arm much the shortest; hands very large, the thumbs much larger than the fingers....

Fig. 11.—Gorilla walking (after Wolff.)

"The gait is shuffling; the motion of the body, which is never upright as in man, but bent forward, is somewhat rolling, or from side to side. The arms being longer than the Chimpanzee, it does not stoop as much in walking; like that animal, it makes

progression by thrusting its arms forward, resting the hands on the ground, and then giving the body a half jumping half swinging motion between them. In this act it is said not to flex the fingers, as does the Chimpanzee, resting on its knuckles, but to extend them, making a fulcrum of the hand. When it assumes the walking posture, to which it is said to be much inclined, it balances its huge body by flexing its arms upward.

"They live in bands, but are not so numerous as the Chimpanzees: the females generally exceed the other sex in number. My informants all agree in the assertion that but one adult male is seen in a band; that when the young males grow up, a contest takes place for mastery, and the strongest, by killing and driving out the others, establishes himself as the head of the community."

Dr. Savage repudiates the stories about the Gorillas carrying off women and vanquishing elephants and then adds:

"Their dwellings, if they may be so called, are similar to those of the Chimpanzee, consisting simply of a few sticks and leafy branches, supported by the crotches and limbs of trees: they afford no shelter, and are occupied only at night.

"They are exceedingly ferocious, and always offensive in their habits, never running from man, as does the Chimpanzee. They are objects of terror to the natives, and are never encountered by them except on the defensive. The few that have been captured were killed by elephant hunters and native traders, as they came suddenly upon them while passing through the forests.

"It is said that when the male is first seen he gives a terrific yell, that resounds far and wide through the forest, something like kh-ah! kh-ah! prolonged and shrill. His enormous jaws are widely opened at each expiration, his under lip hangs over the chin, and the hairy ridge and scalp are contracted upon the brow, presenting an aspect of indescribable ferocity.

"The females and young, at the first cry, quickly disappear. He then approaches the enemy in great fury, pouring out his horrid cries in quick succession. The hunter awaits his approach with his gun extended: if his aim is not sure, he permits the animal to grasp the barrel, and as he carries it to his mouth (which is his habit) he fires. Should the gun fail to go off, the barrel (that of the ordinary musket, which is thin) is crushed between his teeth, and the encounter soon proves fatal to the hunter.

"In the wild state, their habits are in general like those of the 'Troglodytes niger', building their nests loosely in trees, living on similar fruits, and changing their place of resort from force of circumstances."

Dr. Savage's observations were confirmed and supplemented by those of Mr. Ford, who communicated an interesting paper on the Gorilla to the Philadelphian Academy of Sciences, in 1852. With respect to the geographical distribution of this greatest of all the man-like Apes, Mr. Ford remarks:

"This animal inhabits the range of mountains that traverse the interior of Guinea, from the Cameroon in the north, to Angola in the south, and about 100 miles inland, and called by the geographers Crystal Mountains. The limit to which this animal extends, either north or south, I am unable to define. But that limit is doubtless some distance north of this river [Gaboon]. I was able to certify myself of this fact in a late excursion to the head-waters of the Mooney (Danger) River, which comes into the sea some sixty miles from this place. I was informed (credibly, I think) that they were numerous among the mountains in which that river rises, and far north of that.

"In the south, this species extends to the Congo River, as I am told by native traders who have visited the coast between the Gaboon and that river. Beyond that, I am not informed. This animal is only found at a distance from the coast in most cases,

and, according to my best information, approaches it nowhere so nearly as on the south side of this river, where they have been found within ten miles of the sea. This, however, is only of late occurrence. I am informed by some of the oldest Mpongwe men that formerly he was only found on the sources of the river, but that at present he may be found within half-a-day's walk of its mouth. Formerly he inhabited the mountainous ridge where Bushmen alone inhabited, but now he boldly approaches the Mpongwe plantations. This is doubtless the reason of the scarcity of information in years past, as the opportunities for receiving a knowledge of the animal have not been wanting; traders having for one hundred years frequented this river, and specimens, such as have been brought here within a year, could not have been exhibited without having attracted the attention of the most stupid."

One specimen Mr. Ford examined weighed 170 lbs. without the thoracic, or pelvic, viscera, and measured four feet four inches round the chest. This writer describes so minutely and graphically the onslaught of the Gorilla — though he does not for a moment pretend to have witnessed the scene — that I am tempted to give this part of his paper in full, for comparison with other narratives:

"He always rises to his feet when making an attack, though he approaches his antagonist in a stooping posture.

"Though he never lies in wait, yet, when he hears, sees, or scents a man, he immediately utters his characteristic cry, prepares for an attack, and always acts on the offensive. The cry he utters resembles a grunt more than a growl, and is similar to the cry of the Chimpanzee, when irritated, but vastly louder. It is said to be audible at a great distance. His preparation consists in attending the females and young ones, by whom he is usually accompanied, to a little distance. He, however, soon returns, with his crest erect and projecting forward, his nostrils dilated, and his under-lip thrown down; at the same time uttering his characteristic yell, designed, it would seem, to terrify his antagonist. Instantly, unless he is disabled by a well directed shot, he makes an onset, and, striking his antagonist with the palm of his hands, or seizing him with a grasp from which there is no escape, he dashes him upon the ground, and lacerates him with his tusks.

"He is said to seize a musket, and instantly crush the barrel between his teeth.... This animal's savage nature is very well shown by the implacable desperation of a young one that was brought here. It was taken very young, and kept four months, and many means were used to tame it; but it was incorrigible, so that it bit me an hour before it died."

Mr. Ford discredits the house-building and elephant-driving stories, and says that no well-informed natives believe them. They are tales told to children.

I might quote other testimony to a similar effect, but, as it appears to me, less carefully weighed and sifted, from the letters of MM. Franquet and Gautier Laboullay, appended to the memoir of M. I. G. St. Hilaire, which I have already cited.

Bearing in mind what is known regarding the Orang and the Gibbon, the statements of Dr. Savage and Mr. Ford do not appear to me to be justly open to criticism on 'a priori' grounds. The Gibbons, as we have seen, readily assume the erect posture, but the Gorilla is far better fitted by its organization for that attitude than are the Gibbons: if the laryngeal pouches of the Gibbons, as is very likely, are important in giving volume to a voice which can be heard for half a league, the Gorilla, which has similar sacs, more largely developed, and whose bulk is fivefold that of a Gibbon, may well be audible for twice that distance. If the Orang fights with its hands, the Gibbons and Chimpanzees with their teeth, the Gorilla may, probably enough, do either or both; nor is there anything to be said against either Chimpanzee

or Gorilla building a nest, when it is proved that the Orang-Utan habitually performs that feat.

With all this evidence, now ten to fifteen years old, before the world it is not a little surprising that the assertions of a recent traveller, who, so far as the Gorilla is concerned, really does very little more than repeat, on his own authority, the statements of Savage and of Ford, should have met with so much and such bitter opposition. If subtraction be made of what was known before, the sum and substance of what M. Du Chaillu has affirmed as a matter of his own observation respecting the Gorilla, is, that, in advancing to the attack, the great brute beats his chest with his fists. I confess I see nothing very improbable, or very much worth disputing about, in this statement.

With respect to the other man-like Apes of Africa, M. Du Chaillu tells us absolutely nothing, of his own knowledge, regarding the common Chimpanzee; but he informs us of a bald-headed species or variety, the 'nschiego mbouve', which builds itself a shelter, and of another rare kind with a comparatively small face, large facial angle, and peculiar note, resembling "Kooloo."

As the Orang shelters itself with a rough coverlet of leaves, and the common Chimpanzee, according to that eminently trustworthy observer Dr. Savage, makes a sound like "Whoo-whoo," — the grounds of the summary repudiation with which M. Du Chaillu's statements on these matters have been met are not obvious.

If I have abstained from quoting M. Du Chaillu's work, then, it is not because I discern any inherent improbability in his assertions respecting the man-like Apes; nor from any wish to throw suspicion on his veracity; but because, in my opinion, so long as his narrative remains in its present state of unexplained and apparently inexplicable confusion, it has no claim to original authority respecting any subject whatsoever.

It may be truth, but it is not evidence.

ENDNOTES.

[1] REGNUM CONGO: hoc est VERA DESCRIPTIO REGNI AFRICANI QUOD TAM AB INCOLIS QUAM LUSITANIS CONGUS APPELLATUR, per Philippum Pigafettam, olim ex Edoardo Lopez acroamatis lingua Italica excerpta, num Latio sermone donata ab August. Cassiod. Reinio. Iconibus et imaginibus rerum memorabilium quasi vivis, opera et industria Joan. Theodori et Joan. Israelis de Bry, fratrum exornata. Francofurti, MDXCVIII.

[2] "Except this that their legges had no calves." — (Ed. 1626.) And in a marginal note, "These great apes are called Pongo's."

[3] 'Purchas' note'. — Cape Negro is in 16 degrees south of the line.

[4] Purchas' marginal note, p. 982:— "The Pongo a giant ape. He told me in conference with him, that one of these pongoes tooke a negro boy of his which lived a moneth with them. For they hurt not those which they surprise at unawares, except they look on them; which he avoyded. He said their highth was like a man's, but their bignesse twice as great. I saw the negro boy. What the other monster should be he hath forgotten to relate; and these papers came to my hand since his death, which, otherwise, in my often conferences, I might have learned. Perhaps he meaneth the Pigmy Pongo killers mentioned."

[5] 'Archives du Museum', tome x.

[6] I am indebted to Dr. Wright, of Cheltenham, whose paleontological labours are so well known, for bringing this interesting relic to my knowledge. Tyson's granddaughter, it appears, married Dr. Allardyce, a physician of repute in Cheltenham, and brought, as part of her dowry, the skeleton of the 'Pygmie.' Dr. Allardyce presented it to the Cheltenham Museum, and, through the good offices of my friend Dr. Wright, the authorities of the Museum have permitted me to borrow, what is, perhaps its most remarkable ornament.

[7] "Mandrill" seems to signify a "man-like ape," the word "Drill" or "Dril" having been anciently employed in England to denote an Ape or Baboon. Thus in the fifth edition of Blount's "Glossographia, or a Dictionary interpreting the hard words of whatsoever language now used in our refined English tongue...very useful for all such as desire to understand what they read," published in 1681, I find, "Dril — a stone-cutter's tool wherewith he bores little holes in marble, etc. Also a large overgrown Ape and Baboon, so called." "Drill" is used in the same sense in Charleton's "Onomasticon Zoicon," 1668. The singular etymology of the word given by Buffon seems hardly a probable one.

[8] 'Histoire Naturelle', Suppl. tome 7eme, 1789.

[9] Camper, 'Oeuvres', i. p. 56.

[10] Verhandelingen van het Bataviaasch Genootschap. Tweede Deel. Derde Druk. 1826.

[11] "Briefe des Herrn v. Wurmb und des H. Baron von Wollzogen. Gotha, 1794."

[12] See Blumenbach, 'Abbildungen Naturhistorichen Gegenstande, No. 12, 1810; and Tilesius, Naturhistoriche Fruchte der ersten Kaiserlich-Russischen Erdumsegelung', p. 115, 1813.

[13] Speaking broadly and without prejudice to the question, whether there be more than one species of Orang.

[14] See "Observations on the external characters and habits of the Troglodytes niger, by Thomas N. Savage, M.D. and on its organization by Jeffries Wyman, M.D." 'Boston Journal of Natural History',

vol. iv. 1843-4; and "External characters, habits, and osteology of Troglodytes Gorilla," by the same authors, 'ibid'. vol. v. 1847.

[15] Man and Monkies', p. 423.

[16]['Wanderings in New South Wales', vol. ii. chap. viii. 1834.

[17] 'Boston Journal of Natural History', vol. i. 1834.

[18] The largest Orang-Utan, cited by Temminck, measured, when standing upright, 4 ft.; but he mentions having just received news of the capture of an Orang 5 ft. 3 in. high. Schlegel and Juller say that their largest old male measured, upright, 1.25 Netherlands "el"; and from the crown to the end of the toes, 1.5 el; the circumference of the body being about 1 el. The largest old female was 1.09 el high, when standing. The adult skeleton in the College of Surgeons' Museum, if set upright, would stand 3 ft. 6-8 in. from crown to sole. Dr. Humphry gives 3 ft. 8 in. as the mean height of two Orangs. Of seventeen Orangs examined by Mr. Wallace, the largest was 4 ft. 2 in. high, from the heel to the crown of the head. Mr. Spencer St. John, however, in his 'Life in the Forests of the Far East', tells us of an Orang of "5 ft. 2 in. measuring fairly from the head to the heel," 15 in. across the face, and 12 in. round the wrist. It does not appear, however, that Mr. St. John measured this Orang himself.

[19] See Mr. Wallace's account of an infant "Orang-utan," in the 'Annals of Natural History' for 1856. Mr. Wallace provided his interesting charge with an artificial mother of buffalo-skin, but the cheat was too successful. The infant's entire experience led it to associate teats with hair, and feeling the latter, it spent its existence in vain endeavours to discover the former.

[20] "They are the slowest and least active of all the monkey tribe, and their motions are surprisingly awkward and uncouth." — Sir James Brooke, in the 'Proceedings of the Zoological Society', 1841.

[21] Mr. Wallace's account of the progression of the Orang almost exactly corresponds with this.

[22] Sir James Brooke, in a letter to Mr. Waterhouse, published in the proceedings of the Zoological Society for 1841, says:— "On the habits of the Orangs, as far as I have been able to observe them, I may remark that they are as dull and slothful as can well be conceived, and on no occasion, when pursuing them, did they move so fast as to preclude my keeping pace with them easily through a moderately clear forest; and even when obstructions below (such as wading up to the neck) allowed them to get away some distance, they were sure to stop and allow me to come up. I never observed the slightest attempt at defence, and the wood which sometimes rattled about our ears was broken by their weight, and not thrown, as some persons represent. If pushed to extremity, however, the 'Pappan' could not be otherwise than formidable, and one unfortunate man, who, with a party, was trying to catch a large one alive, lost two of his fingers, besides being severely bitten on the face, whilst the animal finally beat off his pursuers and escaped." Mr. Wallace, on the other hand, affirms that he has several times observed them throwing down branches when pursued. "It is true he does not throw them 'at' a person, but casts them down vertically; for it is evident that a bough cannot be thrown to any distance from the top of a lofty tree. In one case a female Mias, on a durian tree, kept up for at least ten minutes a continuous shower of branches and of the heavy, spined fruits, as large as 32-pounders, which most effectually kept us clear of the tree she was on. She could be seen breaking them off and throwing them down with every appearance of rage, uttering at intervals a loud pumping grunt, and evidently meaning mischief."— "On the Habits of the Orang-Utan," 'Annals of Nat. History, 1856. This statement, it will be observed, is quite in accordance with that contained in the letter of the Resident Palm quoted above (p. 210).

[23] On the Orang-Utan, or Mias of Borneo, 'Annals of Natural History', 1856.

[24] Notice of the external characters and habits of Troglodytes Gorilla. 'Boston Journal of Natural History', 1847.

End of Sample