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Apes and Monkeys 1936

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APES AND MONKEYS

By

E. G. BOULENGER

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FOREWORD

*T*HE object of this book has been to bring together observations old and new that throw light on the life-histories and habits, both in the wild and in captivity, of the animals under review. The author, in his attempt to interest the general reader, has written in simple language, avoiding all technical expressions.

I am indebted to Dr Ludwig Heck, Director of the Zoological Gardens at Berlin, for allowing me to reproduce the photograph of the giant gorilla which was recently on exhibition in the Berlin Zoo, and to Professor W. E. Le Gros Clark, F.R.S., for lending me his photograph of the tarsius from which the plate of that animal was prepared. I also wish to thank Dr S. Zuckerman, who read the introductory part of this book and offered suggestions.

E. G. B.

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INTRODUCTION

IN 1860, at the Meeting of the British Association at Oxford, Professor Thomas Henry Huxley, while defending Darwin against the attacks of the anti-evolutionists, came into collision with Bishop Wilberforce, who, in the course of a discussion on the Darwinian theory, asked Huxley whether he was related by his grandfather's or grandmother's side to an ape. Huxley replied that he would not be ashamed to have a monkey for his ancestor, but he would be ashamed to be connected with a man who, like the bishop, used his great gifts to obscure the truth.

Darwin's theory of evolution had just been presented to the world, and a furious controversy was in progress, almost every class of society being involved, and these vituperative remarks were but part of many such exchanges then indulged in by the belligerent parties.

The matter of evolution has probably been more foolishly misrepresented than any other subject under the sun. When Charles Darwin and Alfred Russel Wallace presented a theory of evolution to the world in the middle of the last century they were not announcing a discovery, since the conception of evolution—*i.e.*, the gradual development of higher forms of life from lower organisms—was propounded many years previously. Even Aristotle had very Darwinian views regarding certain aspects of Nature.

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But the accepted belief in 'Creation'—*i.e.*, the sudden production of an animal from nowhere—was never stronger than in the middle of the past century, and any suggestion that the varied forms of life peopling the earth had been 'evolved' by slow and painful degrees was accepted as little less than a declaration of anarchism. A long and bitter controversy ensued, and among the many absurd and unpopular catch-phrases then current was one to the effect that we had "descended from monkeys." The phrase is still accepted by the uneducated, just as the less enlightened among us still look for the production of a 'missing link.'

It is now universally accepted that the animals inhabiting the world to-day have been 'evolved' during an enormously long period of time, variously placed between forty and a thousand million years. As one might expect, the highest animal—civilized man—has been longest in the making. The slow, laborious steps in his production can be traced back through the most primitive savages now living and still more lowly forms of life—such as those which form the subject of this book.

As one studies the theory—or rather processes—of evolution, it becomes apparent that the many species of animals cannot be arranged in one unbroken series, each link in the chain having a less highly developed link below it and a more highly developed link above. Many of these links form root-stocks, which have given rise to side-chains, and these again have branched out into endless ramifications. A single link having branched may give rise to forms very unlike itself.

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The steps in Man's evolution, however, like those of many other creatures—such as the horse, elephant, and camel—form a remarkably consecutive series, and so-called missing links are noticeably few. During the last half-century there has been brought to light a wonderful assemblage of 'fossil men'—some of remarkably high cranial development, and others standing midway between the highest living apes and the most degraded savages surviving in remote corners of the earth. The precise length of time it has taken to evolve these 'ape-men' from still lowlier forms is at best conjectural. Evolution is slow, but it never stops. Even in ourselves there is abundant evidence that we are changing—not merely in our mental equipment and standards of life, but in our persons generally. The average human height to-day is greater than in medieval times; the brain-case is, according to certain anatomists, slightly increasing in size, while our soft diet and cramping foot-wear is leading to (1) the elimination of our molar teeth, and (2) a similar disappearance of the little toe.

A review of men and monkeys must nowadays convince the most bigoted adherent of 'Cataclysmic Creation' that the many points we share in common are more than superficialities—or accidents—since the stages by which we have become what we are can be traced with tolerable accuracy step by step. The source of our common ancestry is, however, not perhaps so easily explained.

It is generally agreed we have evolved from an arboreal stock, and there are to-day, in both hemispheres, savage tribes who habitually live above ground, the first and

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only storeys of their simple dwellings being placed upon the spreading limbs of trees. These tribes have been made the subject of an exhaustive treatise by Professor Wood-Jones in his *Arboreal Man*, and no unbiased reader, seeing some of these primitive dwellings, can fail to be reminded forcibly of the twig-platforms built by certain of the great apes.

The first arboreal ancestors of the monkeys were probably insectivorous creatures allied to the living tree-shrews, and many features are shared by the tree-shrews and the lowest of all the monkeys—the lemurs. The wonderful delicacy of hand, shared by man and monkey, is less apparent in the lemurs, who rely more upon scent than either sight or touch. The evolutionist—ever watchful for ‘links’—finds a very powerful one among the lemur-like animals in the so-called tarsius (*Tarsius spectrum*).

This tiny animal is confined to-day to the jungles of Borneo, though in prehistoric times it enjoyed a much wider distribution. For some reason it seems to have been unable to hold its own against larger foes, though possibly more subtle antagonisms of changing climate led to its present restricted distribution. This tiny animal was developing all those features which have culminated in the advantages we now enjoy over all other animals. It hunted more by sight than scent, and as a result its muzzle shortened, instead of retaining the characteristic dog-like formation seen in the true lemurs. It further developed a wonderful mobility of neck, great suppleness of hand, and a very high perfection of vision. Together

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with Man, the great apes, and the highest monkeys, the eye of the tarsius has a 'yellow spot'—a patch on the retina which gives a stereoscopic view of all surrounding objects. This clarity of vision reacts automatically upon the brain, enabling it to concentrate and so give sustained attention to the subject in hand. With the tarsius the yellow spot is less perfected than in ourselves, or in monkeys, but it is in course of formation, and so constitutes yet another undoubted stepping-stone on the road to success.

To an animal whose steadily improving brain and vision were constantly opening up new vistas for exploration, a life in the tree-tops was not enough. Soon the ground came in for its share of exploration, and as will be seen later, the apes and higher monkeys are quite as much reliant for their various needs upon the ground as among the tree-boughs. For reasons probably best explained by various changes in the distribution of the great land-masses, the monkey-stock presents a higher development in the Old than in the New World. This statement, however, must not be regarded as dogmatic. According to some reports monkeys of almost human stature haunt the dense jungles of the Amazon region, and in view of the fact that thousands of miles of this region are still uncharted territory, the precise distribution of the great apes cannot be safely regarded as definitely ascertained.

Life on the ground had many important influences upon the monkeys who were daring enough to adopt this form of existence. It led to the gradual loss of the tail—which has not (as sometimes stated) merely been

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'rubbed out' by being sat upon. A long tail is an asset in arboreal life—serving as a balancing-pole—and in the South-American monkeys it has even become prehensile. But on the flat it is more a hindrance than a help. The only tailed ground-monkeys are the baboons, and their tails are of no great advantage to them. The elimination of some particular feature in an animal's make-up usually brings with it corresponding compensations, and the loss of a tail seems to have led to a general increase in size—the natural outcome of placing greater reliance on the limbs. This is seen very clearly in the man-like apes, of which the largest of all—the gorilla—reaches a weight of over 600 lb.

Apes and monkeys are, like ourselves, relatively creatures of yesterday, newly entered into their domain and bound upon a road of which none can see the end. It is significant that of the man-like apes, only fragmentary fossil-remains are known, though it is otherwise with monkeys, lemurs, and especially the tarsius. The nearest approach to a fossil ape is the *Australopithecus*, of which a skull was lately found in Bechuanaland. The absence of a large series of fossil-anthropoid remains, covering a long period of time, is significant, since it seems to show that the transition-period from true ape to almost man must have been comparatively brief—an interlude such as might be brought about by sudden and dramatic changes of climate and landscape. This quite plausible theory is accepted by many leading palaeontologists, who point out that from the late-Miocene period onward the climate of the sub-tropic belts tended to become drier

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and cooler, and this implies a retreat and dwindling of the forest-lands. Often the forest-dwellers could retire with the retiring forests and so retain their arboreal habits. But in Central Asia the Himalayas barred the way south, and so, it is suggested, many ape-like creatures were forced to adapt themselves to the fast-diminishing forest-lands and lead a comparatively open existence, which at once altered their bodies and sharpened their wits. It is this consideration—coupled with some of the recently discovered semi-human remains—that has induced many of the most eminent scientists of widely different nationalities to regard Central Asia as the cradle of mankind.

The development of Man is the most astonishing feature of the entire realm of Nature—not only by reason of its complexity, but its extraordinary rapidity. Civilization itself covers little more than sixty centuries and is the direct result of Man's ever-increasing brain-power—which received at the outset its greatest incentive from the sharp spur of necessity.

The present volume, however, does not concern our own species, but the legion of the monkeys and the less abundant man-like apes. The foregoing glance at our possible evolution is necessary, since as will appear in due course, the main features of our own economics and ways of life are crudely foreshadowed, as it were, in the apes and monkeys whom we have left behind us on the road of evolution.

The foregoing facts and theories are now generally accepted by most persons with any pretensions to

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education. But even to-day the general theory of Man's origin, though widely accepted, is not universally so. Only a year or two ago, one of our most enlightened bishops brought bitter vituperation and ignominy upon himself by the delivery of what a section of the Press designated "the gorilla sermon." A few years prior to this we were treated to the account of an unfortunate young schoolmaster of Tennessee, U.S.A., who, for daring to put before his class the broad outlines of evolution, was deprived of his living. The tragic farce of 'Monkeyville'—as the scene of this schoolmaster's adventures soon became known—is gloomy testimony to the obstinacy with which old prejudices are adhered to, in the face of all reason and scientific evidence.

One can well imagine, therefore, the unreasoning opposition which Darwin met with when he published his *Origin of Species* in 1859. Darwin received little support from his contemporaries. Professors Haeckel and Huxley were happy exceptions to the discouraging majority, and the latter—a vigorous and pugnacious controversialist—delighted to declare himself as "Darwin's bulldog."

In spite of the fact that Darwin was held up in many quarters as a blasphemous iconoclast and an enemy of the people, the *Origin* proved a 'best seller,' and the world was in a mood to receive the *Descent of Man* when it appeared some twelve years later—not that its acceptance was by any means universal; even such popular naturalists as Charles Kingsley, Philip Henry Gosse, Frank Buckland, and many others showed by all their writings and public

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utterances how completely some of the best intellects of that time could reject what are now the commonplaces of general knowledge.

Before reviewing the apes and monkeys in detail, a few interesting generalities may be touched upon. The geographical distribution of animals is an important clue to past changes in the earth's climate and disposal of the great land-masses, and a study of monkeys, past and present, shows that the existing order of things has only been arrived at after a long series of changes. Monkeys are popularly regarded as creatures of the tropics, but while this is true of the majority, it is not universally so. Apes and monkeys abound in warm countries, since there they most easily obtain a lavish supply of vegetable food. But just as the hardier and more progressive races of man have found their most congenial environment in relatively temperate zones, so many of the more vigorous apes and monkeys have found their highest expression in the less enervating regions bordering the equatorial belts. The gorilla, for example, has penetrated almost to the snow-line, and this region has actually been successfully invaded by such large and powerful monkeys as the langur of Northern India and the famous 'sacred monkey' of Japan.

As previously mentioned, fossil-remains of apes or monkeys are relatively rare, but such monkey-like animals as have come to light are of great significance. They show, for example, that the race was established in the mid-Miocene period, a time when the other great mammalian groups surviving to-day were in the making. Some of these early monkey-remains suggest creatures akin to

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the lemurs, and some of them were larger than any known to-day.

In the later stages of the Miocene, the climate of southern Europe must have been much warmer than it is to-day. Remains of man-like apes have been unearthed from this region, and there is evidence that a species of chimpanzee once lived as far north as Germany.

In this same period a monkey very like the 'modern' langur of India flourished in the neighbourhood of where now stands Athens; still more interesting are remains which prove that the county of Essex must once have been sufficiently sub-tropical to support a monkey almost identical with a species that is still abundant in North Africa, and a feature of the Rock of Gibraltar.

To many it must seem puzzling—and contradictory—that numerous regions of the world which might reasonably be supposed to offer ideal conditions for the support of monkey-life are entirely without any such features. Here, however, the rise and fall of land-masses in the past must be taken into account. During the greater part of geologic time the earth's climate was generally more equable than it is to-day, but comparatively recent and drastic changes have led to the raising of barriers—either mountainous or oceanic—between the various land-masses, with the result that some forms of life have been literally marooned, or at least permitted to extend their territories only in the face of great difficulties.

Thus the island of Madagascar—though ideal as a retreat for apes or true monkeys—knows none of them, but is instead given up largely to lemurs—a group found

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only sparsely elsewhere. Stranger still is the case of Australia, which knows neither monkeys nor lemurs, but offers such perfect conditions for both that some members of its exclusively marsupial mammalian fauna have taken on a superficial resemblance to monkeys, such a make-up being best adapted to a frugivorous life among the tree-tops.

In a general work such as the present, a detailed survey of monkey-anatomy would scarcely be appreciated, and only its more interesting features will be touched upon.

Suffice to say that apes and monkeys are built upon a general plan, similar to our own, but showing extraordinary variation and often excessive development of some particular feature.

In all their ways and appurtenances the creatures often popularly spoken of as "our poor relations" show a kinship which cannot be denied, and at no time is it more apparent than when Man first enters on the stage of life. In his hairy covering and highly prehensile hands and feet—even sometimes in the retention of a tail—respectable Master Jones or Robinson, newly launched upon the world, shows a close affinity with animals with which he will, at a later stage in his development, ungraciously repudiate all relationship.

Man is the final expression of that immeasurably long series of evolutionary changes which has culminated in the natural order known as the 'primates'—the so-called man-like apes, the baboons and other monkeys, the lemurs, and allied animals generally known as lemuroids.

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Before entering on a detailed review of all these varied—yet closely similar—forms of life, it may be as well to offer a brief definition of just what constitutes a primate, giving the leading characteristics which bind the group together and distinguish it from all other living things.

Firstly, its brain is relatively far in excess of all other animals. This varies enormously in bulk and the number of its folds or convolutions, the latter being always proportionately much greater and more numerous (even among the lowest primates) than that in such comparatively intelligent creatures as the dog or horse. The seal is a curious exception. Though a vast amount of territory still remains unexplored in the realms of cerebral research, it is generally agreed that a brain with a large number of deep folds or convolutions is likely to be of better quality than a larger brain with few and shallow convolutions. The little squirrel monkey, for example, has a larger brain-box—in relation to its size—than any other primate, not excluding man; yet the squirrel monkey with its feebly convoluted brain is far below most monkeys in intelligence.

One of the most interesting features in connexion with the study of the primates applies to the manual and pedal extremities—the hands and feet. The quadrumana, as the primates are often called, are literally four-handed, and their four-handedness is a direct outcome of the bulky brain and upright carriage. To the casual observer there may be no similarity between the elephant's forefoot, the bat's wing, the whale's flipper, and the

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human hand. Yet these, at first sight, very dissimilar organs are one and the same, and their homology becomes apparent when all are reduced to the common denominator of dried bones. But in using these organs exclusively for flying, swimming, or walking, the bat, whale, and elephant have forfeited their 'handy' characteristics. Few of the lower mammals indeed have power to appreciate the enormous possibilities of a well-developed hand. Rodents and cats certainly use their forepaws in a travesty of the hands proper, while in such animals as the horse, sloth, and ant-eater all resemblance to the accepted hand form has been entirely lost. The first foreshadowings of the primate-hand are seen in the insectivora—the shrews, moles, and hedgehogs. These creatures are usually placed next to the primates, though their connexion seems somewhat obscure. In many examples, the forefeet are surprisingly supple, and even the clumsy-looking forepaws of the mole are far more entitled to be regarded as hands than are the corresponding features of the lion or the dog.

The outstanding feature of the primate-hand is the opposable thumb. Early workers on natural history occasionally claim this to be the prerogative of the man-like apes only, but it is applicable to most apes and monkeys, though in a few instances the thumb—as seen in the gibbons and spider monkeys—has largely atrophied from disuse. The well-developed hand is the natural accompaniment to the upright carriage being used to lift food from the earth to the mouth instead of being merely an organ of progression. The primate-hands are eloquent

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indicators of their owner's way of life. Just as Sherlock Holmes—or rather the famous Edinburgh doctor on whom the character was based—could diagnose a man's mode of living by looking at his hands, so the scientist can make very correct guesses at the ape's or monkey's general economy from an examination of its paws. Remarkable changes may be rung on the sub-human hand. In most apes and monkeys it is an organ of extraordinary flexibility and sensitiveness, though in such quadrupedal types as the baboons and the patas monkeys it is blunted by rough work and contact with hard ground.

In the lemurs, the fingers are provided with semi-adhesive pads whereby to negotiate the slippery stems of bamboos, etc. Even the thumb in most lemuroids is enormously exaggerated, forming a tenacious grasping organ. Physiologically, hands and feet are merely variations of the same organ, and in most primates they are largely interchangeable. It will, however, be observed that the feet, since their primary purpose is to support the weight of the body, present less diversity than do the various hands. Even in the lemuroid known as the aye-aye, the feet are more or less of a normal pattern, whereas the hand is unique in the excessive development of the fingers and, in particular, the third digit.

Apes and monkeys, unhampered by boots and shoes, have in most cases made good use of their pedal extremities, especially in the arboreal forms. They are useful grasping organs, even the big toe being as opposable to its fellows as a normally developed thumb. As in many

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other mammals, the normal complement of digits, both fore and aft, is five, though some primates have discarded a digit, and in a few, such as gibbons, fingers or toes may be partially united as a result of using the hand or foot more as a mere 'hook' than as a manipulative instrument.

Constant use of the hand has led to a great development of the forearm, and this in turn has involved a well-developed clavicle, or collar-bone—a feature absent in many mammals, but present in all primates and also in bats, in which it forms a brace for the powerful wing.

The flattened nails of primates are an outcome of the grasping hand. Claws would obviously be a severe hindrance, though in some of the lowest primates, such as the lemurs, claws are present on one or more digits, a legacy inherited from remote insectivorous ancestors.

Another characteristic of primates is their relatively tardy development. Primates come into the world as the most helpless of creatures, and are comparatively slow in mastering all those accomplishments which shall serve them throughout their so-called years of discretion. Whereas a calf or fawn can contrive to walk and feed almost from birth, infant lemurs, monkeys, and apes are at birth as helpless as any human child. This seeming disadvantage is one of the primate's greatest assets, since a slow but thorough education and a leisurely building-up of brain and body make for ultimate success. Throughout the entire range of the lower animals one meets with innumerable examples which show that a too-rapid

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development stops short of ideal fulfilment and must in the long run lead to premature extinction.

In an account of the primates it might perhaps seem logical to begin at the bottom of the scale with the lemuroids and work upward to man. But we shall here follow the generally accepted precedent, and commencing at the top of the tree with our 'next of kin,' the man-like apes, we shall progress in a descending scale to the lowest orders of the group. Before discussing the inhabitants of the monkey-kingdom in detail, however, I propose dealing shortly with the economic aspect of these animals.

With the monkey so constantly held up to us as a mere figure of fun—a jester of the jungle—the economic side of the creature is apt to be overlooked. With the egoism of our species, we seldom think of the restless, scatter-brained monkey as an integral part in the ordered scheme of things.

Of recent years the importance of monkeys in maintaining the balance of Nature has been largely realized, and vigorous, if belated, measures are now being taken for the protection of most species.

Very few monkeys, for instance, can resist insects, especially locusts, and in indulging their taste they put a salutary check upon creatures that might otherwise monopolize a large part of the world. At the London Zoo none can have failed to see the baboons on Monkey Hill carefully sifting the dust through their fingers. In the wild they do this in search of scorpions and desert-beetles, and though these are of course not forthcoming at Regent's Park, hope springs eternal in the baboon

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breast. Similarly many of the smaller monkeys, such as capuchins and marmosets, spend many hours of every summer day chasing flies and searching for small insects. The importance of insect-food in the dietary is now so well recognized that at the Zoo small species of cockroach, and even stick-insects, are bred purposely to maintain a balanced diet-sheet for the smaller monkeys.

As vegetarians, monkeys play a very important part in the distribution of seeds. Living principally in lands of plenty, monkeys are notoriously wasteful feeders, selecting only the choicest fruits and scattering abroad far more than they eat. The passage of a troop of monkeys through the jungle—or cultivated ground—leaves much ruin in its train. But so far as Nature is concerned this ruin is often all to the good, and plants which might otherwise be choked by their own seedlings are weeded out, and their race is given a chance to colonize new territories farther afield.

Monkeys serve a useful purpose therefore while apparently doing nothing. It has remained for man to turn them to still other accounts, and not always of the most creditable kind.

When so many species of animals can be farmed and painlessly killed in order to supply the fur-market, it is hard to find any excuse for the trade in monkey-skins. Yet some of the most handsome species have been all but exterminated in order to appease human vanity, and none has suffered more than the guereza, or diana, monkey, represented by several local races in Africa.

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The guereza is characterized by a striking black-and-white livery, with immense draperies of hair depending from its sides. Forty years ago over 175,000 of these animals were killed in a single year in order to bedeck ladies who presumably found their natural allurements insufficient. Ten years later the demand for their skins was greater than ever, but only 1067 could be found—so well had the hunters done their work in five years.

As a servant of Man, the monkey has played a more important part than many may suppose. Reference to it as a show-beast and performer is made in another chapter, but 'the profession' has not by any means exhausted its activities. In the courts of many of the less civilized Eastern principalities, large monkeys of various kinds are allowed to wander at will, and they prove themselves to be highly efficacious 'watch-dogs.'

The classic stories of how travellers have induced monkeys to throw down nuts to them are well founded upon fact, and the exploits of monkeys as harvesters rank among the most interesting of animal-activities. In Sumatra, for instance, the natives still employ a monkey known as *Macacus nemestrinus* to assist in harvesting the coco-nuts. These monkeys are trained to the task, and when fully 'qualified,' may command from two to eight pounds each. Such a monkey becomes very powerful through constant exercise and as a result of good treatment lives to a great age. The procedure of this strange harvesting is very simple. The nut-farmer sends his monkey up a selected tree and directs the animal's movements by a cord attached to its waist; when a nut of

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desired quality is found, it is at once dislodged by a few dexterous twists of the monkey's wrists.

These varied uses to which monkeys can be put do not necessarily exhaust the possibilities. The monkey's inherent imitativeness and the self-importance of certain monkeys might be exploited much farther, given a sufficiently patient trainer. Gassendi, a Jesuit monk and a naturalist of about 1630, thus describes a monkey he met in Cartagena:

I sawe one monkey in the Governor's house, so taught, as the things he did seemed incredible: they sent him to the Taverne for wine, putting the pot in one hand, and the money in the other; and they could not possibly gette the money out of his hand, before he had his pot full of wine. If any children mette him in the streete, and threw any stones at him, he would set his pot downe on the one side and cast stones against the children till he had assured his way, then would he return to carry home his pot. And which is more, although hee were a good bibber of wine (as I have oftentimes seene him drinke, when his maister has given it him) yet would he never touch it untill leave was given him.

Throughout classic writings one finds accounts of monkeys having been trained to solve the servant-problem. Egyptian mural paintings also bear ample testimony to the same end, and some of these artistic records show monkeys ascending date-palms and throwing the fruit to slaves waiting below. Robert Fortune, a distinguished botanist (1813-1880), has described monkeys as being taught to assist in the tea-harvest of China. They proved very indifferent workers, however,

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and sometimes they became so slack that the exasperated planters hurled stones at them—a motion which the monkeys met by tearing up the tea-plants and returning the enemy's fire with interest. In many of these cases the species of monkey so trained is in some doubt, but there is evidence that the pig-tailed macaque is, if so disposed, a highly efficient fruit-gatherer, though apt to sulk if required to work what he considers to be 'over-time.' In the Egyptian paintings the powerful and ferocious sacred, or hamadryad, baboon is very clearly indicated as a fruit-gatherer, and one that repaid himself for his services at frequent intervals. The earliest of these paintings date back to at least 3450 years B.C. The latest evidence is that of some excellent photographs, taken by Dr P. J. S. Cramer at Buitenzorg, Java, which clearly show pig-tailed macaques gathering coco-nuts under human supervision.

In 1670 one of the first travel-books on Africa states that at this period there were in Abyssinia "three kinds of monkeys that give almost as much service as slaves. Ordinarily they walk erect like men. They can grind millet in the mortar, and go to draw water in a pitcher. When they fall down, they show their pain by cries. They know how to turn the spit, and to do a thousand clever little tricks, which greatly amuse their masters."

Apollonius of Tyana, who lived about A.D. 100, describes how "the banks of the River Hyphaxi, which traverses India, are clothed with aromatic shrubs—cultivated by apes." It appears that these apes (langurs) were induced to harvest pepper by a very simple device. The

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pepper-farmers hollowed out a space at the foot of the pepper-tree, and into this they shook the pepper-pods which they could reach. The imitative monkeys, high above the pepper-farmers' tallest ladders, observed the procedure and presently delivered into the basin thousands of good pepper-pods, which would have been otherwise unobtainable.

In the ancient civilization of Egypt under the Pharaohs, the monkey was not only deified, as mentioned elsewhere in this book, but was also turned to practical account. There are various records of how monkeys, probably baboons, were trained as torch-bearers, and in this capacity were employed on an extensive scale at banquets. Usually a torch-bearer's conduct was irreproachable, but occasionally one would 'go off the deep end' and fling its torch among the guests, to the general embarrassment. These apes were kept under military discipline, severe chastisement and reduction of rations being among the correctives used to keep them under control.

In 1902 an authentic account was circulated in the Press of a baboon living in a signal-box on the Johannesburg-Pretoria line, who actually pulled the levers—under direction—and never occasioned a single accident.

The part which monkeys have played in medicine generally has been touched upon in the section devoted to folk-lore, but it has remained for the post-War years to find the most remarkable medicinal use to which any creature could be put, *i.e.*, the borrowing of its vitality and the recapture of the patient's lost youth. Certain research-workers realized that the exhausted tissues of an

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elderly human being could be to a large extent supplemented by new tissues taken from an ape still in its hey-day. The chimpanzee, being so closely akin to man, naturally commended itself for this purpose, and for some time chimpanzees were in great demand. From the first the desirability of endowing worn-out and used-up business-magnates with a new lease of activity was called in question. However, many whose wealth was in excess of their mental capacity did thus rob decent chimpanzees of their birthrights, and sometimes found, like Faust, that they had not made such an enviable bargain after all. So much for the "Gland of Hope and Glory," as the Press humorously described this incursion of the monkey tribe into our modern pharmacopoeia.

Finally, no review of the monkey's economic uses can be complete without some reference to the creature's employment in that final refinement of modern civilization, the use of poison-gas, since thousands of rhesus and other monkeys have in recent years been sacrificed by the most cultured of European nations in testing gases intended for the extermination of their neighbours.

CHAPTER I

THE GORILLA

ABOUT 1698 Andrew Bartell, an English captive of the Portuguese in Angola, described the gorilla (*Gorilla-gorilla*) as a huge and ferocious animal known to the natives as the "Pongo," which habitually walked erect.

Bartell wrote:

The Pongos differeth not from men but in their legs, for they have no calves. They goeth alwaies upon their legs, and carrieth their hands clasped in the nape of the necke when they goeth upon the ground. They sleep 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 when 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 go many together and kill many negoroes that travaile in the woods. Many times they fall upon the elephants that come to feed where they be, and so beate them with their clubbed fists, and pieces of wood, that they will run roaring away from them.

This vivid account was widely copied by other authors, including Buffon, in his *Histoire Naturelle* (1749-1767). Such misrepresentations were only partly corrected in 1847, when Dr Thomas S. Savage, a missionary in the

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Gaboon region, collected a good deal of information, and also much misinformation, from the natives, and also acquired a number of skulls, picked up for the most part on kitchen-middens, the savages, despite their dread of the gorilla, being much addicted to gorilla-steak, especially those provided with immense jaw-muscles. Apart from the since corroborated account of the gorillas making tree-top dwellings of sticks, Dr Savage tells us:

It is said that when the male is first seen he gives a terrific yell that resounds far and wide through the forest. His enormous jaws are widely opened at each expiration and the hairy ridge and scalp is contracted over the brow, presenting an aspect of indescribable ferocity.

The gorilla was known to the Gaboon natives as the *Enge-era*. Dr Savage's account of the animal's mode of attack was repeated five years later by a Mr Ford, another visitor to the same region. At that time, while many natives shot the gorilla with poisoned arrows, others used primitive muskets with barrels of very soft metal, like gas-piping. The accepted procedure was to await the charge of the gorilla, who invariably put the barrel of the rifle in his mouth; the hunter then pulled the trigger and hoped for the best. If the gun discharged its load of scrap-iron before the gorilla's jaws closed upon it, there was a feast to celebrate the event. It sometimes so happened, however, that the gorilla's vice-like jaws crunched the soft metal sides of the muzzle together, causing the weapon to backfire, and so reversing the intended order of events.

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-It was in 1860 that Paul du Chaillu, the intrepid little Franco-American explorer, distinguished himself by being the first white man to kill a gorilla and produce concrete evidence to place before an astonished world.

Between the years 1856 and 1859 Du Chaillu explored a considerable portion of hitherto unmapped western equatorial Africa. He made extensive collections of plants, animals, native equipment, etc., produced maps, and crystallized his experiences in several massive volumes.

Unfortunately for himself, Du Chaillu had a somewhat flamboyant manner and an appetite for sheer rhetoric which antagonized many to whom his perfectly genuine adventures came as a surprise. In addition he was given to making quite legitimate repairs by means of paint, etc., to some of the gorilla-skins he brought back, but denied such embellishments when questioned, a weakness which still further shook the general confidence. From 1861 onward, during the years he spent both here and in America, displaying specimens, lecturing, addressing learned societies, etc., he seems to have been in continual hot water. On one occasion, at a meeting of the Anthropological Society, he so far lost patience with his hearers as to climb over the benches and shake his fist in the face of its learned and distinguished chairman. Disturbances were quite usual, indeed, wherever Du Chaillu appeared, and a vituperative correspondence filled the columns of the Press.

Two extracts from *The Times*, during May of 1861,

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will suffice to convey the 'atmosphere' occasioned by this unfortunate controversy.

Du Chaillu, replying to one of his many disbelievers, wrote:

Would it not have been more fair of Mr Gray [of the British Museum] before giving vent to insinuations that I had never visited the countries described, nor collected in those countries my natural-history specimens, to have applied to my friends at Corsica and on the Gaboon, whose names are mentioned in my book? Mr Gray pretends to be in communication with the missionaries and traders in those parts, and therefore this course would have been the more obvious, as he would have saved himself from the imputation of mere calumnies. . . .

To which Mr Gray, nothing daunted, replied:

If Mr Du Chaillu had published his work as "the adventures of the gorilla-slayer" I should have taken no notice of it, for the readers of such works like them seasoned to their palate. It is only as the work of a professedly scientific traveller and naturalist that I ventured my observations.

Du Chaillu's works did undoubtedly offer a good deal of information on both the gorilla and chimpanzee, but they are confusing since he sometimes mistook chimpanzees for young gorillas and *vice versa*. His mounted specimens, especially skeletons, were so good that many survive in public museums, including the British Museum and the College of Surgeons, while his original observations are none the less interesting because corrected by more recent investigators. Considering the disadvantages

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under which he worked, he commands far more respect than derision.

• Du Chaillu saw his first living gorilla in 1856. Before this he had heard numerous stories and perused early writings, all of which combined to represent the gorilla as a species of incarnate fiend of horrifying size and strength—a sort of ‘King Kong.’ While yet on the track of his first gorilla his naturally excitable nature was severely played upon by his native guides. He was told, for instance, of a party of gorillas that had recently been surprised tying up sugar-cane in bundles, with a view to its wholesale removal, and that several native farmers, on attempting to protect their property, were carried off as prisoners, but returned a few days later—with all their finger- and toe-nails removed!

• The abduction of women by gorillas was accepted by all as a proven fact, while the souls of departed bandits were commonly believed to dwell for ever after in gorillas, which became famous for their ferocity. Commonest of all stories, and one accepted by all the tribes in gorilla-country, was the account of gorillas habitually lying ambushed in branches overhanging public high-ways, and from this coign of vantage seizing luckless wayfarers with their feet, drawing them up into the tree-top, and there silently strangling them.

• According to Du Chaillu, the natives used the gorilla’s brain to make charms. Equally strange was the very prevalent belief that any pregnant woman seeing a living gorilla must inevitably herself give birth to a gorilla.

• Du Chaillu’s exploits have been given at some length,

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since this explorer, with all his defects as an accurate scientist, can at least be credited with the unique achievement of first bringing the gorilla into the limelight.

For long after the Du Chaillu controversy had ceased to excite public attention, almost all reports of the gorilla had come from the West Coast of Africa. But in 1911, Carl Akerley, the famous American hunter and taxidermist, received corroboration of gorillas living in the neighbourhood of Lake Kivu, Central Africa, and of specimens shot upon the slopes of Mount Mikenno. He visited the Kivu country in 1921, where also a Mr T. Alexander Barnes was collecting for the British Museum. From this period date the true accounts which we now have of the largest of living apes, and if they are not quite so lurid as some of the early legends, they frequently transcend them in interest.

Akerley added to his many other achievements that of a remarkable power for sculpture and accurate description, and it is to him that we are chiefly indebted for our knowledge of the gorilla in the wild.

Apparently the gorilla is among the most pacific of animals where Man is concerned, and only when forced to compete with natives for food are the solitary males dangerous. The animal's size is certainly impressive. The skeleton obtained of a veteran standing six feet in height must have belonged to an animal weighing quite 600 lb., and until recently the 560-lb. example shown in the frontispiece lived in the Berlin Zoo.

Giants such as the foregoing appear to be the overlords of small family-parties consisting of one or more

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‘wives’ and certain smaller male hangers-on—possibly adult sons or grandsons. These parties lead more or less nomadic lives, wandering through the jungle by day, living solely upon vegetable food, and seldom if ever camping for the night in the same place. ‘Pitching camp’ is carried out according to an approved ritual. The overlord first sends his ‘family’ up a selected tree, where the members quickly compose rude platforms of boughs on which they sleep. The overlord, on the other hand, remains at the foot of the tree, where he may make a crude spring-mattress of twigs, upon which he sits, his back to the tree, and with his arms folded on his breast. The very weight of an adult male gorilla would make an arboreal life impossible. By day, at least, gorillas of all ages are as terrestrial as ourselves.

They walk—and run—chiefly on all fours, the great length of the arms giving the appearance of a semi-upright carriage. The body hangs forward at an angle of less than forty-five degrees, and the musculature of the arms is such that when the knuckles are placed on the ground and the arms are straightened, the fingers tighten up automatically.

The gorilla’s demoniacal cries have been described by early travellers; the normal voice is in truth but a dog-like bark, though youngsters scream in the approved human-nursery fashion. Throughout the many months Akerley spent in studying, shooting, and filming gorillas, he never once met with even a hint at hostilities. It is due to his efforts, and those of his late Majesty, Albert, the King of the Belgians, that the vast gorilla-sanctuary

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of Mount Mikenno is now established to preserve these interesting creatures in perpetuity.

The arms of the gorilla are proportionately shorter than those of the chimpanzee, orang, or gibbon, and so they most nearly resemble our own. In the unborn gorilla this is still more apparent, while the shape of the hands, feet, and head are vastly more human than they appear in later life. A feature characteristic of the adult male gorilla is a huge flange of bone running over the top and back of the skull, suggesting the crest of a Grecian helmet.

The gorilla is the largest ape known, either living or extinct, but it is not necessarily Man's keenest competitor in cerebral development, that honour being by some accorded to the chimpanzee. Apart from size it is distinguished at once from the latter by the relatively short arms, large 'splayed' nose, and very small ears, which approximate to our own more closely than those of any other anthropoid. Its muscular strength is probably greater in relation to its size than that of any other mammal. The investigator Yorkes found that a young female gorilla weighing only 65 lb. could (without excessive effort) exert a pull of 160 lb. and a year later increased this by nearly 100 lb.

The female is not only smaller than the male but is distinguished by a peculiar odour suggestive of rubber and not unlike that of some Central-African women. Of the two varieties of gorilla recognized, one inhabits the forests of the lowlands, in a steamy atmosphere and perpetual twilight; the other, or mountain-breed, is

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the larger of the two and has a denser coat, capable of withstanding great cold. Like the chimpanzee it is prone to use the left hand more than the right, whereas the other anthropoids are inclined to be right-handed, like ourselves. In marked contrast to the chimpanzee, it is, even in youth, of a much slower and more deliberate nature, inclining to become morose and brooding when over seven years of age.

Though modern methods of maintaining man-like apes in captivity are daily adding to our knowledge of their habits and psychology, the gorilla still remains the least understood of all the species known. It is, even to-day, very much a beast of mystery, its natural reserve making it very hard to approach.

Although so much has been done to correct early misconceptions of this animal, many details of gorilla home-life and general economy remain for future generations to clear up—a task now made easier by modern facilities for correct observation and recording of the animal in its native land.

Considerable light has been thrown of late years upon the gorilla's behaviour, thanks to modern means of keeping the animal under observation in captivity, and much interest attaches to the comparatively few examples that have lived for any appreciable time in private or public collections.

The history of gorillas in this country is typical of many others. During the 1860's—when Du Chaillu first began to set the scientific world by the ears—the gorilla's true appearance was not known even to the

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savants, and still less to the general public. In 1861 Wombwell's Menagerie was actually touring the country with a young and very docile gorilla, which its proprietors regarded, and exhibited, as a chimpanzee. Conversely an adult male black-faced chimpanzee was offered to the British Museum as a gorilla, and later toured the Continent as such. A genuine gorilla was apparently shown at the Westminster Aquarium as a 'Pongo' and was later sold to the Berlin Aquarium for 10,000 marks. A drawing of Wombwell's gorilla, by Joseph Wolf, now adorns the London Zoological Society's offices.

The London Zoo received its first gorilla as late as 1887, and the specimen was housed next to Sally, an historic chimpanzee. Railway-travelling in 1887 was not what it is to-day, and the ape—a young male—arrived cold, shaken, and in generally poor condition. It was noticed by *Punch*, and indeed all the leading journals, and every care was lavished upon this valuable acquisition. But from the first it proved morose and lethargic, refusing to respond to the advances of a young rhesus monkey given it for company. It soon found a last resting-place in the museum of the Royal College of Surgeons.

A little more fortunate was Jenny, the Zoo's second gorilla, purchased in March, 1896. She was the largest that had yet been seen anywhere, and was kept in a house that once stood on the site of the Zoo's present offices. Though never lively, Jenny appeared cheerful and friendly, but, in default of sun-ray lamps and all the

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other accessories to monkey-comfort that the Zoo knows to-day, she was not long in contracting a chill, from which she died.

The building of the (now demolished) Ape House in 1901 emboldened the Zoo to purchase two young female gorillas in 1904. Venus and Chloe, as these apes were called, were a great attraction—but not for long; and their early deaths decided the authorities to keep no more gorillas. This resolve was modified in 1920, when visitors enjoyed a series of daily visits from one of the most entertaining gorillas that this country has ever seen. John Daniel, who lived with his owner, Miss Cunningham, in a third-floor flat in Sloane Street, came to the Zoo every afternoon during the summer months in a taxicab, and kept large crowds entertained by his antics in one of the big outdoor lion-cages. Here, with a small boy in attendance, he played to the gallery with a feverish zest. He stood about four feet in height, and his chief delight was to dress himself in an overcoat built for a man of six foot or over, and thus attired to swing on a large rope depending from the ceiling of the cage. He took his meals in public with tolerable decorum, using the ordinary table-service. In his private residence he loved to lounge at the open window overlooking the street and show off for the benefit of the passers-by. The police were eventually obliged to request his withdrawal since he caused at times a very noticeable dislocation of the traffic.

Like most anthropoids, John Daniel conceived a great fondness for human society and a devoted attachment

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to his owner. The writer, who lived at the time in a flat exactly opposite the distinguished ape, has many pleasant personal recollections of John Daniel, with whom he was privileged to be on familiar terms. During his stay in Sloane Street, John daily saw the Guards pass on their way to duty at Buckingham Palace, and it may be set on record that these perfect soldiers found their professional stoicism strained almost to breaking-point, for the gorilla on these occasions would lean out of the window and exert himself to more than usually clownish efforts.

Though admittedly a buffoon, John was a very real protection to his mistress. On one occasion, the lady, who had a dressmaking-business on the ground floor, was importuned by a ruffianly vendor of brooms and brushes. As the man refused to take 'No' for an answer, and was fast becoming threatening, the lady quietly summoned John; the source of annoyance retreated at a pace that would have done him credit on a cinder-track.

John Daniel lived in all ways a normal 'human' life, sleeping in a bed, eating at table, and using the 'usual offices' like any decent member of society.

In the *Bulletin* of the New York Zoological Society, Miss Cunningham has given a particularly interesting account of her former charge.

He never cared much for nuts of any other kind, except walnuts. With coconuts he was very funny. He knew that they had to be broken, and he would try and break them on the floor. When he found he couldn't manage

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that, he would bring the big nut to one of us and try to make us understand what he wished. If we gave him a hammer he would try to use it on the nut and on not being able to manage that, he always gave back to us both the hammer and the coconut. He knew what hammers and chisels were for, but for obvious reasons we never encouraged him in anything to do in the line of carpentry.

John loved to have people come to see him in his home. At first we used to admit every one who asked, but after a while I found this was impossible. Very soon we were compelled to limit visitors to those introduced by personal friends, or people who wished to see him from a scientific standpoint. Whenever people came to see him, he would show off like a child. It was his custom to take them by the hand and lead them round and round the room. If he saw that a person was at all nervous about him, he loved running past them, and giving them a smack on the leg—and you could see him grin as he did so. A game he was very fond of was to pretend that he was blind, shutting his eyes very tightly and running about the room knocking against tables and chairs. He loved to take everything out of a wastepaper-basket and strew the contents all over the room, after which he would always pick up everything and put it all back when told to, but looking very bored all the while. If the basket was very full he would push it all down very carefully to make room for more. He would always put things back when told to do so, such as books from a bookshelf, or things from a table.

His table-manners were really very good. He always sat at the table, and whenever a meal was ready, would pull his own chair up to his place. He did not care to eat a great quantity, but he especially liked to drink water out of a tumbler. I always gave him some butter with his breakfast, but he seldom liked bread. Sometimes he would take

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a whole crust or round of toast when you least expected him to do and eat it all. He always took afternoon tea—of which he was very fond—and a thin piece of bread with plenty of jam; and he always liked coffee after dinner. He was the least greedy of all the animals I have ever seen. He would never snatch anything and always ate very slowly. He always drank a lot of water, which he would get himself whenever he wanted it by turning on a tap. Strange to say he always turned off the water when he had finished drinking.

One day we were going out to a party. I was sitting ready dressed, when John wished to sit on my lap. My sister, Mrs Penny, said:

“Don’t let him, he will spoil your dress.”

As my dress happened to be a light one I pushed him away and said, “No.” He at once lay on the floor and cried just like a child for about a minute. Then he rose, looked round the room, found a newspaper, went and picked it up, spread it on my lap and climbed up. This was quite the cleverest thing I ever saw him do. Even those who saw it said they would not have believed it had they not seen it themselves. Both my nephews (Major Penny and Mr E. C. Penny), his wife and my sister (Mrs Penny) were in the room and can testify to the correctness of the above record.

Here is another clever thing that John did, although I suspect this was due more to instinct than downright cleverness. A piece of filleted beef-steak had just come from the butcher. Inasmuch as occasionally I gave him a small mouthful of raw beef, a small piece of the coarser part of the steak was cut off, and I gave it to him. He tasted it, then gravely handed it back to me. Then he took my hand and put it on the finer part of the meat. From that I cut off a tiny piece, gave it to him, and he ate it.

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When my nephew came home he wouldn't believe it, so I tried it again, with the same result, except that then he did not even attempt to eat the coarser meat.

Mok and Moina, the Zoo's present gorillas, arrived from the French Cameroons in September, 1932. They had spent some time in private ownership, and were perfectly 'civilized' when introduced to the London public. Pending the construction of their present quarters they lived in the Experimental Monkey House, but are now lodged in a building believed to be the most nearly perfect of its kind. It is a circular building, so constructed that the whole floor-space can be given over to the apes in fine weather. The walls revolve, and bars or a glass screen can be brought into position as required. The air is washed, warmed, and perfectly circulated, a hygienic bath and drinking-fountain are provided, and an abundant supply of swings, etc., ensures the occupants no lack of health-giving exercise.

The gorillas were from the first given a carefully worked-out diet, which comprised fruits, bread, vegetables, halibut-oil, irradiated milk, a certain amount of boiled fowl, and a little fish. The house is of course well supplied with sun-ray lamps.

The first winter spent in the Experimental House caused Mok—the male—to contract a chill which developed into pneumonia; but skilled attendance day and night happily restored him to health to the relief of all, including Moina, who was visibly distressed during his indisposition. For a time she quite gave up the characteristic beating of the breast with clenched fists—

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seen in all gorillas, but in no other apes. This strange action may be employed to express almost any great emotional stress, though chiefly of a cheerful kind.

Though space will not permit the enumeration of all the gorillas that have of late years enjoyed the privileges of human society, mention must be made of the enormous specimen—Bobbie by name—that until lately excited general wonderment and even awe at the Berlin Zoological Gardens. This specimen, a male, received in 1928, weighed on arrival not more than 15 kilogrammes—approximately 30 lb. From this time onward its weight increased as follows:

1929	.	.	60 lb.
1930	.	.	92 lb.
1931	.	.	138 lb.
1932	.	.	194 lb.
1933	.	.	284 lb.
1934	.	.	412 lb.

At its death in December, 1935, it reached the impressive weight of over 584 lb., or about 42 stone. Like most apes and monkeys it tended to become less docile with increasing years and stature.

A most interesting gorilla is Pensa Rosa, which is now in the New York Zoo. She arrived in America, together with a chimpanzee of about her own age—*i.e.*, eighteen to twenty months old—in October, 1928, and at once constituted a very fascinating study. Pensa Rosa weighed 7.84 kilogrammes, and her companion was 8.18 kilogrammes; but this superior size on the part of the

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'chimp' was soon left far behind. The two young apes shared the same big cage, and lived largely on milk, eggs, fruit, and cod-liver oil. They were particularly fond of rather unripe bananas, and often ate the entire skin. The gorilla arrived in wretched health with a very scanty allowance of hair, but this was soon altered under treatment by her owners. From the first the chimp 'mothered' the gorilla, attempting to nurse it long after it had become far too bulky for such attentions.

By 1930 the gorilla weighed over forty-two pounds, but the most remarkable feature of her development was her hardiness. She not only played outdoors in winter, but revelled in the bracing weather, making snowballs and cracking lumps of ice with her teeth.

Anatomically so closely akin to Man, the gorilla would appear to be somewhat lower than the chimpanzee in intelligence. Subjected to all the customary intelligence-tests which have been so frequently imposed upon the chimpanzee, with startling results, the gorilla shows itself to be comparatively slow and strangely lacking in initiative. Whereas most chimpanzees learn to reach food through the bars of a cage by means of a stick almost at once, the gorilla spends hours in aimless fumbling and prodding, though, when shown how to perform certain actions, he displays tolerable imitative capacity, according to the patience or otherwise of his trainer.

Careful records of the many gorillas kept during recent years show that animals like John Daniel are altogether exceptional. As Yorkes points out, this may

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be quite as much a reflection upon the gorilla's keeper as upon the gorilla itself. A systematic study of animal psychology, or even a generally sympathetic attitude on the part of the average human being towards animals, is a matter of comparatively recent growth. It may well be, therefore, that our knowledge of this most interesting of all the anthropoids is yet in its infancy, and that the gorilla's most attractive and illuminating qualities wait yet to be discovered.

CHAPTER II

THE CHIMPANZEE

*T*HOUGH the gorilla may lay first claims to scientific interest as the man-like ape anatomically most akin to ourselves, there can be no question that the chimpanzee enjoys the warmest sympathy and affection of the average human being. The animal's attractive countenance, neat and glossy coat, high intelligence, and irresistible volatility at once commend it even to those not usually greatly interested in wild animals of any description.

In common with the other man-like apes, its general recognition is relatively of recent date. Although for thousands of years apes and monkeys have been known to Man and exploited by him in innumerable ways, their true identities have until quite lately remained in the greatest obscurity and confusion. Descriptions offered by the earliest explorers often leave one in doubt as to whether the alleged 'apes' they encountered were gorillas, chimpanzees, or pigmies. Old 'illustrations' still further confound the issue, since quite frequently apes were represented as men, and men, especially human 'freaks,' as apes.

The chimpanzee appears to have been often regarded as a 'satyr' of the classic variety, although it lacks the goat's feet usual to the satellites of Pan. One of the first chimpanzees brought to Europe was that presented in 1641 by Nicolaas Tulp to Frederick Henry, Prince of

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Orange. The animal was then referred to as an 'orang-utan.'

When such strange, but quite rational, humans as the hairy people of Upper Burma were described as satyrs, it is not surprising that the chimpanzee should have been regarded in the same light. Even as late as 1760, when systematic natural history was making real progress under Linnaeus and his disciples, the chimpanzees' true identity was in doubt, drawings purporting to represent it being equally suggestive of the chimpanzee, gorilla, and orang-utan. By 1766, however, the animal was more or less accurately described. The native name of 'chimpanzee' has not been traced to its original source, nor its significance explained.

Our knowledge of the chimpanzee in this country dates from 1698, when the first arrived (dead) in England. Two others were received between this date and 1818, after which the supply became tolerably abundant, both living and dead specimens soon enabling scientists to make reliable surveys of its structure.

The chimpanzee can at once be distinguished from all other man-like apes by its bare face, large ears, and close sleek covering of black hair. Though the accepted colouring of the bare parts approximates closely to that of ourselves, brown, grey, and black-faced local varieties are known. The hair is subject to variation in thickness. This ape is less stockily built than the gorilla; it has relatively shorter arms, while the maximum height of an adult male is five feet, and that of a female four.

The chimpanzee's strength is enormous, and tests

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with a dynamometer show the male to be 50 per cent. stronger than the female; it is much stronger than a well-built man in his prime. The reason for such strength is problematic, since, as Baumann, the authority who has given most attention to the subject, points out, a chimpanzee kept long in cramped quarters can still outclass a human athlete at the top of his form. In the wild the chimpanzee appears to be mainly vegetarian, though quickly acquiring the tastes of its 'betters' when privileged to share human society.

It is noticeable that, unlike many dark animals, chimpanzees do not greatly tend to 'whiten' in their declining years.

Though great eaters, chimpanzees lack the gorilla's unattractive paunch, and both their milk and permanent teeth correspond in number and arrangement exactly with our own. They are indeed in many ways more human than any other primate.

The chimpanzee is the most widely distributed of all anthropoids, ranging over a large part of Western and Central Equatorial Africa. It is a highly social animal, going about in family-parties, several such sometimes combining to form quite a little army. Like most apes and monkeys, it has great powers of locomotion. These, like its diet, may be largely modified by human influence, the chimp's highly imitative nature soon prompting it to enjoy equestrian exercise, cycling, and other complex forms of progression.

A great deal has been written about the chimpanzee's power of speech, but it cannot here be dwelt upon in

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detail. One man's speech is another man's gibberish, and how far the 'noises' made by chimpanzees can be regarded as having any analogy to rational intercourse is a debatable point. It will suffice to say that the chimpanzee, though without the enormously developed vocal organs of some other apes and many monkeys, can cover a considerable register, and almost every emotion and passing mood is expressed in very well defined noises or words, according to what view one takes of the situation. Many highly competent observers who have made the matter a life-study do not hesitate to translate such sounds in terms of speech, and have classified them with interesting, if confusing, results.

As will be seen later, the chimpanzee's mental activity and manual dexterity are prodigious, though strangely enough it does not, like some primates, readily take to water. Indeed, its general attitude towards this fluid, in any form or aspect, varies enormously with individuals. Only one occasion is recorded of the chimpanzee's beating its breast in the manner so universal among gorillas. The chimpanzee can, however, express certain emotions in no uncertain manner by drumming with its feet, and one reliable observer records how a native showed him a hollow tree that was used by the apes for the purpose of drumming upon and was known to the villagers for miles around as the 'chimpanzee's drum.' In many of the ape's rhythmic movements are also to be traced the crude foreshadowings of the human dance.

The entire and very extensive literature devoted to the chimpanzee is full of accounts of its nest-making

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habits, and later observations fully bear them out. In the formation of the 'nest' branches are bent down and interwoven much in the gorilla-fashion, either above or upon ground.

Needless to say, the demand for chimpanzees, either for show or for the more commendable purposes of study, has led to their capture on a most regrettably extensive scale, which is only now being kept within reasonable limits by legislation.

The famous American collector, S. L. Buck, has given vivid descriptions of some of the methods used in their capture. Isolating a group of apes in a single tree, by felling surrounding trees, and then driving them into nets is the most popular method, though the use of asphyxiating gases, 'doped' food, and the insidious offer of alcohol all have their advocates. Native helpers have on many occasions lost their lives in scuffles with adults. A large chimp can hug like a bear, but the most popular mode of attack of these apes is that common to most primates—namely, seizing the opponent's hand, carrying it to the mouth, and then using the powerful canine teeth.

Though now an established 'show' animal, and a favourite subject for experiments in simian mentality, much yet remains to be learnt of the chimpanzee's 'private life' in the wild. The older animals appear to live in small family-groups composed of several females, with sucklings, under the leadership of one elderly male or overlord. The immature adolescent apes form large bands of both sexes that 'racket' through the forest, to the general disturbance of all other animal-life. One of

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these large parties of hobbledehoy chimpanzees lived for some time on a research-station at Teneriffe, and afforded a most interesting study for psychologists. Contrary to what one might have expected, the band did not fall under male guidance, but took its cues from one lively female of unusual sagacity and initiative. She was the leader in every unruly escapade, and it soon became apparent that her aid was sought in all quarrels that arose. There was a general tendency throughout the band to solicit her favour and 'keep in her good books,' although she was by no means the most muscular member of the party.

A chimpanzee associated with a gorilla or monkey of any kind almost invariably takes the lead, acting as mentor and patron of its companions.

How sociable the chimpanzee is by nature one may readily gauge by its reactions to its own image in a mirror, or even a large picture. A chimpanzee living only with humans and shut off from its own kind is much more impressed by such an apparition than one that enjoys the society of its fellows. Its herding-instinct is no doubt as much the outcome of a realization of the safety in numbers as a natural friendliness, for in the wild it has many enemies, notably leopards, large snakes, and, in certain districts, lions.

Human instincts are manifested in innumerable ways. For example, two practised investigators, Yerkes and Kohler, have ascertained that the chimpanzee has a very marked decorative impulse. This is apparent enough in its delight in dressing-up, but it will also place fruits

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and flowers on its shoulders and leave them there until dislodged by some sudden exertion. Its 'dancing,' already referred to, is not on a much lower level than that of many savages, such as the Australian aborigines. Unlike many monkeys, it does not seem to have any well-marked sexual etiquette, though sex-appeal is much more marked in some chimpanzees than in others. A notable example is that of Koko, a chimpanzee at the Bristol Zoo. He became the father of the first chimpanzee ever born in Great Britain, and when the London Zoo authorities were searching for a suitor for their female chimpanzee, Boo-Boo, Koko at once found favour with the lady after other eligible bachelors presented to her had met with chilly and even threatening receptions. So popular was Koko from the first that his removal from her when she became pregnant marked a dispiriting period for the lady; her repinings at the loss of her partner, however, were later forgotten in the arrival of her first child, Jubilee, the first of its species ever to be born in Regent's Park.

As with the orang-utan and gorilla, chimpanzees appear to come of age when about eight years old, the females—as in our own species—reaching maturity rather earlier than the males. As with humans, the chimpanzee infant takes about nine months to develop before its entry into the world. From extreme youth to maturity chimpanzees make delightful pets, but once past their seventh year they become, with few exceptions, difficult to handle owing to their somewhat hysterical temperaments and enormous muscular development.

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At birth the average chimpanzee weighs about 3 lb., and this may increase to nearly 30 lb. in the first three years. At eight years it may reach 55½ lb., and at twelve years 121 lb. As with ourselves, the chimpanzee's interests narrow with age, though at what period senility commences it is impossible to determine. With increasing improvements in our methods of keeping these apes in captivity, their true life-span may perhaps be ascertained. Judging from the past, thirty years would appear to be the extreme age-limit for captive specimens. As with savages, the chimpanzee matures quicker than do people in Northern latitudes, and it may be assumed to exhaust its full vitality much sooner, though some acknowledged authorities compute it to continue for as long as fifty years.

Possibly no human has kept the chimpanzee to such advantage as the late Madame Abreu, who some forty years ago founded a wonderful colony of apes and monkeys at her home in Quinta Palatino, Havana, Cuba. In this luxurious tropic setting she amassed a collection of some forty chimpanzees, oranges, and gibbons, besides scores of monkeys. With most of these the proprietress was on excellent terms, though she was always impressed with the belief that a certain huge male chimpanzee would eventually take her life; actually she died in the most peaceful circumstances. Her chimpanzees bred freely, and not infrequently they lived to become grandparents. At the death of Madame Abreu her collection was divided between several up-to-date experimental stations, where exhaustive tests have since shown to

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what a high standard of mentality the chimpanzee may attain.

One of the commonest tests of a chimpanzee's intelligence is made by suspending food just beyond the animal's reach, and placing the means of reaching it (such as boxes) close at hand, but giving the ape no clue to their use. In most cases the ape places a box beneath the food and stretches upward, but makes no attempt to leap. After some cogitation it seizes another box, and after rushing about with it in a frenzy of irritation, places it very deliberately upon box number one. If this does not suffice, three or even four boxes are used, but seldom does a chimpanzee fail to pass this test, though the time taken varies much with individuals. Truly remarkable was the case of a chimpanzee kept at Harvard experimental station, who learnt to gather, by means of a pole, fruit hanging high overhead. Planting the pole firmly on the ground, he would run up it, and with lightning-like rapidity seize the fruit and drop to earth before the pole lost its balance.

Scores of experimenters have demonstrated how quickly the chimpanzee learns to fit one rod into another as a rake, to reach some prize, to match certain colours, and to select marked objects at the instigation of its owner. Mr Cherry Kearton's remarkable film of his pet chimpanzee, Toto, showed how adroitly a chimpanzee will learn to manipulate such complex mechanisms as a punt or a bicycle. The manner in which such objects are used shows at once that the ape recognizes the advantages derived from the particular piece of apparatus.

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This was amusingly illustrated some years ago by Max and Moritz, the famous chimpanzees of the Hagenbecks' Zoo at Stellingen, near Hamburg. These two apes had early learnt to ride upon bicycles, this forming part of their recognized 'show' in the circus-ring. That they might always be in good training they were allowed to ride their bicycles about their owner's animal-park early in the morning, while the grounds were comparatively free of visitors. Moritz one day chanced to notice a service-gate standing open and giving him a view of an inviting vista of open road. At once he saw the advantages offered and pedalled forth on a voyage of discovery. Before long he encountered a fruit-stall, when, having helped himself most generously, he made good his escape with all expedition.

In no respects does the chimpanzee show its humanity more patently than in its love of adulation and applause, and especially is this the case in examples trained to perform for our amusement.

Thus the famous Consul I, for years exploited by the late Frank Bostock, was at one time performing at a certain circus in Paris. At the time the writer has in mind he appeared at the evening performances only, but on one occasion he formed with his trainer part of the *matinée* audience at another variety entertainment. Keenly interested in all that took place in the circus-ring, he was especially captivated by some particular piece of 'business' on the part of a clown. Not only did he show his appreciation with the best, clapping his hands in approved and almost human fashion, but he paid his

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entertainer the supreme mark of hero-worship. When, that same evening, he took his turn in the ring before a crowded house, he delighted all by introducing certain antics by means of which the clown had won such heartening applause only a few hours previously.

No human artist could have been more susceptible to social atmosphere than this distinguished simian. At one period of his Thespian career, he would perform all the complex manœuvres characteristic of a human being who is retiring for the night. He would not only undress and solemnly don a nightdress, but—at least, on the Continent—would, before going to bed, pretend to go through rites of an intimate nature, which are not, in this country, made a matter of public exhibition. In less restrained countries this part of the show received the highest approval from his audience, and, as observed by Consul, won him a round of applause that was doubtless music in his ears. On making his first appearance in England at the London Hippodrome it was not surprising that he should, at a certain stage of his repertoire, make the customary search for a certain article that is kept beneath the bed in some households. The piquancy of the situation was heightened by the fact that in conformity with the traditions of our respectability the ‘property’ in question had been suppressed. The mirth which was evoked by the ape’s action was unrestrained, while the bewilderment on Consul’s face when, having made an extensive yet fruitless search beneath the bed, he turned to the audience in no wise lessened the general hilarity.

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The chimpanzee is as prone to laughter as the average human, and, like the human, is quick to realize when the laughter is against itself. On one occasion a young Zoo chimpanzee, who was often a visitor at my father's house, found itself one of a large and somewhat boisterous luncheon-party. No general outbursts of merriment were lost on the little simian, who, while behaving with the greatest decorum, clapped its hands delightedly at every sally. With dessert, there was set upon the table a large bowl of cherries—its favourite fruit. This unfortunately proved too much for the chimpanzee's susceptibility. Flinging its acquired decorum to the winds, it plunged both hands into the mass of fruit with expressions of joy and all the abandon of its jungle ancestry. But the laughter which this social error evoked from those present made the little ape suddenly drop its spoils and bury its face in its hands, becoming a victim to the most painful and overwhelming embarrassment.

It is this hypersensitiveness which often renders chimpanzees difficult subjects for public exhibition. They bitterly resent the slightest hint at derision, and since children are usually less guarded in their modes of expression than adults, the younger Zoo visitors are often viewed by chimpanzees—especially the older animals—with instinctive hostility.

Highly emotional at all times, the chimpanzee is the only primate which habitually and spontaneously expresses affection by the very human mediums of kissing and hugging. At the Zoo, a chimpanzee that has been rendered some particular service may give vent to its

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feelings by embracing not only the person to whom it is immediately indebted, but all other persons in the immediate vicinity.

This ready sense of gratitude further shows itself in a quick perception of attempted assistance and, if possible, active co-operation with its well-wisher. Such instinct has been vividly exemplified of recent years at the London Zoo by two chimpanzees, both of whom were obliged to make acquaintance with the Society's dental surgeon in his official capacity.

The first case was that of a senior member of the chimpanzee tea-party. According to available data, this ape had for some years before its arrival at the London Zoo lived as a pet on a rubber-plantation, where it was apparently given considerable indulgence. Among other luxuries it is said to have enjoyed half a bottle of claret and about twenty cigarettes a day. On arrival at Regent's Park its teeth were so undermined by caries that they had to be condemned in the interests of the animal's health. The ape took an unconscionable amount of chloroform before 'going off.' On regaining consciousness, however, its natural gaiety quickly asserted itself, and within ten minutes the ape not only learnt to rinse and gargle, but took to the operation as a new and attractive pastime. Cardboard cartons of the ice-cornet kind were provided, as being safer and more comfortable to a sore mouth than glass or metal, and of these the ape used an extraordinary number with evident enjoyment and immense gusto.

Last year a younger chimpanzee, Ivy, came before the dentist with similar trouble. Her conduct, although

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equally exemplary, was different, since on coming to her emotional nature found vent in a burst of weeping and in an ecstatic embrace of her devoted keeper.

This chapter would not be complete without a brief *résumé* of the more striking chimpanzees that have from time to time enlivened the London Zoological Society's collection.

The first ever to reach the London Zoo was a young specimen imported from the Gambia in the late autumn of 1835. It arrived at Bristol, and the Zoological Society, on being notified, dispatched one of its head keepers to convoy it back to London. In those days the railway was only just established, most travellers still relying upon a very abundant coach-service. Stage-coach proprietors, not yet reduced to humility by their rival, the steam-engine, were scandalized at the notion of portering an ape, and the unfortunate keeper spent many weary hours tramping from one coach-office to another before he could bribe a booking-clerk to reserve two inside seats for himself and 'friend.' However, the long journey was safely accomplished, and on arrival the chimpanzee was lionized. Theodore Hook thus heralded the newcomer:

The folks in town are nearly wild
To go and see the monkey child,
In gardens of Zoology,
Whose proper name is Chimpanzee.
To keep this baby free from hurt
He's dressed in a cap and Guernsey shirt,
They've got him a nurse and he sits on her knee
And she calls him her Tommy Chimpanzee.

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Tommy was indeed the hero of the hour, but his experiences *en route* in such unkindly weather had told upon him. He died at the end of six months from the pulmonary disorders that terminated most chimpanzee careers before the advent of sun-ray lamps, halibut-oil, and other modern 'home comforts.'

Sally, a chimpanzee whose fame has not yet been surpassed, if ever equalled, was purchased in 1883, and during her eight years of life in the Gardens became a public character. At her death she was honoured with two obituary-notices in the Zoological Society's *Proceedings*, one dealing with her anatomical features, the other with her 'spiritual' side.

Sally was a specimen of the rarer black-faced variety, and was quite bald, with large and very flat ears. From the first she showed an extraordinary preference for animal food, and displayed wonderful adroitness in capturing any small birds that ventured within her cage. These she killed by biting off their heads, and afterwards she ate them just as they were—with feathers complete. By night she showed herself an expert rat-catcher, but apparently preferred sparrows as a variant to her normal diet.

Despite this somewhat sanguinary pastime, Sally was to all human beings the most gentle of apes; she was passionately devoted to her keeper, although she showed an unmistakable aversion to all coloured men—possibly the result of ill-treatment by some 'darkie' in the past, since this prejudice is not common to all her race. Sally was given all the usual chimpanzee food, but cooked

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mutton and beef-tea also figured largely on her diet-sheet. She learnt to count accurately up to six, and was generally a 'highbrow' of her species. Her death elicited hundreds of letters of sympathy from all parts of the Kingdom, and most of the newspapers devoted at least a column to her obituary-notice.

Many years ago, Dr G. J. Romanes threw light on Sally's arithmetical powers in the *Proceedings* of the Zoological Society. The following is an extract from the account of his researches:

Having enlisted the intelligent co-operation of the keepers, I requested them to ask the ape repeatedly for one straw, two straws, or three straws. These she was to pick up and hand out from among the litter in her cage. No constant order was to be observed in making these requests, but whenever she handed a number not asked for, her offer was to be refused, while if she gave the proper number her offer was to be accepted, and she was to receive a piece of fruit as payment. In this way the ape was eventually taught to associate these three numbers with their names. Lastly, if two straws or three straws were demanded she was taught to hold one straw or two straws in her mouth until she had picked up the remaining straw, and then to hand the two straws or the three straws together. This prevented any possible error arising from her interpretation of vocal tones—an error which might well have arisen if each straw had been asked for separately.

As soon as the animal understood what was required, and had learnt to associate these three numbers with their names, she never failed to give the number of straws asked for. Her education was then extended in a similar manner from three to four, and from four to five straws.

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Here, for reasons to be presently stated, I allowed her education to terminate. But more recently one of her keepers has endeavoured to advance her instruction as far as ten. The result, however, is what might have been anticipated. Although she very rarely makes any mistake in handing out one, two, three, four, or five straws, according to the number asked for, and although she is usually accurate in handing out as many as six or seven, when the numbers eight, nine, or ten are named, the result becomes more and more uncertain, so as to be suggestive of guess-work. It is evident, however, that she understands the words seven, eight, nine, and ten to betoken numbers higher than those below them; and if she is asked for any of these numbers (*i.e.*, above six) she always gives some number that is above six and not more than ten; but there is no such constant accuracy displayed in handing out the exact number named as is the case below six. On the whole, then, while there is no doubt that this animal can accurately compute any number of straws up to five, beyond five the accuracy of her computation becomes progressively diminished.

It is to be noticed that the ape exhibits some idea of multiplication; for she very frequently (especially when dealing with numbers above five) doubles over a long straw so as to make it present two ends, and thus to appear as two straws. Any of the comparatively rare errors which she now makes in dealing with numbers below six are almost invariably due to her thus endeavouring to duplicate her straws. In this connexion it is to be remembered that, owing to the method above described (whereby the ape is required to place each straw separately in her mouth until the sum asked for is completed), when any high number is demanded, a considerable tax is imposed upon her patience; and as her movements are deliberate while her store of patience is but small, it is evident to all observers that the doubling of the

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straws is intended to save trouble by getting the sum completed with greater rapidity than is possible when every straw is picked up separately. Of course we do not recognize these doubled straws as equivalent to two straws, and therefore the persistency with which she endeavours to palm them off as such is the more noteworthy as evidence of her idea of multiplication. Moreover, I am disposed to think that the uncertainty which attends her dealing with the numbers six and seven is more largely due to her losing patience than to her losing count; although after seven I believe that her computation of the numbers themselves becomes vague, or merged in a merely general idea of many.

Many years before the War the Zoo purchased four chimpanzees for a large sum from a dealer; Micky, the fourth member of the quartet, was so small and in such poor condition that no charge was made for it, it being thrown in as a makeweight. Yet this chimpanzee not only outlived its companions, but became the Father of the Zoo and graced the collection for over twenty years.

Micky was a famous character, with well-marked likes and dislikes. On one crowded bank-holiday some ten years before the War, he was the victim of what he regarded as an insult, offered by a policeman doing point-duty in the Ape House. The constable, inspired perhaps by the prevailing holiday spirit, flourished his truncheon before his poor relation, accompanying the gesture with various facial contortions. The incident, slight though it was, apparently played upon Micky's mind, for from thence onward he displayed the most violent animosity towards all in uniform, showing his resentment by

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spitting at the glass front of his cage and venting his fury in a species of war-dance.

Not until when the War-years flooded the Gardens with uniforms of every kind did Micky outgrow this obsession and learn to regard humans in official regalia as members of a humane and well-conducted society. A conjurer who made various dainties such as nuts or chocolates appear and vanish 'by magic' at first mystified and then enraged him. Micky's desperate search of the man's clothing, and even the inside of his mouth, for an explanation of the mysteries was a sight to watch, the merriment of the onlookers by no means adding to his equanimity.

Increased knowledge of the requirements of these apes has not only greatly added to their life-span at the London Zoo, but, during the last few decades, established them as by far the most popular animals in the entire collection. The chimpanzee tea- and luncheon-parties, first inaugurated in 1928, are now looked-for pleasures of every summer season. The apes participating in this entertainment are always under seven years of age, and their irreproachable deportment is solely the outcome of their habitually taking meals with their keeper and not the result of training in the usual sense of the word.

The last twelve months have seen the chimpanzee play yet another *rôle* as public entertainer. A particularly well behaved example is the favourite of Pets' Corner, wherein certain young and popular Zoo exhibits form with the visitors photographic groups, which the latter

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upon a modest payment take away with them as mementoes. The chimpanzee in question very soon realized what was required of him. He never objects to pose with his arm around the visitor, but the moment he hears the shutter click he always abandons the client with a business-like dispatch not always flattering to his human admirer.

Chimpanzees and other apes differ from Man not merely in shape but in the workings of the mind. Even in the highest apes the intellectual faculties cease to develop at just about the time when the human child's are beginning to develop, *i.e.*, at the age of three to five years of age.

The comparative development of human and primate physique and psychology has been studied very minutely by Mr and Mrs Kellog, of whom the former is an Associate Professor of Psychology at Indiana University.

In his most fascinating book, *The Ape and the Child*, Mr Kellog records the keeping, on exactly parallel lines, of his only child—a boy—and a female chimpanzee, the two being at the commencement of a nine months' experiment as nearly as possible of the same age, size, and weight.

Before entering into the details of this experiment, the author and instigator records some interesting cases which go to prove that even the human intelligence, unless given the right environment during the 'impressionable' years—three to five—may stop at a level tragically lower than that of a normally developed ape.

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Two classic examples of wild children are the "wild boy of Aveyron," who was found roaming in a forest during the end of the seventeenth century, and Kasper Hausen, believed to be a royal pretender, and for political reasons hidden in a cell until he was seventeen years of age. All these unfortunates were on a much lower level of intelligence than most apes, or even dogs, and though upon being rescued both were given the kindest treatment and intensive training, they never recovered the ground lost in early life and were pitiable imbeciles until they died. Similarly the so-called wolf-reared children of India, some thirty authentic cases of which have been recorded by the Anthropological Society, never survive long after being forcibly returned to civilization, and no amount of training succeeds in teaching them the rudiments of human speech, or even to stand erect.

In the case of Mr Kellog's Donald, and Gua, the chimpanzee—born of parents once in the famous Abreu primate-park in Cuba—both were given the same ideal surroundings—the environment common to children of well-to-do and cultured parents.

When the nine months' experiment commenced, Donald stood about two and a half feet high, and Gua a few inches less. Her weight was about half that of Donald's, which was 19.5 lb. Nine months later, however, the ape, though only a few inches shorter than the human, was relatively four times as heavy.

At the beginning, these two young creatures had much in common, but the chimpanzee presented some striking

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differences which became increasingly marked as time advanced. Although only two and a half months the junior of Donald, aged ten months, Gua's teeth rapidly took the lead. At an early stage in the experiment her teeth numbered sixteen, while Donald had developed two milk-teeth only, these being the lower central incisors. Having fewer sweat-glands than the human boy, Gua had a much greater thirst; also her powers of smell and hearing were much more acute. In the latter connexion it is interesting to note that "a high-pitched whistle or a harsh shrill noise would cause the external ear of the chimpanzee to move backward through a minute distance, so that the rear of the ear-lobe was slightly closer to the skull. There was no analogous response in the human infant."

Gua's joints, particularly the ball-and-socket joints at hips and shoulders, were much more flexible than the child's, and her muscles when relaxed were as hard as the child's when tensed to their utmost capacity. But though Gua's muscular strength was almost from the start immensely greater than that of the human, she never used it to commit violence on anyone, only exerting it at times to free herself from some trying situation, for she was at all times less philosophic and more 'nervy' than her human companion.

In order that the subjects of this experiment might not tire through too much deliberate observation, they were not taken to the laboratory more than once in every fourteen days, when the programme proceeded more or less as follows:

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- A.M. 7.00. Reveille.
7.30. Breakfast.
8-8.30. Sit in high chair while adults breakfast.
Ride in perambulator.
Physiological measures.
Observation of special behaviour.
Automobile ride to Experiment Station for weighing.
Photographs.
Out-of-door play.
Experiments, tests, or measurements.
12.00. Lunch.
- P.M. 12.15-1.30. Nap.
1.30-2.00. Walk or play out of doors for Gwa—
Donald sleeps.
2.00-2.30. Bath.
3.30-4.00. Play, observations or photography,
measurements, intelligence-tests, etc.
6.00. Supper.
6.30. Retire.

Both had precisely the same food, which consisted of:

Breakfast. Unsweetened milk, mixed half-and-half with water, cooked cereals (2 oz.), cooked fruit (2 oz.), very rarely a soft-boiled egg, biscuits.

Mid-morning. 2 oz. orange-juice with one teaspoonful of cod-liver oil.

Lunch (noon). Warm milk, one or two cooked vegetables (2-4 oz.), rarely 2 oz. beef-broth, milk-pudding, occasionally a little raw cabbage, lettuce, or celery.

Mid-afternoon. 2 oz. orange-juice with teaspoonful of cod-liver oil on cold or dark days.

Supper (6 P.M.). Warm milk, 8 oz. cooked cereals, fruit, biscuits.

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The only foods in this list not eaten by Donald were the raw vegetables.

The many tests to which both these young creatures were subjected were illuminating to a degree. Half-way through the nine months' 'course' both showed a lively appreciation of photographs and coloured pictures. Both attempted to pick up such representations with finger and thumb, the child showing a general appreciation of such objects, whatever their nature, but the chimpanzee being mainly attracted by anything of an edible nature. Such pictures it not only tried to pluck from the page, but frequently put them to its mouth and eagerly 'tasted' them.

Their relative responses to the spoken word were also carefully noted. Donald at eleven months learnt to obey the command, "Come here"; would shake hands when required; and took cover behind a chair at the words, "Peek-a-boo!" Similarly, by the time the child was a year old, it had fully grasped the significance of such simple expressions as "Where's Daddy?" "Where's Gua?" "Sit down," "Put on your shoe," and "Stand up."

All these matters the chimpanzee mastered at a somewhat earlier date. Not only did it readily grasp these directions, but, given a selection of ink-drawings made on cards, it would readily point out the dog, bunch of grapes, etc., as requested, never confusing such objects. Possibly its heightened sense of hearing gave it a temporary supremacy over the child in appreciating what was required of it. Tests in the location of a hidden sound, such as a buzzer concealed in a hole in the floor, elicited

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the fact that the chimpanzee had a much better sense of orientation than had the child, making a more or less 'bee-line' for the source of sound, whereas Donald moved towards it in a half-circle.

That very primitive instinct shown by most children—the urge to scribble with a pencil on paper, etc.—was evinced by both at approximately the same time, but whereas Donald gradually showed unmistakable efforts deliberately to represent something of which he had formed a 'mind-picture,' Gua's artistic efforts never progressed beyond the purposeless scribbling-stage.

A great deal has been said and written about the 'speech' of monkeys, some authorities claiming to have drawn up very elaborate codes of sound produced by apes and other primates, such codes being so complex as virtually to amount to language. Mr Kellog, however, never makes any such claim for Gua, and though she had a very well defined repertoire of noises to express her many emotions, she never gave any encouragement to the hope that she might one day master even the simplest words in human currency. Chimpanzee vocal organs approximate so nearly to our own that expectations of a *singe qui parle* are not unreasonable. Recent investigations, however, have revealed that the chimpanzee's brain is very deficient in a certain portion which is, in ourselves, apparently indispensable for the development of intelligible utterance.

Further, the human infant very obviously struggles hard to express itself vocally long before it has successfully mastered its first two or three words; such a period of

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striving after self-expression is quite unknown in the infant chimpanzee. At the time of writing, two young Zoo chimpanzees, Mick and George, are undergoing a course of special training in sign-language. Though as yet the experiment is too young to justify any conclusions, it is hoped that the 'students' may in time learn to master a simple sign-language—ranging over matters concerning food, sleep, and other fundamentals of a normal human life.

The man-like apes have always lent themselves to macabre stories, but however lurid some of these tales may be, it is questionable if they transcend many authentic stories of anthropoid intelligence and recollections. As an example of the uncanny, for instance, it would be difficult to beat the experience of the late Dr A. E. Ansorge, a former zoological collector for the Natural History Museum at South Kensington, who for many years travelled in remotest Africa.

On one occasion Dr Ansorge told my father that he penetrated far into the country by water, using one of a small local river-boat service which at regular fortnightly intervals threaded the narrow waterways of a densely forested region of West Africa. On this particular occasion, the collector had directions to visit a lonely white man living by himself in the heart of the forest. Dr Ansorge arrived at the nearest landing-stage after dark, expecting to find his way to the solitary outpost as best he could. Events, however, turned out to be far stranger than he expected. He had scarcely disembarked and penetrated more than a few yards into

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the dense vegetation, following a poorly defined track, when he became aware of a lantern-light travelling unsteadily towards him, apparently carried by a child or dwarf, since it hovered but two or three feet from the ground. When almost upon him, however, it transpired that the light was carried by an ape, for it lit up the flattened features of a half-grown chimpanzee. Without any verbal sound, the ape took him by the hand and led him some few hundred yards into the jungle till finally it brought him to the lonely bungalow of the man he had come to meet. There he soon discovered that his host had, for some years, lived alone and been upon almost human terms with his strange companion. The ape had not only supplied his only domestic help, but also served as a substitute for normal human society. He met all the boats and in the event of a white man disembarking led him to his master's bungalow.

On the face of it this rather remarkable partnership promised to continue indefinitely; but those who knew chimpanzee temperament urged the solitary to find a human substitute or at least another and younger ape. Inevitably, the ape developed true to type, its temper and mentality deteriorating with its increasing years and stature. Deaf to all entreaties, however, and undeterred by his simian henchman's recurring outbursts of savage rage and mutiny, the white man continued to live as he had in the past, until there came a day when, with none to help him, he died at the hands of his quasi-human 'friend.'

CHAPTER III

THE ORANG-UTAN

THE orang-utan (*Pongo pygmaeus*) is usually regarded as ranking with the chimpanzee and gorilla among the higher man-like apes, and like the rest of the members of the group has in the past been made the subject of the strangest legends and misrepresentations. In fact, very few true facts concerning this ape emerged before the middle of last century. The orang-utan was sometimes confounded with the chimpanzee—an animal found in a totally different quarter of the world. Thus in 1821 an eminent authority of the time described in detail the chimpanzee's anatomy under the name of 'orang-outang.' As with many other animals inhabiting the Far East, it required the establishment of a constant steamship-service between that region and Europe before captive specimens became of frequent occurrence, and scientists were supplied with sufficient material to work upon.

The orang-utan is found only in the islands of Borneo and Sumatra, and although innumerable varieties are recorded, they can all be referred to one species. Its popular native name is a Malayan word signifying 'wild man of the woods.'

In general structure the orang approximates to the gorilla and chimpanzee, though with much longer arms than either. The average height of an adult male is about five feet from heel to crown, although much larger

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specimens are not uncommon. Abel, a writer of 1825, recounting the capture of a giant orang, asserts that it was "fully a head above the tallest man on board," its 'waist-line' sometimes measuring two-thirds of its height. Fully grown males are recorded weighing up to 250 lb., but females are considerably lighter. The hips and legs are weak, and the finger-tips may all but touch the ground on the rare occasions when the ape stands erect. The digits are provided with flat nails, and both hands and feet are extremely long and narrow. The ear is remarkably small and set close to the head, the eyes are very near together, and the nose has no suggestion of a bridge.

The adult males of certain local races develop immense comb-like expansions of skin at the sides of the face, and the throat may in later life exhibit a huge, pendulous, semi-circular sac, depending like a vast goitre upon the animal's breast. This covers the laryngeal sac, which can be inflated with air and adds materially to the creature's vocal powers. In the number of its pairs of ribs—twelve—it resembles man, whereas the gorilla, chimpanzee, and gibbon differ, each having thirteen pairs. Like the gibbon, the orang has an extra bony development in its wrist.

Quaint and goblin-like in youth, the orang takes on a decidedly forbidding appearance in old age. Its eyes almost touch each other, while the chaotic mop of carrotty hair covering head, back, and limbs gives it a ruffianly look that goes far to repel the ordinary person encountering it. Its brain is much smaller than that of either gorilla

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or chimpanzee, and the immense canine teeth become, with adult years, tusk-like and interlocking.

Psychologically the orang has gained a reputation for being dull, sluggish, and morose; but, however true this may be of old specimens kept in solitary confinement, it certainly does not apply to young ones living in congenial circumstances. The clownish antics of young orangs at the London Zoo never fail to attract a crowd of delighted onlookers. They not only enjoy the society of their own kind, but also that of other apes, all kinds of monkeys, and even entirely different animals. One young orang at the Zoo for a year or more shared a cage with a tree-kangaroo, and would not only fondle its dull-witted companion with genuine affection, but used its tail as a climbing-pole when the kangaroo chanced to hang from the wire ceiling of the cage—a liberty which apparently failed to cause the marsupial the smallest inconvenience.

The normal mode of progress of this ape is on all fours—chimpanzee fashion—supporting the body on the knuckles and outer edges of the feet. It will at times, however, totter along erect for some distance, on which occasions the long arms are held up as ‘balancers,’ much in the manner favoured by gibbons. The orang is on the whole far more truly arboreal than either gorilla or chimpanzee. Using its long arms and legs alternately, it can progress through the tree-tops, sloth-like, at a considerable speed. In zoological collections it displays this trait by often spending hours thus perambulating the wire-net roof of a cage or enclosure.

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Many other interesting hints as to its normal mode of life in the wild are afforded by its habits in confinement. It is now known that it often covers its head and shoulders with large leaves as a protection against sun or rain, and in the Zoo it displays an amusing tendency to find substitutes for such natural parasols. Sacking, straw, and newspapers are all used for the same purpose, the animal sitting contentedly beneath such improvised canopies for hours on end.

Still more interesting is its habit of nest-making. Of recent years many reliable observers have testified to the large platform-like structures which it makes, with great speed and dexterity, by placing some scores of twigs, etc., crosswise in some natural fork of a selected tree. Such eyries may be made by a mother and her child on which to pass the night, or by some solitary male, merely as a resting-place on which to enjoy a *siesta* for an hour or two only.

Some years ago officials and visitors at the London Zoo had the good fortune to see just such a nest built by an orang-utan in the branches of a tree outside the now demolished Ape House. The architect was a large orang-utan, Jacob, who had long shown himself a creature of much sagacity and mechanical bent. One night in late autumn he attacked a weak spot in the wire of his cage and enlarged it till he found himself at liberty, save for the glass fanlight in the house-roof a foot or more above his cage-top. This he quickly disposed of by using a large potted aspidistra, which he found adorning a window-sill outside his cage. The plant was seized by

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the leaves and employed as a battering-ram. Once on the house-roof, he descended into the topmost branches of an adjacent tree and there constructed a nest on which he rested, till authority appeared upon the scene and forced him to return to his quarters. It says much for the strength of Jacob's handiwork that, though exposed to all weathers, the nest remained more or less intact for several months afterwards.

A particularly interesting account of Jacob's escape has been given by Mrs C. I. Pocock in her book *Highways and Byways of the Zoological Gardens*.

The big orang-utan is loose in the Gardens! Such an announcement would be sufficiently alarming at any time, but how much more so when it breaks the tranquillity of a Sabbath evening, when the whole of Regent's Park is lying under the pall of a chilling November fog, and nearly all the keepers are gone to their homes? About seven o'clock of the evening of Sunday last news was taken to the superintendent's house that untoward and alarming noises had been heard coming from the apes' house, which resulted in the above-mentioned discovery.

It appears that Jacob, a healthy, powerful orang-utan, just reaching adulthood—a stage which with many animals, and with apes in particular, means an entire change of character—had docilely enough accepted his supper and other nightly attentions at the hands of his keeper, and, with lights out, had gone to bed, but not to sleep.

Jacob had played at getting out before, but now he was in earnest, and when quiet reigned and all was safe he set to work with a will and soon had a hole in his cage large enough for him to squeeze through; whereupon, as if maddened by success, he determined to have perhaps the

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time of his life, and for once leave tangible evidence that "Jack was as good as his master." He was soon in the corridor which runs at the back of the cages and gives light to them, and, curiously enough, his first efforts at self-assertion were exactly like those displayed of late by the gentler members of a higher race of beings, which have resulted in window-breaking. Jacob's mighty strength enabled him to do more than break panes of glass; he tore out the frames as well, and joyously hurled them behind him; while ventilators, water-troughs, grasses, and plants in pots were to him as mere shuttlecocks to be used in the game he was playing. When his orgy of destruction was over, he seems to have used a flower-pot for breaking the glass roof of the house through which he went, and thereupon turned his attention towards procuring a sleeping-place more after his own heart than any hitherto provided by the Zoological Society. Happily for Jacob's intentions, a tree forty-five feet high was handy enough to the roof of the house for his purpose, and in an incredibly short time he had swung himself into it and broken off and interlaced boughs to form a resting-place. I believe orang-utans when in their native forests have been seen to manufacture such platforms or resting-places within the space of a few minutes.

Poor Jacob! His triumph was indeed short-lived. Very soon after he was located he was forced to exchange that tree for the dome-like ventilator on the top of the house he had just quitted. All night long men with flaring lanterns were posted round the house, in order to keep the creature well above the ground until daylight, and so prevent possible escape or accident; and when Monday's dawn broke, and at the same time the fog lifted, Jacob was seen to be sitting quietly under the dome of the roof, looking exactly like a god of the ancients who, on meditation bent, had sought the highest pinnacle of his temple.

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Despite the inclemency of the weather, the poor creature clung desperately to his newly found freedom, and ultimately had to be dislodged by the aid of fire-extinguishers, and so driven into more comfortable quarters.

Under a grotesque and somewhat clownish exterior the orang would seem to hide a very high degree of mentality. Innumerable tests by various investigators show that it apparently has considerable colour-sense and a devouring curiosity in all kinds of mechanism. Mr Hornaday, of the New York Zoo, has recorded that one orang in that collection made a crude wooden key with which to unfasten his cage. Another, using a piece of scrap-iron left by some workmen, bent apart the bars of his cage; in this exploit he enlisted the services of a young chimpanzee cage-companion, and the two, working harmoniously together, effected what the orang's unaided efforts might have failed to accomplish. In some respects the orang almost shows itself the chimpanzee's mental superior, since it has a more serene and philosophic temperament, and is far less subject to those bursts of hysteria and loss of self-control that often mar the chimpanzee's society.

Summarizing his long experience of oranges, Mr Hornaday states that a very few lessons are sufficient to make an average orang appreciate the use of ordinary table-utensils. He can be easily made to ride a tricycle or bicycle, put on a suit of clothes; drive in nails with a hammer, and learn the use of a padlock and key—even selecting the right Yale key out of a large bunch. All these accomplishments the apes acquire with obvious zest, and not as mere tasks.

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The orang seems to have shared the gorilla's reputation for savagery. Some stories told of it have become classics—two of the most famous being the *Murders in the Rue Morgue* and Kipling's gruesome little masterpiece, *Bertram and Bimi*. Visitors to the Jardin des Plantes will not easily forget Framiet's bronze of the orang-utan strangling a native hunter. Allowing for the artistic licence animating these justly famed 'thrillers,' there is good evidence that adult male orangs can on occasion prove formidable fighters. Hundreds of shot specimens carry scars bearing eloquent testimony to passages of arms, loss of fingers being specially noticeable and offering interesting evidence as to the ape's favourite mode of attack. The enormous canine teeth of most males are apparently made to play no part in the animal's feeding-activities, since its diet consists almost exclusively of pulping fruits, few of which have very resistive outer coverings. Savagery seems to be exclusively a male prerogative, and a specimen in the famous Abreu collection was a notorious 'bad' animal. It eventually met its death at the hands of a keeper who killed him in self-defence. Inquiry showed that this ape had on a previous occasion quite unprovokedly attacked the keeper, and but for timely assistance would probably have killed him. Young animals are always more lively and amenable than their elders, but they perform their most frivolous actions with a grave and preoccupied air, even when turning somersaults upon the floor of their cage.

As already shown, young orangs at least offer a friendly

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front to the world at large, and are seen on good terms with such cage-mates as chimpanzees, monkeys, or even kangaroos. But in its own country the orang is not a 'mixer'; all first-hand accounts of it in the wild confirm the general view that it is never seen in uproarious pillaging bands as are monkeys, gibbons, or chimpanzees. The young orang, like its elders, is very self-sufficient, staying with its mother until confident that it can fend for itself. There seems to be no evidence of its attitude towards other large animals that share the same forests, though many travellers testify to its instinctive horror of serpents. Snakes of all kinds, both harmless and highly poisonous, abound in Borneo and Sumatra, and the orang has doubtless good reason to avoid most snakes at night. How far its fear of these reptiles is inborn, and how far acquired by the precept of companions—especially experienced elders—is still a matter of conjecture, though possibly the latter is responsible for most of its fears.

With a view to ascertaining how far a dread of snakes was inherited, if at all, by young orangs, Sir Peter Chalmers Mitchell, while Secretary to the London Zoological Society, made an interesting experiment. He acquired a very young orang just taken from its mother and known to have never during its short life been confronted with a snake of any description. The infant simian was then introduced to a large, but harmless, serpent. So far from evincing any terror, the orang hailed the snake as a choice companion, festooned it round his shoulders, dragged it about by the tail, and

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generally treated it with such boisterous friendliness that it had to be removed for its own safety.

The orang's temperament seems to vary enormously according to the individual, in which regard, as also in its rate of development and span of life, it approximates closely to that of Man—the man of its own country, who matures far more rapidly than one living under the retarding conditions of a Northern latitude.

CHAPTER IV

THE GIBBON

THE gibbons are by common consent regarded as the lowest of the man-like apes, approximating more closely to the true monkeys than other members of the group. Early descriptions of these apes leave some doubt as to the animals' precise identities. The first illustrated accounts of the gibbon were those of Buffon and Visme, towards the close of the seventeenth century, and a hundred years later most of the species known to-day had been recognized.

The gibbons are generally divided into two groups—the gibbons proper, and the siamang (*Symphalangus syndactylus*). The former embraces the lar or agile gibbon of Sumatra and Siam (*Hylobates lar*), and hoolock gibbon (*Hylobates hoolock*) of Assam, the concolor gibbon (*Hylobates concolor*) of Indo-China, and the silver gibbon or wou-wou (*Hylobates leuciscus*) of Java.

The siamang, sole representative of its sub-order, is found in Sumatra and also in the Malay Peninsula.

Though differing widely in colour, characters, structural details, and voice, all the gibbons have certain features in common. Apart from the siamang, which is the giant of the race, the average height of these apes is about three feet. The entire build is very lithe and slender, with a chest- and waist-development not unlike that of a greyhound. The animal is admirably adapted to

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arboreal life, for the average weight seldom exceeds twelve pounds, though this is nearly doubled by the siamang.

A leading feature of the gibbon is its extraordinary length of arm. When it is standing upright, its fingertips all but touch the ground. The hand is much longer than the foot, and in the siamang and a few of the true gibbons the second and third toes are connected by a web or fused completely. Despite the fact that the hands are largely used as mere hooks or grappling-irons, whereby to seize boughs and leaves, there is a well-developed thumb, though this, like the great toe, is widely separated from the other digits. In this connexion it is of interest to note that in a few arboreal monkeys the hook-like usage of the hand has led to the atrophy and final disappearance of the thumb.

The head is neat, almost globular; and since the nose has more of a bridge than that of any other anthropoid, the bright, eager-looking face has a strikingly human appearance. The skin is black, and the deep thick fur ranges, according to species, from black and brown to straw-colour or pure white. The siamang is distinguished from the true gibbons by the presence of a laryngeal sac—a large bladder-like organ situated on its throat, almost devoid of hair, and generally regarded as being associated with voice-production. Though the brains of gibbons are less man-like than other anthropoids, the animals are extraordinarily quick to grasp any situation presented to them, and, as will be seen later, pass—often with honours—many intelligence-tests to which they have been subjected.

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All gibbons frequent upland forests, and a sub-species of siamang will, like the mountain gorilla, ascend to over a thousand feet above sea-level. High-level gibbons have thick, rough coats, while the colour of all is largely influenced by sex and maturity.

Whatever its locality the gibbon shows almost incredible agility, hurling itself through the tree-tops at amazing speed, the long arms being used alternately so that it literally strides along, hand over hand, with the legs drawn up close to the body. Its leaping-powers are also wonderful, a jump of twenty or more feet being within the compass of the smallest species.

Dietetically it is much less conservative than most other man-like apes. Fruit, grain, leaves, grasses, shoots, and roots all figure in its menu, and some species also include insects, birds' eggs, and various small vertebrates on their bill of fare. At the London Zoo and in M. Delacourt's Park, in Normandy, these apes have been observed to leap at, and capture, small birds on the wing. Captive specimens not infrequently take readily to meal-worms and various meats, either cooked or raw, pointing to a very varied range of nourishment in the wild.

The gibbon is not only the most agile anthropoid above ground, but also on it. With the long arms, held up at a comical angle, with elbow bent and hand drooping, it can run along on its feet only at a surprising rate. It can run thus not only on a flat surface, but along the less stable support of a rounded branch. One most remarkable feature of its antics points to its strictly arboreal

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life, and is unlike that of any other ape. Whereas the orang drinks either by sucking up water with the lips or taking it quite readily in human fashion from a cup or even by means of a straw, the gibbons invariably dip hand and forearm in the fluid and then suck it as it drips from the fingers and wrist. It is quite possible that this curious mode of drinking, which may disappear occasionally in captivity, is the result of the apes' having resource to very limited supplies in the wild, where they may possibly rely chiefly for drink upon such rain-water or dew as collects in the axils of leaves, tree-hollows, or the vase-like leaf-tips of pitcher-plants.

The inability of these apes to swim seems to have received little attention. It is, however, definitely established that the hoolock is quite helpless in water, and is as incapable of making any effective effort to save itself from drowning as an uninstructed human. In the case of the hoolock this is very significant, since its territory is bounded by two great rivers, the Irrawaddy and the Brahmaputra. Small streams are easily spanned by most gibbons, who use the simple expedient of 'overhead' travel through the interlacing tree-branches.

Gibbons are highly gregarious, and to the less social denizens of the jungle must be something of a public nuisance. They go everywhere in shouting bands, sometimes of several dozens strong, tearing through the tree-tops at high speed and leaving a trail of disorder behind them.

As with the other apes, and many monkeys, the great difficulty of observing them under ideal conditions in the

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wild necessarily leaves many gaps in the full story of their natural careers and home-economy.

The average gibbon is believed to be 'of age' at between five and eight years, and the mother gibbon has been observed to nurse her infant for about seven months. As with other anthropoids, and many savages, the baby is carried on the breast, or seated on one hip, its hands and feet tightly clinging to the parent. Gibbons very seldom breed in captivity, and twins have never been recorded. Since the young are produced only once a year and take three or four years to become tolerably self-helpful, a 'family' may contain members of very varied ages and sizes. These apes are usually regarded as somewhat delicate creatures, but such an assumption is probably based upon those from lowland districts. At the Delacourt establishment in Northern France, mountain gibbons live outdoors on a wooded islet the year round.

Most gibbons are by nature docile and affectionate to a degree. The big and powerful siamang, on the other hand, shows much more independence and an inclination to return violence in kind. Quick by nature, the average gibbon shows every passing emotion most expressively in its countenance, and like all emotional animals, is of a somewhat jealous disposition. In the opinion of those best acquainted with the animal, the gibbon is the most responsive and sensitive of all the anthropoids.

Gibbons have even been recorded as displaying sympathy for injured companions. A correspondent in *Nature*, some years ago, wrote:

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I keep in my garden a number of gibbon-apes; they live quite free from all restraint in the trees, merely coming when called to be fed. One of them, a young male, on one occasion fell from a tree and dislocated his wrist; it received the greatest attention from the others, especially from an old female, who, however, was no relation; she used before eating her own plantains to take up the first that were offered to her every day, and give them to the cripple, who was living in the eaves of a wooden house; and I have frequently noticed that a cry of fright, pain, or distress from one would bring all the others at once to the complainer, and they would then condole with him and fold him in their arms.

Confronted with the intelligence-tests usually applied to the great apes, most gibbons display remarkable quickness and appreciation of whatever may be required of them. For example, the investigator Boutan confronted gibbons with tempting food securely shut in various types of wire cage, each of which was opened by a different type of catch. None of these catches could be called simple, and in some cases several fastenings were required to be opened before the food was reached. One big cage, closed by a sliding shutter, could only be opened by pulling a small knot closing the mouth of a long tube; yet after a few minutes' examination, even this did not balk the 'candidate' of its well-earned prize. When these boxes were again shown to the gibbon after a period of several months, the various fastenings were manipulated correctly without a moment's hesitation, pointing to the possession of a very creditable memory. Similarly gibbons provided with rakes, whereby to draw

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towards them food placed at some distance from their cages, very quickly realized the possibilities of the implement and utilized it correctly.

To the casual Zoo visitor the gibbon's most striking trait, apart from its phenomenal agility, is its voice. It varies greatly with the different species, and in favourable circumstances may cover a range of well over a mile.

The huge laryngeal sac of the siamang, already alluded to, is usually inflated when vocal exercises are contemplated, and at such times the animal utters a hollow barking noise; it may also be inflated, and to a much greater degree, when its owner merely yawns.

The voices of the true gibbons have been minutely analysed and reduced to ordinary musical notation. Most of these cries can indeed be accurately rendered by a skilled musician on a violin. While some are distinctly 'trying,' by human standards, others have very obvious artistic attractions. The concolor gibbon's voice, for example, can range over two or more octaves, and has been interpreted as *hōō*, *hōō*, *hōō*, while that of the hoolock—which gives to the creature its popular name—is interpreted as *hāh-hōō*, *hāh-hōō*, the 'hōō' being on a much lower note than the 'hāh.' The silver gibbon, commonest of gibbons in Java, expresses itself by a piercing call of *wōo-ōo-ūt wōo-ōo-wūt wūt*. As an example of the many uses to which gibbons may put their voices, one species is recorded as having six distinct calls for expressing satisfaction, and nearly twice as many for 'registering' pain or fear.

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The gibbons' voices at the London Zoo have always attracted much attention, and on occasion they cause some embarrassment to those officials concentrating on their duties in the Aquarium, which is adjacent to the outdoor gibbon-cages.

The voices of the males have always much greater 'carrying' power than those of their consorts. While the voice is used for almost every occasion, it may often be exerted from sheer *joie de vivre*, and is particularly noticeable at sunrise and sunset. Many years ago the evening 'hymn' of one gibbon at the Zoo actually attracted a constable to the gardens, who was under the impression that a particularly lurid murder was in progress.

Vivid sunlight, or the appeal of a friendly and noisy crowd, may similarly excite the gibbon's tendency to song. At the Zoo, the gibbons used as a rule to be silent on dull days, but the advent of the sun-ray lamp has brought not only a marked improvement in their health, but a corresponding increase in choir-practice. Another innovation of post-War years has proved less stimulating to these usually volatile simians. Ever since the inauguration of late nights at the Zoo, broadcast music has figured largely in the Gardens' attractions. Though it has long been a feature of "Zoo nights' entertainments," the gibbons have never become entirely reconciled to it. The first strains from the concealed amplifiers usually signal a sulky silence on the part of the apes, who obviously resent any competition.

In some towns of Java it is customary for almost every

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third householder to possess a wou-wou, or silver gibbon, as part of his *ménage*, and it is not surprising that the combined efforts of these household pets give rise at times to a certain straining of neighbourly relationships between the gibbon-holders and those not similarly blessed.

CHAPTER V

THE BABOON

*T*HE baboons, mandrills, and drills are all confined to the continent of Africa, and are of great interest from the anatomical point of view, since they show the results of terrestrial existence upon the accepted monkey-form. Though all the baboons can on occasion assume a semi-upright pose, their normal mode of progression is upon all fours, and one most convenient to creatures which have abandoned forest-life for the open plain.

In conformity with quadrupedal existence, the chest has become compressed laterally, like that of a dog or horse, the limbs are more uniform in length than is customary with monkeys, while reliance on the sense of smell—both to discover food and detect the approach of foes—has led to an enormous elongation of the muzzle. The baboons have, in fact, to quote Professor E. A. Hooton, “slipped back” to the status of ground-dwelling quadrupeds.

Living as they do in exposed country, baboons are great travellers, and show a muscular development second only among primates to the anthropoid apes. The hands being used so much for walking are stubby, with horny palms, and the thumb, like the big toe, is less opposable to the other digits than in most other monkeys. The tail, being of little use in the baboons’ particular sphere of life, has become shorter, very immobile, or has all but disappeared.

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The eyes are protected from the glare of the sun by overhanging ridges, and the canine teeth of the males have developed into formidable dagger-like weapons. Baboons have a very complex social system of their own, pointing to a considerable mental development.

Baboons as a class are principally vegetarian, but like most monkeys they eagerly devour small birds, reptiles, eggs, insects, etc. Their obvious liking for such insects as may lurk in the desert sands is well seen in the curious habit that captive specimens have of patiently sifting the dust of their quarters through their fingers and minutely examining it for anything edible it may contain. Wild baboons have often been observed thus to detect and devour scorpions, pinching off the stings before eating the arachnids. Like many other old-world monkeys, baboons have cheek-pouches in which food may be stored until opportunity permits of its leisurely enjoyment.

The somewhat bare portions of certain parts of male baboons appear to have another purpose apart from that of sexual attraction. Many highly skilled observers, Darwin among them, have noted that male baboons of all species will deliberately expose their naked nether portions in friendly greeting, not only to members of their own race, but to humans they are fond of, and even on occasion to their own reflections in a mirror.

These bare patches are nearly always confined to the buttocks, but in the gelada baboons both male and female display two bare spots on chest and neck, and these are often of a staring red. Each patch suggests two triangles with their apexes joined, forming an 'hour-glass' shape.

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At certain seasons these patches become highly inflamed, and they have long been referred to as 'bleeding-heart marks.'

About a dozen species of baboons are enumerated, the best-known perhaps being the hamadryad, or sacred baboon (*Papio hamadryas*). It frequents the rocky ravines of the Sudan, Abyssinia, and Arabia, in troops which may at times number several hundreds.

Blandford's description of a troop may be taken as typical of the baboons generally:

A troop collected on a rocky crag presents a most singular appearance. . . . On such occasions every jutting rock, every little stone more prominent than the rest, was occupied by a patriarch of the herd, who sat with the gravity and watchfulness befitting his grizzled hair. . . . Around the females were mainly occupied in taking care of the young.

The gelada baboon (*Theropithecus obscurus*) has an even more picturesque mane than the hamadryad. It likewise congregates in large troops, and since these two species often patrol the same territory, furious battles sometimes take place between them. Such battles are often caused by opposing factions electing to raid the same field or plantation. The damage these and other baboons do to agriculture is prodigious, and the situation is the more serious since preventive measures, or even organized slaughter, appear to have little effect either in intimidating them or reducing their numbers.

Many cultivators accept them like the wind and the rain, and regard all efforts at their control as a waste of time

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and effort. From 1925 to 1927 rewards were paid on all scalps and tails brought to the district commissioners in South Africa, and though over two thousand claims were made, the numbers of these animals still at large is undiminished. Fruit poisoned with strychnine usually fails to deceive the animals and lure them to their death. Immense damage is done by breaking off young shoots and saplings, smashing down 'jackal-proof' fencing, etc., while another source of concern is the baboon's *penchant* for distributing the seeds of the prickly pear, which in some regions is a more serious menace to husbandry than even the baboons themselves. Though reports of baboons attacking native children and disembowelling lambs are not infrequent, such cases rarely bear close scrutiny or inquiry.

Whether baboons are subject to epidemics is not known, but in severe drought numbers meet their death by attempting to drink at reservoirs, etc., when the weaker members of a troop may be pushed under water in the general *mêlée* by their stronger companions. The egg-stealing propensities of baboon-troops sometimes lead to a round-up.

This is effected by a party of beaters driving a troop with shouting, drums, and guns into some rocky outcrop which has previously been surrounded by piles of brushwood. This is suddenly fired when the animals have settled for the night, and by the light of the flames a general massacre takes place.

The gelada baboon, in addition to its chest- and neck-patches, is distinguished by a crest of dark hair above

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the eyes, while the nostrils are situated at the sides of the muzzle instead of at the extreme end, as in all other baboons.

The olive baboon (*Papio anubis*) of both East Africa and West Africa is a large member of the genus, while the so-called guinea baboon (*Papio papio*) is one of the smallest. In all these baboons the length of the tail varies considerably. It is fully half the length of the body in the chacma (*Papio porcarius*), the largest known species, which ranges over a wide area of South Africa, south of the Limpopo river. Like other baboons, the chacma is more or less omnivorous and travels in hordes of eighty to a hundred, though veritable armies of as many as five hundred have been recorded. Females usually considerably outnumber the males.

Despite their formidable appearance, baboons seem to leave most other animals in peace, and will amicably share the same feeding-grounds with bush-buck and wild pigs. Baboons usually 'work' a certain area, seldom going beyond it, scattering by day when they feed, and at night gathering together among the rocks. The oft-repeated statement that sentinels are posted is not corroborated by modern observers, neither do stories of human children abducted and then educated on 'Tarzan' lines appear to find credence among competent authorities.

What the hamadryad baboon of North Africa is to Egypt and the Sudan, the chacma baboon is to South Africa. The chacma baboon was made the subject of exhaustive study some years ago, by Mr Fitzsimons,

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curator of the famous Snake Park at Port Elizabeth, and some of the best baboon-stories ever written are from his pen.

It is customary to think of the monkey as a lotus-eater, living always in tropic luxuriance, and never obliged to do a hand's turn in order to enjoy a full meal. While this may apply to some jungle species, the necessity of finding enough food makes the average baboon's life a hard one, and this is specially true of the veldt-dwelling species. The continual search for a living frequently dictates mass migrations, and there are times when the animals literally stop at nothing. Some years ago an eminent entomologist went on a pilgrimage to the wild country on the outskirts of Johannesburg, then known to be remarkably rich in coleoptera. But to his disgust every stone for many miles round had been turned by the baboons, and scarcely an insect, spider, scorpion, or centipede of any sort was to be found.

Many of the more primitive South-African farmhouses have the main door in two parts, like that of a stable. A troop of these migrating baboons, finding one such dwelling, entered, in the owner's absence, *via* the upper half-door, which was standing open. The baboons, numbering forty odd, made a minute search of the premises, and might have left it in tolerable order, had not the door slammed. They then felt themselves trapped and gave way to panic. Before the last had escaped, through broken windows and by way of the chimney, the place was completely wrecked.

In times of severe drought the baboon's only hope

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of food lies in digging up the bulbs which abound at the Cape. The serious damage which the animals do to crops has led to the breeding and training of special baboon-hounds—large mongrel lurchers that show remarkable strategy in tackling them. Knowing that the baboon always seizes its foe before biting, the dogs never allow themselves to be enticed within arm's length of a baboon, but circle round it at high speed, till an opportunity offers for attacking the confused and exhausted victim from the rear.

Baboons show great cunning in attacking wild bees' nests, for they are inordinately fond of honey. They invariably raid a hive in the chill of dawn, when the insects are semi-torpid, and always drag the comb through coarse grass or scrub to dislodge any bees adhering to it. Usually it is devoured under cover of dense thorn-bushes, where the bees cannot follow. Ostrich-nests also suffer largely at the hands of baboons. The eggs are never smashed in a clumsy way, as is the habit of small monkeys; instead, one end of the egg is merely cracked, the piece of broken shell picked out, and the contents then sucked at leisure. It is not surprising that the baboons are disliked by most people, and they well realize their unpopularity, avoiding anyone carrying arms, and showing greater respect for a white man with a rifle than for a Kaffir carrying only an assagai or knobkerrie.

There are occasions, however, when the baboon is regarded as a veritable angel, albeit heavily disguised. When a swarm of migratory locusts settles upon the

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land, the baboons appear to send news of their arrival to their fellows for miles around. Vast hordes of these monkeys converge upon the affected area, and in the early morning, while the insects are still quiescent, they go far towards saving the crops from complete destruction by feeding on locusts to repletion.

Baboons, as already mentioned, show little regard for the Kaffir, who is forbidden by law to carry firearms, but they have none whatever for his women-folk. A Dutch farmer whose crops had suffered severely from baboon-raids turned this fact to account. Disguising himself and a party of friends as women, they were able to come within close range of the troop, and the baboons only realized the ruse when the 'ladies' suddenly produced guns from under their skirts and picked off the leaders of the bandits. So utterly without regard are baboons for native women that in some remote parts of Natal washing clothes or filling water-vessels at streams can be done only under cover of an armed guard.

As all know, the prickly pear-cactus was introduced to Africa from Mexico by early Dutch settlers. While the plant makes a most effective hedge against lions or marauding savages, it can also be a severe scourge, and baboons, it appears, are largely responsible for its too wide dissemination. They are much addicted to the fruit, and since the seeds pass unharmed through their alimentary tracts, the plant is continually being introduced into new areas where it is least appreciated.

A volume might well be devoted to the baboon in the *rôle* of a household pet. When young it is as gentle

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and affectionate as any dog, but these lovable traits tend to give place to moroseness with increasing age. There are, however, many exceptions recorded by reliable observers. On the veldt tame baboons are habitually used to locate edible bulbs, much as in Europe dogs and pigs aid the truffle-hunter. The baboon is also used as a water-diviner. It is first given salted food, thus engendering a severe thirst. The animal then bestirs itself to find a water-supply, and should this be within a few feet of the surface, it is almost certainly detected, the monkey feverishly digging down to it with its hands.

Native women suffering from 'milk fever' frequently find great relief in suckling infant baboons, such favoured monkeys usually becoming good members of society. The case of a baboon aiding a South-African signalman to pull the levers in a railway signal-box has already been mentioned in the introduction, but the account may here be given in detail since it is not only a 'classic,' but perfectly true. In 1877 a railwayman on the Port Elizabeth main line lost both legs in an accident and was later given work as a signalman. To journey between the signal-box and his shack he made a trolley, punting himself along the line with a pole, and apart from his work as a signalman he performed all his own household duties. One day, however, he chanced to see a huge adult 'Jack,' as male baboons are called in South Africa, for sale in the local market. He bought the Jack, and in a few months it had halved his daily work, fetching water, sweeping out the hut, working the

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trolly, and even handing a key to the driver of a light engine as he passed—the key being used to adjust certain ‘points’ farther up the line. Four blasts on a whistle notified the approach of the engine, whereupon Jack at once took down the key from a peg on the signal-box wall. When first learning his duties, Jack helped his master’s dog to pull the trolly, but on the dog’s death he pushed it, single-handed, from behind. His devotion to his master and the amount of hard work he accomplished were remarkable. When aiding in watering his master’s allotment, he would slave at the pump-handle until obliged to rest from exhaustion. The crippled signalman of Uitenhange and his baboon were famous figures for over nine years until, in 1890, the baboon died from tuberculosis. Just prior to his death Jack stood 4 feet 6 inches high, and his wonderful career forms the subject of a special memoir filed in the archives of the Port Elizabeth Museum.

The yellow baboon (*Papio cynocephalus*), which shares the same localities with the chacma, is distinguished by its flesh-coloured face and yellowish hair, whereas the chacma has an ashy black face and brown fur. Like the chacma, the yellow baboon can be very aggressive where only natives are concerned, and Kaffir farmers in remote areas are not infrequently obliged to summon European aid in intimidating the monkeys threatening their property.

Lions and leopards—particularly the latter—rank among the baboon’s chief natural enemies, and since like all the higher primates baboons are diurnal, their danger

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from the great night-walking cats is a very real one. Leopards, however, seldom dare to engage adult males, preferring to pick off females and young that have incautiously wandered out from the main body. Old baboons never hesitate to attack a leopard if they are in sufficient numbers, in which case the cat is literally torn to pieces. Agriculture and advancing civilization generally have gone far to reduce the numbers of leopards and cheetahs, which may largely account for the baboon populace maintaining such a steady level.

Possibly the most impressive of all the baboons is the mandrill (*Mandrillus sphinx*) of West Africa. It is more addicted to forest-country than most of the other species, and consorts in small companies of six to a dozen. It is largely omnivorous, and an adept at capturing small birds and mammals. One famous example at the London Zoo, known as George, made a regular cult of catching the sparrows that entered its cage and the mice that lay concealed in its sleeping-box.

An adult male mandrill measures about a yard from head to buttocks, and may weigh well over a hundred pounds. The colouring of this monkey is quite without its equal throughout the monkey-kingdom. The general tint of the dense coat is auburn, varying from rich chestnut on the back to creamy white on the belly. A crest of deep chestnut crowns the head, and a white pointed beard of a 'Captain Kettle' variety adds the last touch to the generally aggressive *ensemble*. In the young of both sexes and also adult females the face is blackish, but the adult males undergo remarkable changes both

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in form and colouring. The upper canine teeth attain such huge proportions that the roots force up the cheek-bones, to form enormous ridges. These are covered with longitudinal folds of fluted skin which takes on a vivid azure blue, while the nose is a flaming scarlet. The bare buttocks similarly combine red and blue of a vividness comparable to that of the plumage seen in some tropical birds. A visit to any ethnological collection will show that the mandrill has undoubtedly inspired some of the devil-masks devised by West-African witch-doctors.

The temperament of the mandrill is quite consistent with its appearance. Docile when very young, it becomes unmanageable when adult, though as with other baboons there are exceptions to this rule. The famous Cross's Menagerie that was a feature of the Strand, in London, in the early part of last century, boasted a huge mandrill known as 'Happy Jerry.' Jerry slept in a civilized bed, and spent much of the day seated in a rocking-chair, smoking and drinking, being fanatically devoted to both amusements, especially the latter. We are told that he would fill his chest with smoke and expel it in a cloud. This, combined with a faculty for taking great draughts of porter from a tankard, was so much in tune with the tastes of the period that he became a London character and was twice presented at Court to George IV, and dined with that pleasure-loving monarch at Windsor Castle.

The drill (*Mandrillus leucophaeus*) is closely allied to the above, though enjoying a somewhat more extensive

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range. Like the mandrill, it has the tail reduced to a mere knob, which stands erect. The buttocks are greenish blue, and the face black, that of the adult being distinguished by a vivid bar of scarlet on the lower lip. A giant specimen now in the Belle Vue Zoo at Manchester rejoices in the name of 'Lipstick.' As in the mandrill, the full colouring and the development of the huge razor-edged upper canines are not seen to perfection until the male is in its ninth year.

The natives of Guinea and West Africa tell many stories of boldness and savagery of these baboons, and there are authentic instances of adult males having engaged and defeated the leopard single-handed.

Monkey-society has been the subject of endless jests, but it is also worthy of more serious consideration, if only in showing the distance man has travelled from his most primitive ancestors.

Most primates are tolerably gregarious, the majority noticeably so, and few offer better examples of sub-human society than the baboons. Their habit of usually frequenting the open renders them more easy to observe than species living in dense jungle, and since they have come under continuous notice since the dawn of civilization, accounts of them may be met with in the literature and legends of almost every country.

The baboons are an outstanding vindication of the old adage that union is strength. Though they have for long gained man's respect, their destructive propensities have made them many enemies. Yet despite even the lethal weapons enrolled for their destruction

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to-day, their race persists and flourishes, sometimes to an embarrassing extent.

Before dealing with the latest observations of baboon-society by acknowledged authorities, some of the earlier accounts are worth glancing at. The traveller Bingley, writing early in the nineteenth century, says of a huge troop of chacma baboons he encountered near the Cape of Good Hope: "They set up a universal and horrible cry for a minute or two, and then concealed themselves in their fastnesses and kept a profound silence." This tribute to baboon co-operation is but one of many offered by all kinds of persons. Numerous travellers have recalled how the animals deliberately roll down rocks upon their enemies. Such stories have been so frequent that Dr S. Zuckerman, on a recent visit to South Africa for the purpose of studying baboons in the wild, made it the subject of special inquiry. While rocks and *débris* are undoubtedly often thrown down a precipitous slope, when a baboon-colony on its crest is suddenly disturbed, the deliberate use of stones as missiles is at most of very rare occurrence. The failure to appreciate inanimate objects as potential tools or weapons is indeed one of the mental traits which sharply distinguish the lower quadrumana from the man-like apes.

The interpretation, or misinterpretation, of monkey-society, however, bulks largely in natural histories of all ages and nationalities, and the baboon is ever the prime mover in exploits which challenge human ingenuity and resource. Buffon, describing a baboon-raid on a plantation, asserts:

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On these occasions a party of them enter the enclosure, while one of the company stands sentinel, the rest stand without the fence, a small distance from each other, and form a line, reaching all the way from the enclosure to the rendezvous without, which is generally in some craggy mountains. Everything being thus disposed, the plunderers within the orchard throw the fruit to them without as fast as they can gather it; or, if the wall or hedge be high, to those that sit on the top, and these hand the plunder to those next their side. Thus, the fruit is pitched from one to another all along the line, till it is safely deposited at their headquarters.

Even this piece of wonderful concerted action fades before the account of what once befell an army under Alexander the Great, which happened to encamp on a mountain on which lived a troop of baboons. By morning light the monkeys were drawn up in such truly military formation, that the Macedonian army was ordered to march upon them: and not until the opposing forces were a stone's-throw from each other were the baboons recognized for what they were.

A somewhat similar situation was recorded as late as 1810 by Romanes, who tells of a troop of baboons entering the barracks at Simonstown and decamping with a mass of uniforms and accoutrements. A party of twenty men and one officer was detailed to recover the property, and tracking the animals to a cave, they met with such ferocious resistance that they actually had to retreat.

The conscientious efforts of later field-naturalists have largely proved that though co-operation exists to a

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certain degree in monkey-society, it is not quite so complete as the ancient chroniclers assert. Baboons and other monkeys often live together in large communities, much as do a flock of sheep, for the safety which lies in numbers, and as the result of sheer lack of self-dependence, each relying on its fellow to stumble upon a fruitful feeding-ground.

Accidental clashes are not infrequent between two troops of baboons, especially if they are of different species, and the same also is true of the Indian langur monkeys. Even the baboons, most powerful and effectively armed of all primates save the man-like apes, do not appear to present a belligerent attitude to the world at large. A large troop approached by one or two men almost invariably retreats, without offering to stand its ground for more than a few moments. In the *Cape Argus* of April, 1930, appeared the report of a lamb that lived with a troop of baboons for several weeks, its abundant wool no doubt at once appealing to the passion of the monkeys for grooming. The account is the more credible since one of the most incontrovertible of modern field-naturalists has observed a company of the huge chacma baboons playing and foraging in the thick of a flock of Persian sheep, the ruminants appearing quite at ease with their noisy and boisterous companions.

Stories of 'king' monkeys and monkey 'parliaments' still rest among the mass of natural history 'awaiting verification.' As will be seen in the account of baboons kept under observation in captivity, an adult male may

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dominate its immediate circle of wives and hangers-on, but no one monkey 'dictates,' or even leads the general body under the guidance of a council or committee.

A very interesting feature of baboon-society is that a troop, if menaced by some well-armed enemy, such as man, takes to flight; yet it reverses the tactics employed by all other forest animals. Whereas the latter automatically make for the densest cover available, the baboons just as instinctively make for exposed crests and outlying rocky ramparts, the better, presumably, to observe the next move on the part of the enemy. At such times the troop largely scatters, the various individuals uttering short barks and guttural cries whereby they no doubt keep in touch with one another, each unit of the pack apprising his fellows of his whereabouts.

It will be seen that while our knowledge of baboon-society is tolerably complete, it has been largely pieced together from the scattered evidence of a variety of witnesses. However, from the year 1907, when Hagenbeck first instituted the 'terrace' system of showing animals in confinement, efforts have been made by various zoological institutions to keep entire baboon-colonies under continuous observation. This has been effected by putting the animals on large rockeries, usually separated from the human onlookers by a moat and a high parapet to keep the animals within bounds.

While undoubtedly providing a spectacle which has never lost its popularity, the experiment was one of somewhat qualified success. Its principal drawback lay

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in the fact that however spacious may be the enclosure provided for these animals, their peculiar tribal customs and habits render any accommodation, short of the open desert, too small for them. Only natural conditions can offer sanctuary for members defeated in battle, or make it possible to avoid the attentions of notorious bullies and other undesirables.

In the spring of 1925 about a hundred hamadryad baboons were liberated at the London Zoo on Monkey Hill—an enclosure a hundred feet long by sixty wide, containing two great rock-masses, provided with caves and a drinking-pool. Of this original colony all but half a dozen members were males, and the entire troop appeared to live in such comparative peace that two years later the Society was encouraged to add a further consignment of females. From this time onward the Monkey Eden became somewhat less idyllic. Fights were of frequent occurrence, sometimes with fatal results, and in most instances it was only too evident that their root-cause was a case of *cherchez la femme*. Five years after the Hill's inception, its social atmosphere had become so lurid that the few remaining females were removed, and the colony is now merely a bachelors' club, scarcely more exciting than a human institution of the like nature.

Throughout a considerable portion of its history, the Hill was made the subject of a special study by Dr S. Zuckerman, who also studied these baboons in a very similar institution at the Munich Zoo. Between these two some of the principles underlying the at first sight

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chaotic society of a baboon-colony gradually manifested themselves.

Just as the higher primates display a bodily make-up closely similar to our own, so the broad generalities of primitive human society are apparent in them. Male dominance is the key-note of every baboon-colony, though precisely what constitutes the marks of leadership is not, to our eyes, always apparent. Size, weight, agility in battle, and well-developed canines may play their part in determining a male baboon's social status, but they are not necessarily always present in very obvious 'dictators.'

A baboon-colony is largely under the rule, or misrule, of an overlord caste. In the London colony nine original females became the wives of eight males only, out of a total of thirty-nine. At the Munich Zoo, twenty-five females were possessed by five males, out of a total of a hundred and twenty-five, many of which, it is admitted, were immature animals. Such was the dominance of one adult male, that no less than seven females followed in his train.

It soon became apparent to those who watched the London baboons closely that the overlords exercised an iron discipline over their wives. Though polygamy and monogamy went side by side, the recognized mate of any dominant male was kept under the closest supervision by her partner. Should one be caught *in flagrante delicto*, as more than once occurred, she usually paid for the lapse with her life. On the other hand, jealousy often prompted unpartnered males either peaceably to

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abscond with or openly to carry off already wedded females. Whatsoever the situation, the luckless female was given no chance of stating a case for the defence, but was killed either deliberately or in the general *mêlée* such a breach of baboon etiquette invariably entailed.

Even when enjoying apparent peace, the elements of disruption must ever be at work beneath the surface in a large assemblage of baboons. Unpartnered adult males and aspiring adolescents are perpetually seeking an opportunity to assert themselves. Every overlord has his retinue of immature males, so that he may be said to foster unwittingly the seeds of anarchy within his gates. The first signs of possible trouble brewing are cavernous yawnings on the part of adult males. Such seemingly innocent expressions are at times quite obviously thinly disguised menaces. Showing the teeth, rapid beating of the ground with alternate hands, followed by a species of war-dance, in which the warrior leaps up and down, striking the earth with hands and feet held close together, may follow later.

Once two baboons engage in combat, the entire colony sooner or later takes part; the duel pure and simple is seldom allowed to take place. It is for this reason that a baboon-fight within a circumscribed area often takes on such a sanguinary complexion. In the general confusion hitherto peaceable animals find cause for deadly enmities, while oppressed individuals nursing a grudge find it a convenient moment to pay off old scores.

Baboon-society might not perhaps seem very conducive to a great old age, though captive specimens

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disprove this assumption. While the normal life-span is not known, there are records of a mandrill living to be over forty—a long life for a monkey—and of a male chacma that exceeded even this by nearly fifteen years.

Another very important social feature of baboon- and, indeed, all monkey-life, is that of 'grooming,' a practice that has been made the subject of variable witticisms since time immemorial. While insect-vermin are undoubtedly thus located and disposed of, their capture is not the main object. Fleas and lice are comparatively scarce among the primates. More frequently the fur of a monkey contains scraps of dried skin or scurf and dried emanations which sometimes taste of salt—a commodity few mammals can resist. Also a variety of foreign bodies may turn up, providing an element of uncertainty that greatly appeals to the inquiring monkey-mind. But in addition to these concrete rewards, the act of grooming appears to have a deeper significance, possibly of a sexual or semi-sexual nature. In a baboon-colony, for example, only the chief wife of a harem is allowed to groom the overlord, and the overlord may in turn groom another male with whom he is for the moment on friendly terms.

Sometimes several monkeys may combine to groom a single individual, all parties concerned very obviously enjoying the operation. Hair has a very definitely stimulating effect upon all sub-human primates, even from birth, and a healthy monkey denied the society of its own kind will groom itself, some other animal, or even a skin rug. Grooming, while usually engendering

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in the groom a rapt expression, also arouses such signs of satisfaction as smacking of the lips, or clicking the tongue and teeth.

Dominance, whether of mind or muscle, is the outstanding feature of the animal-world, and is only so conspicuous in the primates because they are more obviously comparable to ourselves. In zoos where accommodation is limited this is very noticeable. Sometimes a monkey, or group of monkeys, will so overawe their weaker or less assertive fellows that they have to be forcibly restrained at feeding-time, in order to ensure the others a fair share of nourishment. In a baboon-family the overlord invariably takes the first and largest share of available food, unless his favourite partner happens at the time to be physically responsive to his sexual appetites. At such periods she may be allowed a first helping at the table, though such chivalry would otherwise be more than likely to be conspicuously absent.

Although, as stated earlier in this chapter, monkeys on occasion may show some solicitude for one of their number in danger, anything approaching human commiseration for sickness or distress is the exception rather than the rule. An ill monkey is usually avoided, if not actively molested, and the sub-human primate's attitude to death is similarly far removed from that of the average savage's.

Many instances might, for example, be recorded as showing that apes and monkeys do not as a rule seem capable of distinguishing the living from the dead, at least

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until the latter shows obvious signs of decomposition. Sir Harry Johnston and others have told how, when one of a troop of monkeys—especially baboons—has been shot, the others at first refuse to leave it, from a complete failure to realize that its life is actually at an end; and on the occasions when it has been necessary to remove a dead baboon from Monkey Hill, the task has been undertaken by the Zoo authorities not without the use of considerable diplomacy.

CHAPTER VI

OLD-WORLD MONKEYS

*T*HE monkeys of the Old World are better known than those of the New World, since many species have been associated with civilized man from the earliest times, and become not only part and parcel of his everyday life, but have also been incorporated in his legends and religious beliefs.

The old-world monkeys are very widely distributed. They inhabit South Europe, Africa, Asia, and some of the Far-Eastern island-groups such as Sumatra, the Philippine Islands, and Japan. They flourish indeed almost anywhere, provided that the climate is tolerably warm, though if vegetation is sufficiently abundant to provide food and shelter, they penetrate at times to within the snow-level. With this capacity for colonization in mind, it may perhaps seem contradictory that they should be wholly excluded from the mainland of Australia and the larger islands in its immediate vicinity, such as New Zealand and Tasmania. The explanation offered by the most competent authorities is that these land-masses were cut off from Asia when the mammals were yet in the making, during a period of the world's history known as the secondary epoch. At that distant time, estimated as being some hundreds of millions of years ago, the mammalia were represented chiefly by such relatively lowly forms as the pouch-bearers, or

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marsupials, of which the kangaroos, opossums, etc., are modern types. Those that were left in Australia developed the remarkable range of form and habits seen to-day. But such as found themselves upon the larger land-mass were soon outclassed in the evolutionary race. The more progressive mammals gave rise to the typical beasts we know to-day—the horse, cat, and dog—and it is between these and ourselves that the monkeys form, as it were, a connecting link. When the order of primates was first instituted by Linnaeus, it was made to include the bats, which show many anatomical features common to both man and monkey; but these have been placed, by later systematists, in an order by themselves.

Old-world monkeys are characterized by having more or less bare patches on the buttocks, and in none of the several hundred species is the tail prehensile, or even partially so. While many are mixed feeders, the staple diet of all is of a vegetable nature, and this has led to certain striking modifications of the anatomy. In many, for example, cheek-pouches are present, wherein food can be stored till opportunity arises for its leisurely consumption. Where cheek-pouches are not present, there is a curious arrangement of the stomach, that organ being divided into sacs, somewhat in the manner of that of a four-footed ruminant such as a cow or sheep. This is particularly noticeable in those species which subsist largely upon leaves, and suggests a propensity to ‘chew the cud.’

In all old-world monkeys, the young are usually produced one at a time, though in a few species twins

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are of tolerably frequent occurrence. The great similarity of form and feature seen in the very young of all species points to a common ancestry, and in all the up-bringing is carried out on very similar lines. Once a monkey is weaned, its education begins, and it extends to every activity; the onus of this very responsible work almost invariably devolves upon the mother, who usually removes herself and offspring far from the male.

The maternal parent tests each morsel of the weaned infant's food for some weeks, and supervises its first efforts at foraging, until, by a course of trial and error, it has learnt to distinguish which foods are permissible and which are the reverse. The layman too often explains all animal activities as instinctive, but this is by no means the case. Indeed, the higher the status of the animal, the less instinctive are most of its movements, and the greater its need therefore for education. The infant monkey, for example, though well provided with the means for clambering about rocks or trees, is not by any means such a born climber as is popularly supposed. It is first carried by the mother for weeks, or months, according to species. As a rule it begins life by being carried at the breast. Later it may be borne upon one hip, and eventually graduates to a 'jockey-seat' upon the maternal back. Similarly it takes a 'steeplejack' course by tentatively climbing up its mother's tail, or learns to 'tight-rope' upon tolerably broad branches, not too far above ground—in all of which adventure the affectionate parent watches over it with the most jealous care. Though most monkey mothers are models

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of matronly devotion, they seldom allow affection to degenerate into weak-minded indulgence. Corporal punishment is never withheld when deemed indispensable to the child's welfare. It is administered heartily with a strong right paw, the scruff of the delinquent's neck, or one of its ears, serving as a convenient handle by which to keep it within range and so prevent its escape until its meed of punishment has been carried out.

The old-world monkeys are all included in the family *Cercopithecidae*. The langurs (*Pithecus*) are typical of the Orient, inhabiting Ceylon, Tibet, the Malay Peninsula, India, Borneo, Sumatra, Java, and a few island-groups of this region. They are mostly monkeys of large size, and though being less ornate than the members of some other groups, are all of striking appearance. The prevalent colouring of the fur is black, silvery, or reddish brown; the face is frequently black, and usually the hair of the head is drawn up to a peak on the crown, and forms another peak over the eyes, suggestive of a jockey's cap. Together with the colobus or guereza monkeys, they are the only old-world primates to possess pouched stomachs. They frequent forest-country, living at various altitudes, some ascending to as high as 4000 feet. Despite this, however, they are delicately constituted, and few do well in captivity, though they have on various occasions been bred in the London Zoo. Langurs mostly consort in large troops, and are very assertive and jealous of their particular territory, at once joining battle with other species invading their domains;

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among their own kind there is much rivalry between adult males, and fights to the death are not infrequent.

The best-known species is the hanuman (*Pithecus entellus*), the popular name of which signifies 'long-jawed.' It is a large animal with a silvery coat, black face, ears, and similarly coloured palms of the hands and soles of the feet. All the portions which show as black in the adult, however, are a delicate shell-pink in the very young. In the hanuman the 'jockey-peak' is very pronounced, and as in most other langurs, the long tail is carried arched over the back—like that of a resting squirrel's—when the animals are leaping through the forest-boughs, or from boulder to boulder, as when crossing a stream.

Throughout North and Central India this monkey is held in the highest esteem and even venerated, in which connexion it is given due mention in another chapter.

Though similar in general build, not all the langurs are as fortunate as the hanuman. The capped langur, (*P. aygula*), a smaller but a very similar monkey from South-eastern Asia, has frequently been bred in the London Zoo. It is particularly abundant in Java.

John's langur (*P. Johnii*), for example, is also an Indian species, frequenting high country from the Nilgiri Hills to Travancore, in the Western Ghats, yet owing to the demand for its fur, it is very regrettably persecuted. As a result it invariably keeps to the highest tree-tops and is exceedingly shy.

Another species fast being ushered into extinction is Hose's langur (*P. Hosei*)—a characteristic member of the

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tribe, with a black face, grey coat, peaked head, and long tail. It is found in Bengal, where it is in great demand, for a remarkable reason, quite without parallel as regards any other primate. The natives follow it to a height of two thousand feet up the steep, wooded hillsides, where it is often found churning up the mud of salt-springs, the flavour of which appears to give it great satisfaction. Surprised in such pastime, it is shot with poison-darts ejected from blow-pipes, for the sake of certain limy concretions found in its intestine and gall-bladder. These stones, known as bezoar stones, are more or less oval in shape and vary in size from that of a pea to the dimensions of a hen's egg. The stones are chiefly sold to the Chinese, who credit them with possessing wonderful medicinal properties. Large stones may command as much as six pounds apiece, being regarded as of superior virtue to similar, but somewhat softer, concretions obtained from the intestine of the porcupine. The chief traders in these stones know the monkey by the name of 'Gazah,' in allusion to its cry.

The *retroussé*-nosed monkeys (*Rhinopithecus*) are known by four species only, all inhabiting China and adjacent territories. They are really giant langurs, but of very stout build, and distinguished from all other genera by the absurd appearance of the nose, which reaches its maximum development in the male. The nose is so 'snubbed,' or turned up at the top, that it appears to be stuck on by artificial means to a normally somewhat flattened face. The prevalent colour of the face is

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blue, grey, or blackish, and the coat may vary from white or cream to brown, yellowish red, and black. These monkeys are rare in museums, and quite unknown in captivity. They ascend to great altitudes, and though not actually ranking as sacred, are held in some respect by the natives, chiefly as a result of their powerful build, initiative, and co-operation. None of the species have popular names.

One of the most striking is the stoutly built *Rhinopithecus roxellanae*, called by the Chinese 'monkey of the snows.' The male is double the size of the female, and as is consistent with the spartan rigours of climate it is obliged to face, it is a more frugal feeder than most monkeys. Various strange stories are told of this monkey's boldness, and corroboration by recent travellers goes far to justify some of what at first appear to be the extravagant monkey-stories told by the old writers. It is recorded in the official history of Tung-ping, for example, that a huge body of snub-nosed monkeys was passing from one mountain to another in the course of one of the troop's periodical migrations. Considering that the monkeys had bright blue faces, framed in vivid orange hair, there is much excuse for the villagers turning out *en masse* to admire the march past. In the general excitement the monkeys unfortunately took fright and, giving way to panic, stampeded, leaving behind numerous bottles of mountain-berry wine, which they had hitherto concealed by claspings to their densely furred bodies. Examination showed that the wine had been stolen from a neighbouring village some twenty miles distant.

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Though the Chinese mountain-dwellers seem for the most part to leave these independent monkeys severely alone, there is at least one case on record of outraged humanity taking reprisals for wanton damage done to its property. The soldiers of a mountain garrison, it is recorded, suffered so many losses in the way of food and property through the depredations of these monkeys that a notorious and venerable malefactor of the troop was eventually trapped, securely bound, and then subjected to having his head shaved, after which indignity he was liberated. The opprobrium with which he was met on rejoining his fellows—who had never before seen a bald monkey—was so excessive, however, that the criminal was glad to return to his old enemies the soldiers, becoming a member of the garrison, and living a relatively respectable life ever afterwards.

It is worthy of note that these monkeys are geographically situated, and also systematically placed, midway between the normally nosed langurs and the proboscis monkey of Borneo (*Nasalis larvatus*) in which animal the nose is not *retroussé*, but so 'Roman' as to droop over the mouth and even the chin. For many years naturalists have speculated upon the possible reasons for the development of such a remarkable nasal organ, which does not seem to answer any of the theories of climatic and other conditions held to be responsible for dictating the very variable form of the human nose. Since these peculiar nasal organs appear to be chiefly male prerogatives, one may venture to assume that these characters have been acquired as a result of sexual selection.

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No other monkey in the world can compare, in sheer grotesqueness of form, with the famous proboscis monkey, which is peculiar to Borneo. As its name suggests, its chief distinguishing feature is its nose, which, in adult males, is nearly three inches long. It is flattened, and widest in the middle portion, which hangs clear of the face, the tip hanging far below the chin. There is a crease or groove down the centre, the septum being contracted, and it is not surprising that this enormous feature has a marked effect upon the harsh, guttural voice, giving it a pronouncedly nasal quality. In the female and young male the nose is distinctly 'snub' and suggestive of the peculiar *retroussé*-nosed langurs of China.

The adult animal is of a handsome cinnamon brown, and with its long and flesh-coloured face it makes a very conspicuous object. The Malays call it *orang blanda*, or 'Dutchman,' a not very accurate or flattering comparison with the Netherlandic settlers.

In its native jungles the proboscis monkey often forms large troops and feeds almost exclusively on young palm-shoots. This restricted diet makes the monkey very difficult to keep in captivity, and even in the Zoological Gardens at Cairo, under Major Stanley Flower, it has only been induced to survive a few months. Extravagant stories have been told of this Cyrano among monkeys protecting its wonderful nose with its hands when traversing the complex tree-top paths of the forest; but plausible and attractive as such stories are, they are not confirmed by the most reliable witnesses. A striking

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feature of the monkey, however, is its remarkable fondness for water. It lives almost exclusively among trees overhanging streams or broad rivers and takes to water frequently, not only by necessity, but by choice. The following interesting account of the animal is taken from the diary of Dr William Beebe, who observed some of its habits during one of his expeditions in the Bornean jungle.

7 A.M., cruising up river where it is a hundred and fifty yards wide. Passed a proboscis monkey in midstream, swimming strongly, his forearms moving dog-fashion, downward and back, but he swam first on one side and then on the other. Once when he turned his head, with its prominent nose, backward to look at us, his arms swept far apart, man-fashion, but almost at once he returned to the other method. These monkeys inhabit all this delta region of half-submerged Nipa palms, and owing to the wide, intersecting tidal reaches, they must frequently utilize this habit of swimming. The natives say it is a common occurrence. The Malay captain of the vessel fired wantonly at the poor beast, but I nudged his arm, and the shot went wide. The monkey dived and remained beneath the surface for twenty-eight seconds by my watch, then came up a few feet ahead and swam on as strongly as ever.

All modern observers testify to the extreme 'clannishness' of the proboscis monkey. Whereas a troop that has found a particularly rich feeding-ground invariably tolerates another troop of its own species that may desire to share the plunder, it at once puts to rout the intrusions of any other species, and being both powerful and courageous, the dispute is never of very long duration.

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Proboscis monkeys are usually of a calm and philosophic temperament, and delight to sit in contemplation perched on the topmost forest-boughs, where they remain motionless for hours, apparently enjoying the scenery.

The so-called black ape (*Cynopithecus niger*) is generally regarded as a connecting link between the old-world monkeys proper and the baboons, and though often loosely included with the latter, it lacks many of their essential features.

For many years untravelled museum-naturalists have wrangled as to the number of species and sub-species that should be recognized, their 'decisions' being based upon dried skins, often not in the best of preservation. For all practical purposes there is but one species, and for our knowledge of this unique animal's 'home-life' we are entirely reliant upon S. J. Hickson's monumental work on Celebes.

The black ape—called by the natives a baboon—is, thanks to universal protection, tolerably common in the northern section of the island, and unlike true baboons it keeps largely to the trees, especially those fringing the coasts, and the dense mangrove-trees abundant in creeks and estuaries.

It is almost jet-black from head to foot, and measures some twenty-three inches from the tip of its nose to the tip of its tail, which latter is represented by a mere stump. When raised upon the hind-legs it stands about three feet high. Usually the apes go in pairs, occasionally in small family-groups, and it is consistently asserted by the natives that they are rigidly monogamous, a pair

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remaining faithful to each other until parted by death. In another chapter it will be seen how large a part the black ape plays in local myth and legend, but here it may be stated that the animal reverses the general 'social status' of the monkey as held among primitive races. Whereas the legends of numerous countries represent the monkey as a degenerate human, degraded to its present form for past misdemeanours, the black ape is promoted to a position of unusual honour and veneration. The leading tribe of Celebes, indeed, proudly insists upon tracing its own descent direct from a superior race of black apes.

The black ape, though a powerfully built beast, appears to be very peaceable unless deliberately ill-treated, and lives on good terms with the other forest inhabitants. It is occasionally guilty of raiding crops, but it subsists chiefly on fruits, leaves, and grubs, searching for those commodities among the tree-branches, usually at high tide. At low tide it enjoys a change of diet, scouring the rocks and even wading in search of crabs, sea-worms, and shell-fish of all description.

The monkeys known as macaques (*Macaca*) are represented by scores of interrelated species. They abound throughout India, northward to Kashmir and Tibet, southward to Ceylon, and eastward to the Bay of Bengal, Upper and Lower Burma, Siam, Cochin-China, the Malay Peninsula, Merguin Archipelago, Andaman Islands (by introduction), Singapore, Rhio Archipelago, Sumatra, Java, the Philippines, Hainan, China, Formosa, Gould Archipelago, and Japan. None exist in Africa.

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All the macaques are stocky, strongly built monkeys, some having long tails and others being all but tailless. Their adaptability is as far-reaching as their diversity of form and geographic range, some favouring the hottest regions, others ascending mountains well above the snow-line.

To the European at least, this numerous clan is exemplified in the common rhesus, or 'organ-grinder's monkey' (*Macaca rhesus*), abundant in Northern India, where it ascends—as at Simla—to an altitude of 8500 feet.

Though not sharing equal honours with the langur as a sacred monkey, it is still sufficiently respected to escape molestation, and so it can conduct its endless pilferings and destruction of property with little fear of correction. It is a recognized feature of the famous Hanuman temple at Benares, where it takes, however, a back seat in the presence of the much larger langur monkeys. The rhesus has been immortalized in the stories and poems of the late Rudyard Kipling, the bandar, as this monkey is known in India, having been perfectly described in the famous *Jungle Book*.

Few humane persons will regret the passing of the rhesus from our public thoroughfares, any more than they will miss his owner, the itinerant organ-grinder. The animal still has considerable publicity-value, however, and the 'escapes' of these monkeys from the small live-stock establishments will be found, in most cases, to coincide strangely enough with a period of depression in the business.

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'Escape' stories in which a rhesus is the central figure are endless, and the tale is not yet told. On scores of occasions the police have been called upon to chase one of these monkeys over London roof-tops—an exercise not unfraught with danger, as the monkey often keeps his pursuers at arm's length with a heavy fire of tiles. A rhesus thus at liberty has withstood a siege for several days, defying all efforts at capture, and living tolerably well in the meantime on comestibles taken from houses through open windows.

The extreme hardiness of the rhesus commends it for outdoor exhibition in this country, and the last two years have seen a very successful experiment in this direction at the Whipsnade Zoo. A large oak-tree near Blue-bell Wood was surrounded by a nine-foot palisade, and a colony of some forty rhesus monkeys were turned loose therein. As anticipated, that summer was the last occasion on which the 'Tarzan Tree'—as the oak was christened by public consent—enjoyed foliage. The sight of the monkeys tearing through its branches made an unforgettable spectacle, but this fine example of the jungle was but short-lived. Within a few weeks the monkeys, wild with joy in their unaccustomed liberty, devoured every leaf and bud, removed much of the bark, and eliminated every branch not sufficiently strong to withstand their weight.

The Tarzan Tree made it possible, as never before in this country, properly to appraise the wonderful leaping and other gymnastic powers of these monkeys. If a monkey had crammed its cheek-pouches with food

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coveted by its fellows, it retired to the utmost limits of some far-reaching branch; but even here it was not safe from molestation, for the envious pursuers deliberately joined forces in an effort to shake it off.

It soon became apparent that the palisade, though provided with a 'roll-over' top, and situated some forty feet from the tree, was not sufficient to keep the exhibits within bounds. A monkey desiring to explore the larger world beyond the compound-wall simply dropped from some lofty bough—often a distance of forty feet—and landed on top of the palisade, from where access to the park was a simple matter. This necessitated increasing the distance between tree and palisade, a matter less simple to perform than might at first sight appear to be the case. Owing to the monkeys' devouring curiosity, and the temporary lack of means to shut them away from the workmen, the latter carried out the required alterations in a state of siege, or rather guerilla-warfare. Their various implements had a fatal fascination for the monkey-mind, and on one occasion a tool weighing pounds was dropped from the tree's summit—some sixty feet above ground—luckily with no untoward results.

Throughout these operations monkeys came and went as they pleased, making long excursions into the park—often to the surprise of other animals—yet with few exceptions they returned to the tree at nightfall. One, a bolder spirit than the rest, even visited outlying villages, but eventually gave himself up in a peaceable manner. A large male, known as 'Sergeant-major,' soon established himself as leader of the troop. One of these

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monkeys gave birth to a single infant; but inclement weather, plus its mother's inordinate pride—which prompted her to show the child to friends at unseasonable hours—unfortunately led to its early demise.

The macaques alone might provide an extensive and fascinating anthology, for the stories, true and otherwise, told of them are endless. In the former category is an entertaining incident which occurred some years ago in Germany. The brothers Hagenbeck, the famous dealers and animal-trainers, were installing a large troop of macaques on a newly instituted monkey-hill at their animal-park at Stellingen, near Hamburg, in a portion of their gardens which abuts on to the railway-line. All was going well when a contingent of the monkeys not only escaped, but managed to board an express train which at that moment was leaving for Berlin, invading the roofs and compartments. It is not difficult to picture the shock which the Berlin station-officials experienced on the arrival of the *Schnellzug* bedecked with a band of merry rhesus monkeys who had caused some considerable embarrassment to the passengers *en route*.

The so-called Barbary ape (*Macaca sylvana*) holds a unique position among old-world monkeys, since it is the only species which can be regarded as a native of Europe. It is abundant in the forests of Barbary, and is supposed to enjoy its present distribution along the north coast of Africa as the result of introduction by the Moors, with whom it has always been a popular pet, despite the damage it does to their crops.

It is a big, powerful animal, of typical macaque colour,

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i.e., a greenish brown or dull buff, and is tailless. An adult male is rather bigger than an Airedale terrier.

To-day it is seen chiefly as a mascot attached to inns, cafés, shops, and private dwellings, throughout Morocco and along the opposite coast of Southern Spain. But the animal's chief claim to fame lies in its association with the 'Rock,' and tolerably accurate history of those attached to the Gibraltar garrison has been kept since 1856. At the beginning of last century there were reported to be over a hundred and thirty monkeys in residence—the total strength being divided up into several small troops, each under the leadership of an adult male. This monkey populace appears to have enjoyed a very chequered history. The monkeys early impressed themselves upon the garrison, not only by their aggressiveness and truculent behaviour, but as weather-prophets. The advent of drought or tempests was always to be foretold with tolerable accuracy according to the position of the animals upon the rock; genial weather caused them to congregate on the Mediterranean sea-board, while the hated east wind dictated a general exodus in a westerly direction.

In 1856 the animals were placed under the care of the signal-master, strict orders being given that none were to be killed, and a careful census was kept. Whether by a series of accidents, or possible epidemics, is not known, but by 1863 there were only three survivors. Sir W. Carrington, then Governor of the Rock, brought four monkeys from Morocco, and the troop very slowly increased, succeeding generations becoming more bold

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and impudent. Realizing their immunity from molestation, they abused their privileges in a typical simian manner. Dogs, cats, and other domestic animals went in terror of them, poultry were liable to lose their tail-feathers at any moment, and no shop or dwelling-room was safe from the monkeys' depredations unless all windows were securely closed. We are told that high officials, travelling in open carriages, sometimes suffered a painful loss of dignity by monkeys leaping upon them from a tree or rock and hurriedly decamping with handkerchiefs, headgear, or even wigs. The impressiveness of some public functions was frequently marred by such visitations.

For these and all other details appertaining to the monkeys at this period we are indebted to the diary of a certain Sergeant Brown, of the Signal Station, who appears to have acted as a blend of major-domo and veterinary surgeon to the simian contingent. In 1872 a furore was created by a young subaltern shooting two of the monkeys that took liberties with his wardrobe. The affair was made the matter of a court-inquiry, and the officer ordered to tender a public apology and to replace the monkeys at his own expense. By this time, however, the monkeys had apparently organized their society upon rigid lines of their own devising, and the two new recruits, instead of being admitted to the general body, were hurled off the Rock and into the sea.

In 1873 one of the monkeys, a big male, bullied the rest of the community and became such a nuisance to the human populace that Sergeant Brown received orders to place the animal under arrest.

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Orders were orders, but nevertheless exceedingly difficult to carry out. There was a ludicrous pursuit of the culprit, which the rest of the garrison assembled to enjoy without apparently volunteering any assistance. At one period of the campaign the ape climbed upon a roof and kept his would-be captors at bay with a terrific fire of tiles, until ammunition gave out, when he hastily vacated this stronghold and made for the open country. Here he was eventually cornered by the Sergeant and three artillerymen, who rushed upon the ape with outspread cloaks, and after a great struggle the monkey was incarcerated in a specially prepared cage.

The year following this incident a great fire broke out, and the monkeys created an extraordinary spectacle as they raced through the scrub, pursued by the flames; they finally found safety by tobogganing down one of the famous 'catchments.' Sliding down these structures—which form a well-known feature of Gibraltar—appears to have been a favourite diversion of the monkeys at all times. An extract from the Sergeant's diary states:

Sometimes a fight occurs among the monkeys, when it is surprising to witness the rapidity with which they follow an offender down the stupendous precipice of the Eastern face, tumbling one after the other, and catching at bits of bush or projecting ledges on their way; they descend hundreds of feet in a moment or two.

Injuries received in any of these adventures were invariably attended to by Sergeant Brown, who kept a sort of monkey sick-room at the signal-station.

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From this time (1880) onward the monkeys' assertiveness seems to have necessitated increasing restraints being put upon their liberty. In 1921 a huge old male developed sadistic tendencies, murdering females of all ages, so that he was eventually trapped and sent to the London Zoo. To-day all the existing Rock monkeys are in private ownership, their unfettered liberty proving incompatible with the demands of twentieth-century society.

The name of 'magot,' sometimes given to the Barbary ape, is of French origin, and may be applied either to a monkey, man, or even an effigy of some description. It means 'ugly face' and is therefore never used in a complimentary sense.

Of the fifty-odd species of macaques recognized, few others besides those mentioned are well known to the general public, and there is some confusion, even among scientists, as to the precise relationship of many of the obscurer species and sub-species. One such, from the Far East, known as *Pithecus lasiotis*, was kept some years ago at the London Zoo, and grouped with the short-tail genera to which it appeared to belong. At the *post-mortem* following its demise, however, it was found that the tail had been severed at the second caudal vertebra, an apparently purposeless mutilation, which has since, however, received an explanation. It appears that the normally long tail of this and other species has always been regarded by the more ignorant Chinese as a caricature or jibe on the part of Nature at the long queue, or pigtail, once imposed upon the Chinese by the Tartars. This head-dress has now largely been discarded, but the

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legend is not forgotten; thus a monkey having the misfortune to fall into the hands of an unenlightened coolie, or native of similar social status, is deprived of its tail, as a preliminary to whatever further steps may be taken in the disposal of its person.

Of the other macaques, which by reason of their abundance and hardiness are commonly shown in Western zoos, only a few of the most noteworthy can be mentioned. A species usually in evidence is the so-called bonnet monkey (*M. sinicus*). This, like the common macaque, is an Indian species, but easily distinguished by the tuft of dark hair upon the head, which sometimes suggests an old-fashioned toque bonnet of Victorian days, though it may fall into a natural parting, when its wearer grotesquely suggests the conventional *impresario* or pianoforte *maestro*.

The East-Indian pig-tailed macaque (*M. nemestrinus*) is nearly as large as an average baboon, and has a thin, wiry tail, not much more than six inches long, which is very mobile, and to those conversant with monkey-psychology, serves as a tolerably accurate indicator to the passing mood of its possessor. It is exceedingly hardy, readily breeding in captivity, and almost from birth shows a high intelligence. This is the species which, as described in the introduction, has from remote times been trained to gather coconuts. With several other species, it is sometimes described as a crab-eating macaque, from its fondness for crustaceans and molluscs, which it gathers at low tide upon the coasts and estuaries which it frequents. Though inclined to be less amiable as it

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approaches old age, it is normally of a cheerful and sanguine temperament. Many travellers have described these monkeys as perching alone upon some exposed rock, where they chatter and 'croon' by themselves for the hour together, apparently from sheer enjoyment of their own vocal efforts.

The famous lion-tailed monkey (*M. silenus*) of India is a strange exception to the accepted 'close-hauled' type of pelage seen in most other members of the genus. It is dark chocolate-brown from head to foot, with the hair of face, neck, and shoulders so long and dense that it forms an immense structure reminiscent of a judge's wig. The moderately long tail has a long tuft at the end, from which the creature takes its popular name. It is also frequently miscalled the 'wanderer,' this title properly belonging to one of the sacred langur monkeys also found in India. The lion-tailed macaque is a fierce, truculent animal, congregating in troops, and never failing to menace any who intrude upon its forest fastnesses. On several occasions native children left on the edges of forest clearings have been killed by these monkeys.

The Japanese ape (*M. luscatus*)—treated at some length in the section devoted to folk-lore, etc.—recalls several similar species found in Tibet. The true Japanese ape, however, is always distinguished, in the adult stage, by its bright red-brick face, which glows like a winter sun from out of the haze of smoke-grey hair that covers the rest of the animal.

It is common on the islands of Yakushima and Nippon,

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and abounds in the hills surrounding Kyoto, one of these being famous throughout Japan as the 'Hill of Apes.' Popular prejudice in its own country renders this attractive, though not too tractable, simian somewhat difficult to obtain for occidental zoos, though a few years ago the London Zoological Society possessed a pair that became the parents of a lively youngster. The little stranger, who at first lacked the roseate face of either mother or father, made his appearance in a particularly bitter January. Even so, neither frost nor snow appeared to affect his spirits, and he would join his parents in sucking lumps of ice when most other monkeys were glad to remain in the shelter of the inner portion of the monkey-house.

A closely related macaque named *Pithecus cyclopsis* might fairly be entitled to bear the specific description '*maritimus*.' It is confined entirely to the island of Formosa, where it lives in caves, just above high-water mark. Though not above raiding inland plantations at night, it spends most of its time along the coast, where shellfish and seaweeds must constitute much of its diet. When family cares impose themselves upon the females, however, these segregate themselves in the inland hills, not rejoining their men-folk at the seaside until the children are several months old.

The guenons (*Cercopithecus*) are a large family of monkeys, confined entirely to Africa. They are more completely covered with hair than any of the macaques, and without exception possess long tails and often display richly coloured coats. Cheek-pouches are present, and

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the stomach is of the simple type seen in ourselves; cheek-pouches and interiors of the complex ruminant description apparently never go together in the monkey-tribe.

Best known of all the guenons is the vervet (*C. lalandii*) often to be seen in menageries or in private ownership.

The vervet, or blue monkey, is the most abundant and characteristic of all the South-African arboreal monkeys, easily distinguished from the baboons by their rounded heads and long, but not prehensile, tails. This little ape owes its two names to its colour, which the Dutch evidently regard as bluish, while 'vervet' is derived from the French '*vert*' and '*grivet*,' suggesting that others would describe the creature as being rather of a greenish grey. The face, covered with close, scrubby hair, is, like the hands and feet, black.

The vervet lives chiefly on the eastern side of South Africa, from Swellendam, in the Cape Province, to the Transvaal. It favours dense scrub or wooded river-banks, only venturing into the open when hard pressed for food, and returning to cover at high speed at the slightest alarm. It lives in large troops of a hundred or more, usually under the guidance of a leader, whose claim to priority is constantly disputed, a rival claimant for tribal leadership eventually dethroning him and sending him into exile. These monkeys are amazingly active; and indeed they need to be, for they have many enemies, such as the leopard, caracal, serval, python, martial hawk, crowned hawk, and African hawk-eagle. The natives are likewise hostile to vervet monkeys, since these, by their

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tireless thieving, often bring the local agriculturist to the verge of bankruptcy. According to many observers, these monkeys actually post sentinels who by their loud cries at once give warning to a party of raiders that the outraged farmer is advancing to protect his property. The damage they do to crops resides not so much in the actual quantity eaten, as in the wholesale destruction caused by their luxurious and wasteful manner of feeding. Thus, though only a quarter of the cobs in a twenty-acre field of Indian corn may be devoured, not a single plant, out of many thousands, will have escaped destruction. Every plant is searched for the ideal cob, and so the whole is ruined in the process.

Most civilized white men have testified to the revulsion in feelings they have experienced after slaying a monkey, the animal's death-throes often being distressingly human; but the hard-pressed Kaffir farmers suffer from no such sensibilities. Large-scale retaliatory raids are often made upon the monkeys, whole troops being completely annihilated. Dogs, knobkerries, and assagais are pressed into the work of destruction, the monkeys soon learning to avoid traps and poison. The vervet's life at all times is a somewhat stormy one, for rival clans are at perpetual warfare, each striving to capture the other's territory. Like many African monkeys, the vervet has a coat with a price upon it. Kaffirs greatly prize it as an 'umutsha,' or apron, and such is its wearing quality that a crudely dressed skin will remain presentable for years.

As stated in the introduction, many noxious insects are often destroyed by these animals. Unfortunately, the

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vervet nullifies its virtues in this direction by its passionate fondness for insect-eating birds and their eggs. It is also fond of spiders of every description, even the most poisonous kinds. The vervet is, however, at times a good friend to the cattle-owner, and is popular with such wild animals as bush-buck and other antelope, since its passion for insect-food causes it to search minutely the coats of such animals, ridding them of ticks, etc., thus performing for Cape cattle much the same office as that which elsewhere in Africa and Asia falls to the lot of the well-known 'cattle-egret.'

Charming as a pet when very young, the vervet at less than a year old develops a somewhat treacherous disposition. Its life-span is not definitely known, but probably does not exceed ten or, at most, fifteen years.

The Mozambique vervet (*C. rufoviridis*) is an allied form common in Mozambique and in the Zambezi region. It is distinguished by its yellowish fur, while the top of the head, outer surfaces of the limbs, and tail are blackish, with the under-surface tending to white, instead of red, as in the typical vervet.

The samango guenon (*C. labiatus*), abundant in the forests of Zululand, but rarer in the eastern parts of Natal, is a larger and darker relative of the vervet. With this latter it is by no means on friendly terms, and in a clash between the calm samango and the fussy, excitable vervet, the samango is invariably victorious. In captivity the two may be brought up together and at least induced to keep the peace, though the samango will never condescend to join in the vervet's continuous romping.

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The samango monkey is in all ways a more retiring creature, usually keeping to the darkest and gloomiest forest-areas, and seldom raiding crops except where these actually adjoin its territory.

Since the advent of British rule in Zululand this handsome and harmless guenon has happily enjoyed protection, but only just in time. In former times samango-skin was the accepted 'kilt' of the Zulu king's best regiment, and the steady demand for new uniforms led to such a wholesale slaughter of the samango that it was in grave danger of total extinction.

Mother-love is to be seen to perfection in the vervet monkey of South Africa. Many tales have been told illustrating the devotion of nursing vervets. Even when dying from a bullet the mother with her last energies strives to shield the infant, and has been known to hand it over her shoulder to a companion, who at once completely conceals it with arms and thighs. If attacked by a dog, a nursing mother almost invariably hands the child to a companion, and then prepares to give battle, whatever the odds, with desperate courage. The infant is always carried at the breast, holding on tightly with hands and feet, as well as enjoying the additional support of one maternal arm. A number of mother-monkeys live together in great amity, the infants joining forces in a common nursery, but never mistaking their parents, as do lambkins or kids.

The infant vervet has a pink face, in contrast to the black physiognomy of maturity. Like most small monkeys the infant matures fairly quickly, being strong

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enough to take solid food when about seven months old.

To those contemplating keeping a pet vervet monkey the Zoo authorities at least are inclined to echo Mr Punch's advice on matrimony, *i.e.*, "Don't." Unless one has ample facilities for properly housing and maintaining these animals, disappointment, if not actual disaster, is never long in overtaking the venture. Indeed, the Zoo is annually obliged to reject regretfully many offers of pet monkeys that have outworn their owner's patience, and many more monkeys find more or less permanent quarters at a certain monkey-boarding establishment at Sidcup.

It seems, however, that so long as humans and monkeys retain their present natures, the one will never fail to find an irresistible attraction for the other, and stories of pet monkeys continue to fill our popular literature and the columns of the Press. Monkeys, like other commodities, have their fashions. To-day capuchins and marmosets are in the ascendant, numbers of the former being on the books of the Sidcup boarding-establishment. Some fifty years ago, however, the vervet was the monkey of the moment, and numerous good stories are current of this species as an adjunct to everyday human society.

The late Cecil Aldin, most famous of English dog-artists, kept a vervet during the period when he lived at Grove Park, Chiswick, and the monkey was a well-known feature of the neighbourhood, as it accompanied its master, perched on the handlebars of his bicycle. Some charming stories are told of this monkey in its owner's last volume, *Dogs of Character*, published shortly before

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his death. His Chiswick residence always literally swarmed with dogs, and on one occasion he owned a litter of bulldog pups, one of which was distinguished by a 'wall,' *i.e.*, a China-blue, eye. This rather unusual organ of vision exercised a powerful fascination over the monkey-mind, and incidentally brought out very strikingly the profoundness of a puppy's sleep, and the wonderful delicacy and lightness of a monkey's touch. When the four pups lay snoring in a row, the monkey would sit before them deeply pondering as to which was the possessor of the eye that had so captivated his fancy. The pups being almost identical in size and colour, the monkey's uncertainty was not without justification. After ten minutes or so, the monkey would find himself unable to endure his suspense any longer. Approaching the pups he would quietly go down the slumbering row, delicately raising each eyelid in turn. Having found his favourite eye, he would take a long look at it, finally replacing the lid with a sigh of contentment. Half an hour later, perhaps, the urge to refresh himself once more with a gaze at the cherished eyeball would again come upon him, and his memory being of the shortest, another systematic search for the treasured orb became inevitable.

Scarcely less fascinating to the monkey was the subject of milk-teeth, which of course are shed by pups prior to the instalment of their permanent sets. The monkey would periodically inspect the teeth of all sleeping puppies, gently testing their stability with his finger-tips, and as soon as a tooth showed signs of parting company with its owner, the vervet delicately assisted it by rocking

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and wriggling the coveted piece of ivory until he had it in his possession. Search of his sleeping-quarters seldom failed to reveal a secret hoard of these treasures. When confident that he was unobserved, he would unearth this collection, poring over the tiny teeth, or holding peculiarly fine specimens up to the light, with the deep concentration and fanatical zeal of a miser gloating over gold or jewels.

Unhappily, this monkey's many endearing qualities went hand in hand with destructive propensities that eventually made its dismissal from the *ménage* imperative. On one occasion it subjected a blameless tradesman to a heavy fire of the household's choicest crockery, and the end came when on an unlucky day it chanced to see somebody operate a fire-alarm. From that time on it took to wandering about the neighbourhood in a fanatical search for this form of amusement. So successfully and so often did the monkey manipulate the knob communicating with the alarm-bell that the local fire-brigade continually found itself summoned to turn out upon entirely false errands. This vervet, like so many others of his kind, eventually gravitated to that simian 'Borstal' institution—the London Zoo.

Few people passing up and down Albany Street, London, N.W., realize the high adventures that have been enacted in, or emanated from, the sober-fronted old basemented house at No. 37. But in Victorian days this was the home of the late Frank Buckland, Commissioner of Fisheries, and Honorary Consulting Veterinary Surgeon to the London Zoo. Buckland's interests extended to

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every living thing, and a 'standing army' of monkeys was among the features of his household at all times. His interest in primates, however, began in his schooldays, and his life-long adventures with monkeys have been set forth at length in his entertaining book *The Log of a Fisherman and Naturalist*.

The very first monkey ever to come into his possession was a vervet, picked up in a 'junk-shop' at Havre. This monkey was eventually kept in his study at Winchester College, where it celebrated its arrival by removing the whole of the newly installed wallpaper, tearing it off in strips. Jacko, as the animal was called, naturally became a favourite with such students as enjoyed its master's confidence, but it became obvious from the first that its presence must be kept a secret from the college authorities.

Jacko, a monkey of more than common intelligence, very readily co-operated in the scheme. He was taught to hide in a lawyer's 'blue bag' hanging from a peg on the door, and into this he would whisk himself at lightning speed the instant he heard an approaching footstep other than that of his master. In this bag Jacko for some time travelled free on the railways, but one day he gave the show away at a wayside station just at the moment when a ticket-inspector was in evidence. There was a somewhat painful scene, and in the end young Buckland was forced to take a ticket for his pet, the railway authorities rating the monkey as a dog! Some large tortoises, also in the party, were permitted to travel free, the inspector deciding that they came under the heading of 'insects,' and were therefore not legally chargeable. This often-

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repeated story of the railway-authorities' zoological classification was later enshrined in a famous drawing in *Punch*.

Jacko was full of idiosyncrasies, and in none more so than as regarded his diet. He had a passion for mice, in the capture of which he outshone any of the college's numerous cats. Jacko always bolted his mice head first, and invariably added insult to injury by first holding the victim firmly by the tail and subjecting it to a minute and leisurely search for possible vermin. Struck by his efficiency as a mouser, the college servants, who had become aware of the monkey's existence, once solicited Jacko's services in this direction when the kitchen cat was temporarily indisposed. Jacko was therefore tethered one night in the pantry by a long chain, where, however, he spent the hours of darkness, not in mousing, but devouring the contents of numerous jam-jars, and was himself, for some days afterwards, decidedly 'indisposed' in consequence. The monkey's greatest joy was to sit in front of the college's huge, old-fashioned kitchen-fire, where he basked in the grateful warmth, and fed to repletion upon crickets and cockroaches. The latter he enjoyed by raiding the official beetle-traps. His *modus operandi* was as follows: taking a trap firmly in his two hands, he would first shake it, to make sure that its contents justified further trouble; then, once satisfied on this point, he neatly inverted the trap and shook its contents out upon the kitchen floor. But swiftly though a cockroach can move, Jacko was immeasurably quicker; before a score or two of the insects could advance more

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than a few inches, the vervet had by a dexterous, scythe-like movement of his tail, swept them into one compact, wildly kicking pile, and scooping them up in his cupped hands, engulfed the insects with ecstatic relish.

The observant Buckland, in commenting on the use of his pet's cheek-pouches, pointed out that the ragged street-arabs that once entertained the public by turning cartwheels thus similarly stored the halfpence they collected, since the urchins' wretched garments seldom boasted pockets. A popular cartwheeler might thus store a shilling's worth of halfpence and pennies in his bulging cheeks!

It says much for the dirt and darkness of old-time dwelling-houses that the college servants often borrowed the monkey to clear some particular room of spiders. Held on an extra-long tether, Jacko would range along the shelves and curtain-rods, neatly 'de-spidering' the premises, to the general satisfaction.

This vervet, during its life of ten years or more, never knew serious illness, and had a passion for soap and water. It would wash itself at all hours, provided a fire for drying-purposes was within reach. Such was its love of a bath that it once climbed into a big kettle hanging on a trivet over the college fire, and narrowly escaped being boiled alive.

As already stated, Buckland's final residence, No. 37 Albany Street, became a *palais de singes*, second only to the monkey-house at the Zoo. The doyen of the collection was a vervet known as the 'Hag.' Sedate in later life, her 'flapper' days were hectic to a degree. Once she

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played such havoc with her master's study that he seriously considered shutting himself and his papers up in a cage, as the only safe course of action to obtain adequate protection from his pet's destructiveness. Another vervet, Jack, developed a taste for paraffin-oil. This commodity he always stole from the household-lamps, and in his zeal to indulge this curious taste, he once nearly set the premises in a blaze. Buckland's experiences with monkeys, while making most entertaining reading, might well serve as an awful warning to intending monkey-owners. Among the many 'incidentals' at No. 37 Albany Street, was a young jaguar who lived at constant feud with the Hag and her cronies. On one occasion the monkeys combined to reach through the bars of their cage, and seizing it by the tail, held it suspended head downward until its protests fairly aroused the neighbourhood. Usually the monkeys enjoyed full liberty, sitting in a row before the fire during the winter, and in summer extending their interests far into the surrounding back gardens, or front areas. The sight of their worthy master, eccentrically clad, chasing his pets up the street, or even over the neighbours' roofs, became such a common phenomenon as to arouse no more than passing interest.

All monkeys show their appreciation of heat, but the vervet kept by Cecil Aldin had a more than common fondness for the glowing coals on an open grate. Apparently the monkey regarded them as precious jewels, and desired above all things to possess one for its very own. To this end it made repeated efforts to gain

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possession of a red-hot coal, despite the obvious dangers and discomforts attendant upon such a procedure. In pursuit of its wish the ill-advised animal would behave as follows: having selected its coal, it would with great suddenness seize it between finger and thumb and dexterously flick it as far out into the middle of the carpet as possible; finding it quite impossible to carry the treasure out of the room, it would then proceed to poke it towards the door, always poking with both paws together, and afterwards rubbing them together with excusable vehemence. Long before the door was reached, the glowing coal had lost most of its aesthetic charm, if not its warmth, and as the last faint ruddy glow faded out, leaving but a black and smouldering lump of unattractive matter in its place, the monkey would turn slowly and sadly towards the fire, once more patiently to continue its pursuit of the unattainable. That the carpet suffered considerably as the result of this misdirected passion is obvious. On several occasions a general conflagration was only avoided in the nick of time, and once at least the monkey nearly lost its life; yet no such misadventures appeared to bring with them a warning or for an instant to discourage the monkey's stubborn pursuit of its aim.

This monkey has already been mentioned as taking unusually kindly to the many dogs that always formed part and parcel of its master's establishment. Canine society indeed amounted to an obsession with the little vervet. On the very first night of its arrival it was placed in a supposedly secure cage, which was hung up in a

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stable, the only other occupant of which was a big fox-hound, thus segregated owing to his *pénchant* for escaping from the main kennels and rifling the neighbouring butchers' shops. Great was the master's astonishment, however, to discover in the morning that the monkey had contrived to escape from its cage, and was snugly cuddled against the hound, the strangely assorted pair ever afterwards proving the most devoted of companions. The monkey not infrequently rode this hound, jockey-fashion, when the former wandered off on a private voyage of discovery, and the two formed the perfect thieves' combine. Whereas the butchers' shops naturally made very little appeal to the monkey, the fruiterers and greengrocers were irresistible. Its perch upon the dog's back offered an ideal eminence from which to snatch oranges and other fruit from stalls or shop-counters, while the big hound's somewhat forbidding character served as a sufficient deterrent to any practical protests which might otherwise have been raised by the justly indignant and despoiled merchants.

The famous dog-artist's vervet became an enthusiastic 'wet bob' if only as the result of participating in all the activities of its canine associates. When its master took a very mixed pack of dogs out for exercise, the vervet invariably accompanied them, and when, on a hot day, the whole yelping medley made for the nearest pond, the monkey did not, as might have been expected, await their return upon the bank. Instead, it plunged into the water with the rest, and though at first it came very near to drowning, it developed a serviceable over-arm stroke

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in a remarkably short space of time. This unnatural form of progression, however, not unnaturally caused it to tire much sooner than did its playmates, whereupon it would enjoy a variety of 'plank-riding' by taking a firm grasp of the nearest tail, and even at times climbing on to the back of one of the larger dogs and riding at ease, like a simian Neptune bestriding a dolphin.

Both the late Cecil Aldin and Frank Buckland have testified to the vervet's easily acquired taste for such 'creature comforts' as tobacco and alcohol. One in Buckland's possession developed a marked preference for the long clay churchwarden-pipe rather than any other kind of pipe, while numerous example of vervet have shown a fondness for chewing tobaccos of a rich and heavy consistency. Alcohol is similarly all too easily appreciated by most of the species, a failing which undoubtedly has its ludicrous as well as its regrettable side. Buckland has recalled the case of a vervet monkey with a passion for liqueur chocolates—its fondness for these confections, however, being confined to their liquid interiors. It would suck the juice from these sweets, disdainfully throwing the outer coverings of harmless and nutritious chocolate aside.

At the London Zoo some years ago a small vervet was prescribed brandy, the stimulant being administered at stated hours which the patient soon got to know, and would look for with the liveliest anticipation. When finally a cure was effected, the treatment was, of course, automatically discontinued, much to the one-time sufferer's disgust. As often as brandy-time came round, the

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ex-patient would clasp its abdomen, assume a most woe-begone expression, and at the same time utter piteous moans in a desperate effort to persuade its keepers that the heady stimulant was vital to its health and happiness. It was some time before the memory of that cheering cup altogether faded from the monkey-mind.

The various species of the genus *Cercopithecus* are principally distinguished by their rich colours and markings but are nevertheless so similar in general build and habits that a description of all the recognized kinds would be tedious. A few of the more remarkable only will be noticed.

The handsome mona monkey (*Cercopithecus mona*) of West Africa is easily recognized by its iron-grey body with a vivid chestnut stripe running from the middle of the back to the root of the tail, and a glaring white chest and throat.

Stuhlman's guenon (*C. stuhlmanni*) is a darker species, with staring white eyebrows, moustache, and imperial. It is ranked among the doomed species, since its skin is in great demand among the natives, who make it into pouches for carrying small articles when on *safari*.

The Kilimanjaro guenon (*C. albogularis*) of East Africa lives in deep ravines of the rain forests, where it is conspicuous with its vivid white throat, black limbs, and reddish tail. It also is in demand—for food—among the natives, who place specially constructed traps of densely interwoven twigs in the lines of march known to be frequented by its wandering bands. These traps are

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baited with fruit and kept in position by weighting them with heavy stones. Like most of the guenons, individuals of this species remain very wild for a long time after they have been caught.

The most handsome of all guenons is one from West Africa, which presents such a picturesque appearance with its white under-surface, and black, brown, blue, and chestnut upper portions, that Linnaeus, the famous Swedish naturalist, was inspired to name it the 'Diana' monkey (*C. diana*). Like the rest of its kind, it well justifies the French name of guenon—signifying a 'maker of faces.' It is remarkably active, and in passing through the tree-tops, it uses the branches as springs wherewith to catapult itself through space, showing great nicety of judgment in assessing the given branch's capacity for rebound.

The genus *Erythrocebus*, popularly spoken of as red guenons, includes about a dozen species of plain-dwelling monkeys. In general appearance they are not dissimilar to the foregoing group. They are fairly equally distributed throughout Eastern and Western Africa, where they are found always in open and sparsely wooded country, or even in rock-strewn desert-regions. This form of habitat has reacted in a very noticeable manner on the animal's general anatomy. Just as such plain-dwelling creatures as antelope, hunting leopards, and desert cavies show a remarkable development of limb, so the arms and legs of the red guenons have become greatly attenuated, giving them a stilt-like appearance. As a result these monkeys move with extraordinary

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rapidity. Quadrupedal progression on hard or sandy ground has also had a marked effect upon the hands and feet. The thumbs and great toes are less opposable than in most arboreal forms, the hands in particular having a very stubby appearance, with extremely hard under-surfaces furnished with callosities. Red guenons go about in small parties, which do not appear to recognize any one of their number as a leader, though in most of their enterprises the older males of the community usually take the initiative.

The best-known member of the group is the rock guenon, or patas monkey (*E. patas*) which is tolerably abundant in West Africa. It is a handsome, pale-yellowish animal, with a flesh-coloured face, white eyebrows, and a blackish blot upon the end of its nose. It is bold and fearless, full of curiosity, and being accustomed to haunting river-banks, it makes a point of following up any craft invading the neighbourhood of its domains, keeping an eye on it from the tree-tops. From this ambush, the patas will sometimes resent the stranger's presence with a veritable fusillade of sticks, stones, and other *débris*, travellers asserting that such demonstrations only cease after repeated rifle-fire. This is one of the forms most commonly brought to our own country. Like most monkeys it is very docile when young, but tends to become savage with advancing years. A curious and characteristic trait of guenons is their peculiar 'joy-dance.' This is effected by leaping up and down with great rapidity on all fours, striking the ground with the soles of the hands and feet alternately.

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The habit is common to many other groups of monkeys, but whereas in these it is almost invariably indicative of rage, it appears to be indulged in only by guenons under the stimulus of pleasurable excitement. Though naturally volatile and scatter-brained, all the guenons are characterized by a peculiarly worried and unhappy expression, produced largely by the bushy and beetling eyebrows, as well as by the invariably grotesque and contrastingly coloured facial markings.

White's guenon (*E. Whitei*) is confined to the plateau-regions of West Africa, and has been described as the hardest of all mammals to stalk. Its agility and cunning must be considerable, since it contrives to hold its own in a country infested with lions.

The Pluto monkey, or dancing red monkey (*E. pyrrhonotus*), is a familiar species. Many years ago it was a favourite with the organ-grinder, and mural paintings of ancient Egypt prove that it was a popular pet in the courts of the Pharaohs, the monkey usually being depicted as tethered to some dignitary's chair of state, under which it sat, when not perching on the arms, back, or even the person of its august occupier.

The mangabeys (*Cerocebus*) owe their name to a misconception on the part of the famous Baron Buffon, a pioneer naturalist and systematist of the latter part of the seventeenth century; the word 'mangabey' is derived from Mangabe, or Manongabe, in Madagascar, although none of the monkeys now under consideration are found in that island. At one time, however, it was the fashion to attribute any creature of uncertain origin to

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Madagascar, always a land of mystery—in the seventeenth century even more so than it is to-day.

About a dozen species of mangabey monkeys are at present recognized, and they are regarded by systematists as constituting more or less a connecting link between the guenons and the long-tailed macaques. The mangabeys are fairly evenly distributed between the western and eastern seaboard of the African continent, from Guinea and the Congo basin to Uganda and the Tana river. They are fairly large monkeys with long tails, oval heads, more or less straight profiles, and very characteristic eyebrows, the prevalent colour of which has earned for them the popular title of the 'white-eyebrowed' monkeys. They have large cheek-pouches, and as usually happens in monkeys so provided the stomach is of the simple, and not the chambered, or ruminant, pattern. The laryngeal sac is not developed, with the result that the mangabeys are among the least vocal of monkeys, expressing themselves chiefly in bird-like, muffled twitterings, or low, guttural grunts.

Mangabeys are almost entirely arboreal, seldom if ever venturing for long upon the ground. They live in small colonies or family-groups, feeding on fruits and insects. The prevalent colouring of the pelage is grey or dusky greenish-brown, which blends well with the dense vegetation they frequent. The group is subdivided into crested and non-crested species, the former, which comprises about seven species, having the hair of the head drawn up into a sort of peak. In all of them the eyebrows, and in some the eyelids, are white. Some

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authorities have suggested, somewhat boldly perhaps, that the monkeys utilize these very mobile features to flash messages from one to the other in the forest gloom, on the principle of a semaphore, or the white gloves used by gentlemen of the book-making profession to 'tick-tack' messages to colleagues upon the opposite side of a crowded racecourse. Information upon the mangabey's ways of life in the jungle is regrettably scanty, but these monkeys seem much less aggressive or destructive than many species, and in captivity are characterized by remarkable docility, usually making affectionate and charming pets.

The best-known species, the sooty mangabey (*C. fuliginosus*), as its specific name implies, is of a uniform smoke-grey colour, with a livid pink face displaying a few scattered blotches of dusky brown. It is a gentle and somewhat slow-moving creature, though capable of rapid movement when occasion demands. One specimen kept at the London Zoo lived in the collection for over ten years. This monkey was of a most friendly disposition, and solicited alms, not by just the customarily outstretched paw, but by tumbling and somersaulting, which appealed specially to its public.

In the very early days of the London Zoological Society many of the Society's rarer animals were temporarily housed at the offices, then in Bruton Street, W. A mangabey was kept there in a small kennel mounted on the top of a long pole, which was planted in the small back garden of that establishment that was separated from the public street by a wall. A chain attached to the

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mangabey's waist allowed him to travel up and down the pole and ascend the wall, though not permitting complete liberty. In a very short time the monkey learnt to make lightning raids upon passers-by. He would slither down the pole and on to the wall at a great speed, and then as quickly return with whatever booty he had been able to snatch. On one occasion he is reported to have purloined the neatly curled and beautifully powdered wig from the head of a passing bishop and transferred the *coiffure* to his own head, much to the dignitary's indignation. Finally this monkey, having one night managed to divest himself of the restraining chain, created such havoc in the Zoological Society's office by pouring ink and glue over documents and upsetting the sand-boxes then used for blotting-purposes that his transference to Regent's Park became imperative.

At the time of writing there still adorns the Zoo monkey-house a famous mangabey named Blanco, a well-known character, and an inmate of the Zoo for many years. Blanco owes his name to his uniform whiteness. He is in fact an albino, and as with most albinos, the lack of pigmentation in his eyeballs renders the blood-vessels highly sensitive to light, often causing him to shade his eye with his hands. To remedy this, efforts were made to supply Blanco with spectacles, but his own destructive propensities, plus the curiosity of his cage-mates, soon showed this to be impracticable. A specially shaded compartment is now provided whenever the sunlight becomes excessive. In West Africa such albino mangabeys are regarded by the natives as sacred.

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Varied and ornate as are many of the groups already reviewed, the thirty-one species gathered together under the generic title of *Colobus*, or guereza monkeys, easily eclipse them all in coloration and extravagant ornament. The guerezas are fairly evenly distributed in Southern and Western Africa and Abyssinia, ranging from Nyasaland in the south to Gambia and Lake Chad, Nigeria, and Angola in the west. All are monkeys of large size, approximating to the langurs of India in general build. They have large bare callosities on the buttocks, and the thumbs, though present, are reduced to a minimum. The brain-case is very big, and the nose and ears are short, the latter being round and naked. There is no vermiform appendix, and the stomach is developed into several long sausage-shaped pouches in conformity with the animal's diet, which consists largely of leaves, though fruit is often eaten. Insects, especially locusts, are sometimes appreciated. The outstanding feature of the group, however, is the pelage; in some species this is developed on the sides into two enormous manes, or curtains, which droop so far down that when—as seldom occurs—the wearer descends to the ground and stands upon all fours, the 'skirts' trail on either side for a foot or more. Elaborate beards and ruffles are often present, and the very long tail frequently terminates in an enormous tassel.

A few species are coloured a rich auburn or carrot colour, while *Colobus ferrugineus* is black above and greenish-yellow below. The majority, however, are characterized by striking combinations of black and

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white, and according to the pattern-arrangement they are sub-divided into four separate groups.

In the first—group A—the upper parts and legs are white, with black below; in group B the upper parts are a deep black, and the legs are whitish; in group C the upper parts, rump, and legs only are black; while in group D the upper parts are black, and the rump is a staring white.

The difficulty of keeping any of these monkeys alive outside their native land is somewhat surprising, since the black-and-white forms are known to endure great extremes of temperature, ascending to over nine thousand feet. The most cunningly devised accommodation for guerezas in zoological collections seems to compensate them inadequately for the loss of a purely arboreal life. Normally they consort in small groups, frequenting the highest tree-tops, where they can on occasion travel with incredible speed, though usually conducting themselves with a grave and serious deportment.

In a museum or zoological collection, any one of the black-and-white species makes as striking a display as can well be imagined, but in the wild, vivid coloration or arresting markings often make for the most complete concealment. The stripes of the tiger and zebra, the spots of the giraffe, or the bizarre 'jazz' patternings of the okapi may be cited as familiar examples. Similarly the trailing flounces of the guerezas tend to break the outline of the animal when seen against a tangled background of leaves and creepers, while in the case of those inhabiting the jungle the drooping side-draperies are said to

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harmonize perfectly with the immense 'moss-curtains' which often densely cover every tree-branch, depending in dense fibrous festoons for twenty or more feet. The coats of these monkeys further serve as an effective protection against the penetrating moisture and cold nights inseparable from their native haunts, as also from the swarms of stinging insects with which the rain-forests and jungles abound.

Cumbrous as the guerezas' draperies appear, they do not hamper swift movement, the animals on occasion passing through the densest vegetation as swiftly and easily as an owl or pheasant flies through a closely branched pine- or larch-wood.

The name 'Colobus' is derived from a Greek word signifying 'mutilated,' and in this connexion it is interesting to note that the more or less thumbless condition of the guerezas is consistent with a purely arboreal life, and finds parallel in such other arboreal animals as gibbons, spider monkeys, and sloths.

As mentioned in another chapter, these handsome and inoffensive primates have suffered heavily at the hands of fur-hunters. Their long fur is also much in demand by the native witch-doctors, and their slaughter has been reported upon by Ridley and forms a melancholy epic of wanton destruction and its consequences.

In 1892, for example, over 175,000 skins of these monkeys, valued at £30,000, were taken, and this destruction continued for five years. Since only good skins, showing few shot-holes, commanded a large price, quite 200,000 monkeys were slaughtered annually so that some

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175,000 might ultimately enter the market. In 1894 over 168,400 skins, valued at £41,001 14s. 10d., were obtained, but from then onward Nemesis came upon the monkey-butchers. Two years later only between eight and nine thousand pounds' worth of skins could be found, and to-day, after nearly two million of these monkeys have been slaughtered, the trade has died a natural death.

CHAPTER VII

NEW-WORLD MONKEYS

ALTHOUGH the monkeys of the New World present at first glance a very general resemblance to their relatives of Africa and Asia, they are nevertheless distinguished by certain leading characteristics easily appreciated by the casual observer. Consistent with an almost exclusively arboreal existence, most new-world monkeys are relatively small in size and are lightly built. They have broad noses, the nostrils being directed forward and separated by a very broad septum. They show many characteristics of the lemurs, notably the teeth, and are in most ways of a more primitive structure than the old-world monkeys, showing indeed some features characteristic of the insectivora from which all monkey-stock presumably sprang. This is particularly apparent in the marmosets, which often tend to produce more than one offspring at a birth. Another insectivore feature is the frequent presence of claws, as distinguished from finger-nails, a development which has militated against the evolution of an opposable thumb. Most striking of all characteristics in the American monkeys is the frequent presence of a prehensile tail. In old-world vertebrates of any kind this feature is very rare, the chameleons among reptiles, and the binturong and a few marsupials among mammals, being practically the only examples of animals having this 'fifth' hand, as the

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prehensile tail has been very aptly called. The most plausible explanation of this phenomenon is perhaps that offered by Dr W. K. Gregory, who has pointed out that much of the land-surface of forest-country in tropical America is still largely under water, and so a more highly specialized mechanism suitable for a purely arboreal existence has been evolved.

While American monkeys have been collected for many years, and the existing species tabulated and systematized by many investigators, the vast and still largely unexplored areas of the Amazon basin possibly offer the maximum field for discovery to the ambitious anthropologist. Scarcely a year passes but rumours of strange simians of various descriptions come to light; but few of such accounts, it must be admitted, offer any very satisfactory proof or evidence as to the precise nature of the alleged new discovery.

Professor Albert Hooton, in his volume *Up from the Apes*, gives an interesting and suggestive account of the latest of these discoveries, an account of which has been given in a number of American newspapers and one or two scientific journals. It appears that a certain explorer was travelling in the forest districts of Colombia and Venezuela, in South America, when his party was attacked by an enormous tailless ape. ✓

The nearest approach to this intimidating monster appears to be an uakari monkey (*Ouacaria*), known by several local races on the Upper Amazon. A few years ago one of these rare monkeys reached the London Zoo, but unfortunately it survived only a few weeks.

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The uakari is unique in that the tail is quite rudimentary and almost wanting; and like most other new-world monkeys, it enjoys a complement of thirty-six teeth instead of thirty-two, as seen in man and all the old-world primates. The average uakari is not much larger than a cat. Its appearance, however, is very remarkable. It is covered from head to foot in long, lank hair, which varies in the different species—or varieties—from silvery white to vivid auburn. But the monkey's chief glory is its face, which is of a scarlet or brick-red hue, and glows as though illuminated from within.

Normally uakaris are rather morose, retiring animals, going about in small family-parties, and keeping to the crowns of the highest trees, where they subsist on various fruits. The single young is carried on the mother's back, and has a mottled face, which does not present sunset hues until its owner reaches maturity.

While still young it makes a charming pet. The famous naturalist, Bates, met many uakaris enjoying the run of civilized establishments. Captive specimens were invariably silent, and even when at large in the forest, rarely emitted any sound above a querulous chattering. One which Bates kept aboard a schooner, when the ship was moored close to the shore, escaped *via* the bowsprit. For several days the monkey was missing, until, evidently intimidated by a part of the jungle with which he was unfamiliar, he quietly returned by the same route as that by which he had escaped.

The principal species of uakari are the red-faced, black-faced, and bald uakaris, all of which haunt very restricted

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areas of forest-country, which for much of the year are largely under water. As with other new-world monkeys, the uakari's chief foes are snakes, harpy eagles, and the king vulture, the two latter soaring high above the forest tree-tops for their prey.

The various types of American monkeys merge almost imperceptibly one into the other. Closely related to the uakaris are the Sakis (*Pithecia*), which possess dense beards and long, intensely bushy, but non-prehensile tails. Large specimens of both sakis and uakaris are doubtless responsible for the many Indian legends of an unidentified semi-human animal believed to haunt the depths of the Amazon jungle.

The sakis share their relatives' gentle, inoffensive nature, and Bates has described this monkey as a dull, cheerless animal, but capable of attachment to humans. In illustration he cites the case of one such monkey, who, being the household-pet of a tailor, spent practically the whole day perched upon its master's shoulder. Though free to return to the near-by jungle whenever the humour might take it, it never once, in the course of several years, showed the slightest disposition to do so.

Very suggestive of the sakis are the half-dozen species of prehensile-tailed 'howler' monkeys (*Alouatta*). The dense bushy beard seen in adult animals hides a most extraordinary organ, which has no counterpart in any other individual of the entire animal kingdom. This is a development of the hyoid bone, which supports the tongue. In the howler, the hindmost portion of this series of bones is distended into a huge, semi-globular

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box or shell, with the opening directed forward. A large howler may be almost as big as an Airedale terrier, and the hyoid in such a specimen will equal, if not exceed, the monkey's cranial region in size. This organ is intimately associated with the vocal chords, and acts as an 'amplifier,' multiplying by many times any sound the animal may emit. The lower jaw is enormous, the sides nearest to the points of articulation being developed into huge wing-like flanges. The howler is quarrelsome with its own species, and very tenacious of life. Darwin, in his *Voyage of the Beagle*, records how one that he shot showed such power in the tip of its prehensile tail that it hung head downward by that organ from a branch, necessitating the felling of the tree before its body could be recovered.

From very early times the 'male-voice choirs' of the howler monkey have attracted attention, the vocal efforts of these monkeys being indeed difficult to ignore. Buffon gives a charming, if somewhat highly coloured, description of one such chorus.

As soon as the choir is seated, the choir-leader begins an oration with so quick and loud a voice that, at a distance, it might be imagined that a number of monkeys were all making a noise together. But during the whole discourse the rest keep a profound silence. When it is ended, however, he makes a signal to the rest to answer him, and immediately they all set up a cry together, till such time, as by another sign with his hand, he orders them to be silent!

This, however, does not by any means exhaust the perfections of organization and co-operation in howler-

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society as credited by Buffon. He quotes one Oxmelin as affirming that

Should a howler be wounded, his comrades at once gather round and place their fingers in the wound as if they were desirous of sounding its depth. If the blood then flows in any quantity, they keep it shut up, while others get leaves, which they chew and thrust into the orifice. I can affirm having seen this circumstance several times with admiration.

Much more convincing are the accounts of the famous American animal-artist, Charles Livingstone Bull, who spent many months in the Brazilian jungle, carefully noting howler-behaviour. It appears that young and old males meet together on lofty branches, at sunset and sunrise, to join in choruses that are less examples of 'community-singing' than the highly individualist efforts of rival claimants to some desirable young female, the various suitors endeavouring to sing one another down. Yet despite the lack of co-operation the rich organ-like notes blend together with most wonderful effect, and at times it does actually appear that some kind of concerted action is in view and something very like aesthetic pleasure is shown by the animals. Howlers are seldom seen in this country, but one kept at the Zoo was audible as far afield as Albany Street, and three in the possession of Jamrach, in St George's Road, many years ago, were—with a favourable wind—heard at the Mansion House, over a mile distant. Reliable observers affirm that in the silence of the tropic dawn a howler-choir can be heard several miles away.

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A few years ago Mr Frank M. Chapman, Curator-in-chief of the Zoological Section of the American Museum, gave a detailed account of the black howler (*Alouatta caraya*) in its native haunts. About eight clans of these monkeys, numbering ten monkeys per clan, operated throughout one winter in an area of some two thousand acres. One, a young female, was mascot of the Museum tropical laboratory, and fed on fruit, rice, and leaves, besides bread and meat, of which last she was particularly fond. She could never be induced to enter water, though she drank freely, and she invariably slept for some hours each afternoon. Throughout her stay at the laboratory she continually answered the wandering troops of howlers without, detecting their calls long before they were audible to human ears.

Miss Gladys M. Ditmars, in the *Bulletin* of the New York Zoological Society, has given an absorbing account of the habits and behaviour of a young and rickety red howler which came under her care. Reporting on its diet, she states:

Day by day the list of tested and assimilated foods grew longer. Red (as the monkey was called) was given boiled and baked potatoes, beans, peas, carrots, cauliflower—in fact all kinds of vegetables. He would eat heartily of all kinds of meat, with absolutely no preference whether broiled, fried, roasted, or boiled. His favourite item was spaghetti, and this he delighted to hold in two writhing handfuls, devouring it strand by strand. He was fed three times a day, being provided with a small high chair and tray beside our table. With each meal he had plenty of milk, and he consumed about a wineglassful.

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Upon this formidable diet (which has continued up to the present time without elimination) Red passed through a transformation covering a period of about three months. His weak legs soon showed an inclination to support his body in wobbling fashion, and within six weeks more he was up and walking. His eyes grew darker and more expressive, and his tail became thickly coated with reddish hair. The hair of the body grew long and wavy, and acquired a golden sheen. All indications confirmed our discovery of a successful diet for the howler—plenty of meat and a variety of vegetables.

To my mind there is yet another important factor in the treatment of these delicate little people of the jungle which receives too little thought, and that is their mental condition. I believe that many monkeys may be mentally ill, and in that case the offered diet is of little avail. Red has been practically a member of our family. He has been taught cleanly habits, and has the run of the house. He has his favourite nooks, and spots where he sprawls for a morning sun-bath. A wicker basket with some bits of blanket serves as his bed, and when he is tired he hops in and takes a nap. He is satisfactorily nourished and also mentally well, and we are convinced that under these conditions the howler is not a 'delicate' species. This was pretty well demonstrated by an experience of the past summer. We motor daily from home to the Sound for an afternoon bath, and Red accompanies us on all our trips, sitting on the sand of the beach, but making friends with no one unless they are altogether to his liking.

Once after having left the howler in charge of two little girls who are very fond of him, we returned to discover that a boy had strolled in from the amusement park, and was contributing to Red's entertainment by feeding him generously from that homely combination consisting of a

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frankfurter, roll, and sauerkraut. Red had partaken of the triple combination, but most heartily of the first and last ingredients. Later on he was favoured by the parking-attendant, who gave him a copious drink of sarsaparilla. We were worried about the afternoon's dissipation, but that evening our cook contributed to our anxiety by discovering all too late that Red had wrecked the frosted decoration of a lemon-meringue pie, and also had entered deeply into the foundation of the pie itself, including the crust. While we have since taken all precautions to prevent repetitions of such happenings, our howler was in no way affected by such dietary, which again leads me to think that the trouble with captive monkeys of that type has been largely mental.

As is naturally the case with all young monkeys, Red was occasionally ill, but his only troubles that we were able to note were colds and dysentery. During the two winters he has been with us he developed a severe cold in the head about twice each winter season, and appeared quite miserable, sneezing and wheezing. In each instance we have quickly cured him by thoroughly rubbing his nose with camphorated vaseline and swabbing his nostrils with the same, using a tuft of cotton on a blunted toothpick. Besides doing this we rubbed his breast with warmed camphorated oil and then kept him quiet in a warm place. Dysentery is a more serious matter, and with all monkeys should receive immediate and careful attention. We at once stopped giving him any heavy food and alternately gave him bismuth and bicarbonate of soda. The dose of each was about as much as could be scooped up on the rounded end of a large penknife blade and dissolved in about half a wine-glassful of water. We also gave him tea to drink instead of plain water. Tea is much used among the Chinese animal-dealers in caring for orang-utans and preventing dysentery.

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As is probably the case with all howlers, our specimen is absolutely unable to endure cold. I believe that if Red were exposed to a temperature as low as forty degrees he would soon perish. He detests the winter, and if the temperature of our living-rooms goes even a few degrees below seventy, he crawls under cushions to hide or squeezes close to the radiators, his arms upraised in order to expose his breast to the heat. If he is cold he will not eat, and during the present winter we have knitted him a woollen jacket, which he greatly enjoys and in which he bravely goes exploring the house in the early morning, before the heating boiler has been looked after, and the radiators, which have been chilled by bedroom windows being open, have attained the heat of the daytime.

One thing we have discovered which may be valuable as a scientific record, and that is the surprising tendency of our specimen to give off through the pores of the skin and the hair the reddish colour-pigment which gives this species its name. When this little animal is given a bath, the water becomes deeply stained within a few minutes with the same peculiar reddish colour as his hair, and he emerges from the bath as if distinctly bleached, the long hair of the back being almost yellow. Within a week he colours up again. This dye-action of the hair is more strikingly illustrated by the small blanket in which he is wrapped at night. At times this becomes as deeply tinted as if stained with iron-rust. We have saved portions of the blanket for analysis. The strange dye-giving tendency of the hair may explain the great difference in colour observed among wild howler monkeys, some of which are dark red, some pale rusty red, and others actually yellow. It may be that the exposure of some individuals to heavy rains in the jungle, to which others have been sheltered, has resulted in these colour variations. We have had the woolly monkey of South

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America and the saki at our home, but with these we have never noted this condition. Nor have we observed a hint of it among the old-world monkeys, such as the macaques and mangabeys, that my father has studied and photographed in his laboratory—all of which are carefully bathed before filming, in order that their coats may be in the best possible condition.

Our howler has a fair vocabulary of distinct sounds. He seldom utters his deep-toned and weird roars unless he is hunting some one and is in doubt as to just where they are. When he unexpectedly discovers a member of the family in one of the rooms, quietly reading, he enters the room uttering low short grunts or barks, sounds difficult to describe. Climbing up on the chair and settling in one's lap, he croons in soft fashion and makes gurgling sounds, produced by gently expelling air against the roof of the mouth. He has a habit of pleading, with prolonged whining sounds, to have his back scratched, or to be noticed; and when frightened he utters an altogether unique sharp bark, repeated several times. The exhaust-whistles on automobiles passing the house will often cause him to glance towards the windows and utter these barking sounds.

Red is horribly afraid of a human sneeze; just why, we do not know, because his vocabulary contains no such sound. If anyone sneezes, Red gives a quick glance at the nearest window—then rushes for shelter. He usually hides under a heavy chair, then slowly emerges, glancing cautiously towards all windows in the room. He shows no fear of the one who sneezes, but appears to consider the sneeze as an emphatic warning to take cover. All of his fears and doubts appear to come from imaginary things outside the windows. There is nothing in the house that he is afraid of. He lords it over the cat and dog, the former a particularly

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large, lazy animal; and if we make a move to shoo the cat out of the way, and Red notes the action, he rushes at the cat with growls and barks to help in the process. He has been severely cuffed by the cat for pulling her tail and deliberately pawing over her dinner while she was eating, but he has no fear of her.

He dislikes strangers and is liable to misconstrue a visitor's actions when shaking hands. Red seems to think this a hostile motion on the visitor's part, and has several times rushed up and glared at a caller, his fur bristling straight from his body, making him appear twice his normal size.

Red is absolutely regular in habits. He is tucked in his blanket by the last member of the family retiring for the night, and makes no move to venture out again. He seldom wakes until he hears some one stirring in the morning, when his plaintive cry is heard at the door of the room where he sleeps, as he demands freedom for the day and breakfast. Early morning is his noisiest time, for the howler appears to usher in the morning with many yawns, each accompanied by a noisy intake of breath, followed by a roar that ends in a squeal. His morning toilet includes much scratching of head and sides and usually the latter half of his marvellously prehensile tail, and then follows an astonishing exhibition by the tail itself. This dexterous appendage can be curved over any portion of his back, and the tip works precisely like the human forefinger in scratching any portion of his body.

While Red has been with us for over fourteen months, he has never broken anything in the house. He solemnly inspects many objects, but makes no attempt to pick up anything unless it is very small, and even then he never carries it away. He has never knocked over a vase or a glass. This is remarkable in comparison with most species

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of monkeys, which if liberated will literally wreck the contents of a room in a very short time.

Closely related to the howlers are the capuchin monkeys (*Cebus*), the popular name referring to the peak of hair upon the head, supposed to be suggestive of the peaked hood worn by the Capuchin monks. Capuchin monkeys are known by about a score of species, ranging from Mexico to Paraguay. They are easily the most abundant of all American monkeys, and at one time capuchin monkeys served the organ-grinder fraternity in this country and in America. They have conical faces and prehensile tails, and since most are of a gentle and of a confiding disposition, they find great favour as pets. The various species are all closely similar in appearance, and it is very difficult to distinguish one from the other. A high intelligence and devouring curiosity are characteristic of the entire group. Those at the Zoo are among the most attractive inmates of the monkey-house, and show very broad tastes in their choice of foods, accepting fruit, bread, etc., and greatly enjoying such delicacies as flies, stick-insects, and eggs.

In the wild capuchins have a social system very similar to that of old-world monkeys. They go about in bands of from ten to twenty, often associating with troops of spider monkeys, which they join in raiding birds' nests.

Most persons keeping capuchins regard their pets as being purely vegetarians and treat them as such, though in actuality few monkeys are more instinctively carnivorous, and in the wild the small reptiles, insects, and especially young birds probably form a very large part

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of the capuchin's normal diet. The famous traveller, Bates, tells many stories testifying to the sanguinary habits of this little monkey, which Mr E. V. Lucas, in his *London Lavender*, aptly described as looking like "an old man seen through the wrong end of a telescope."

One specimen which Bates kept on a chain would minutely search its leash until it had discovered the weakest link, which it undid with great dexterity, and then make automatically for the nearest poultry-run. Dogs or other animals threatening to bar its progress it at once put to flight by arching its back like a cat and uttering a series of short, gruff barks, intermingled with shrill whistles. This invariably had the desired effect, and the innocent-looking little monkey then embarked upon a career of slaughter. Its favourite 'game' consisted of hunting young ducks, which it learnt to entice within reach by holding out a piece of bread, a trick it had picked up when accompanying its master on his rounds at the poultry's feeding-time. The duck, once within arm's length of the monkey, was seized and killed instantly with one powerful bite through the breast, after which it was devoured, partially plucked, at leisure. Like many predacious creatures, this monkey was unfortunately not content merely to kill for legitimate purposes of nutriment. It would at times succumb to blood-lust, and having gained access to a fowl-run it butchered the inhabitants for the sheer joy of slaughter.

In South America these monkeys at times make themselves much disliked by the natives, whose poultry-runs they may disorganize as effectively as any fox, besides

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working great havoc in plantations. The natives, by way of retaliation, summon to their aid the fruit of a certain tree, known as the sapucaya, in a very remarkable and ingenious manner.

The tree produces large pods, which distribute the seeds they contain by a sudden bursting of the cap or lid normally covering one end of the egg-shaped seed-vessel. These pods grow among dense foliage, and though difficult to obtain they are irresistible to the monkeys, who will face any difficulty to reach them, and, once having the fruit, crack it open with their teeth. The natives, knowing this, collect great numbers of the pods and convert them into traps. Having removed the lids, they place them *en masse* in an 'affected area'—*i.e.*; one that has lately been attracting the devastating attention of a troop of capuchins. The monkeys, delighted at finding the hard-shelled pods all ready opened and the toothsome pulp only waiting to be gathered, plunge their hands into the narrow cleft, and then, opening out their fingers, find it impossible to withdraw. While the animals are in the throes of embarrassment, the outraged farmers come upon them and either institute a massacre or box the raiders for conveyance to Para, a famous clearing-house for South-American livestock of all kinds. A monkey lucky enough to shake off a 'cujas,' as the pod is called, can never be so caught a second time—a fact which has given rise to a native proverb, "He is too old a monkey to be caught by a cujas."

A device very similar to this is used in districts where the sapucaya is unknown. In such cases gourds are

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substituted. A narrow aperture is made in the rind, the pulp is removed, and the interior is then filled with a mixture of meal and molasses—or even meal and honey—‘reinforced’ with bird-lime. In either case the monkey seldom has sufficient resourcefulness to contract his hand and so be rid of the encumbrance.

The trade in monkeys is probably as rich in custom and grotesque incident as any branch of commerce in the world. Some years ago a certain well-known botanist had occasion to write to a correspondent in South America, soliciting a hundred-odd varieties of monkey-plant—noted alike for its durable timber and edible seeds. Being presumably, like many scientists, somewhat absent-minded, the *savant* omitted in his letter the one little word ‘plants.’ Great was his consternation on receiving some time later a bill of lading advising him that his esteemed order for over a hundred varieties of local monkeys—chiefly capuchins—was on its way to him. This proved to be only too true and led not only to an exceedingly embarrassing situation, but further completely flooded the country’s market as regards these ‘commodities’ and created a veritable slump requiring many months to adjust itself.

Even more attractive than the capuchins are the ‘woolly’ monkeys (*Lagothrix*), which are found chiefly in the forests of Brazil. They congregate either in pairs or parties of about a dozen wandering through the tree-tops, the females carrying their young upon their backs. The entire surface of a woolly monkey, other than the ears, soles of feet, palms of hands, and under-surface of

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the last third of its tail, is covered with dense woolly fur, reduced to a sort of close, plush-like pile on the face. It was this monkey which so excited Darwin's imagination and led him to ask whimsically in his *Descent of Man* who could doubt our kinship with the quadrumana after looking at the woolly monkey, with its quaint expression and general appearance of a "venerable negro."

The woolly monkey is gentle to a degree, and the enormous canine teeth seen in old males are no evidence to the contrary. They appear to be used only for no more violent purpose than the cracking of particularly hard-shelled nuts, such as the brazil. This is one of the largest of all American monkeys, measuring twenty-seven inches from head to root of tail, while the caudal appendage itself may exceed this by several inches. None of the American monkeys have a more completely developed tail than Humboldt's woolly monkey (*Lagothrix Humboldtii*). In this monkey not only can the tail be used in typical fashion for climbing or swinging from branch to branch, but it can also serve as a hammock. The monkey, anchoring itself by feet and tail-tip to opposite branches, swings between the two, leaning back against its tail, and thus reclines at ease. In addition to this, the tail can be stiffened, and the tip placed upon the ground firmly crooked. The monkey then leans back upon its tail, using that organ as an improvised shooting-stool. The naked under-surface of the last third of the tail makes for a particularly effective grip upon slippery branches. Woolly monkeys are great eaters, and their somewhat 'paunchy' appearance has caused the Portuguese colonists

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to christen them *macaco barrigudos*, or 'bag-bellied' monkeys.

Serving as a connecting-link between the woolly and spider monkeys are the so-called woolly spider monkeys (*Eriodes*), found at rare intervals in the dense forests of South-eastern Brazil. They have the dense woolly pelage of the woolly monkeys proper and the general characteristics of true spider monkeys, save that there is a rudimentary thumb. All the nails are compressed and sharply pointed. Like the woolly monkeys they have been much persecuted by the Indians owing to the excellence of their flesh. In one year alone over twelve hundred woolly spider monkeys were killed for food.

The true spider monkeys (*Ateles*), which range from Mexico to Paraguay, present the most remarkable instances of 'specialization' seen in any new-world monkeys, and in some directions appear to have followed a course of development similar to that pursued by the Asiatic gibbons. Like all American monkeys, they walk—when they walk at all—by placing the whole of the hand upon the ground, instead of the first two joints of the fingers, as seen in old-world monkeys. Walking, however, is not their normal means of progression; usually they travel by swinging themselves from branch to branch, creeper to creeper, and a persistence in this way of travel for countless generations has had a marked effect upon their make-up. The arms are of extraordinary length, the fingers have become more or less permanently hooked, and the thumb has atrophied from disuse, being either rudimentary or having disappeared altogether. Most

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remarkable of all is the abnormal development of the tail.

The under-surface of the tail's terminal portion is denuded of hair, and the exposed skin is extremely sensitive. More than in any other monkey may this organ be described as a 'fifth hand.' It greatly exceeds the combined length of head and body, and is often held in advance of the animal's face, the tip twisting and turning in all directions, exploring the ground ahead much as the barbels of some fish serve as an advance-guard wherewith to probe the territory just beyond the fish's mouth. The tail may even be employed to explore tree-fissures for birds' eggs when the opening is too narrow to permit entry by the animal's hands. It serves also as a body-wrap at night, a balancing-pole, and a convenient 'hanging-strap' whereby the animal remains suspended from a branch with its hands and feet free to perform a variety of occupations.

Nine or ten species of spider monkey are recognized, varying much in size and colouring, the latter ranging from vivid auburn to jet black. Like the woolly monkeys and capuchins, spider monkeys are chiefly diurnal, and somewhat slow and deliberate in their movements, though what they lack in agility is well compensated for by their extreme suppleness of limb and plasticity of the ball-and-socket joints at hip and shoulder.

Mr C. R. Carpenter, in the *Journal of Mammalogy*, gives an interesting account of the behaviour of the red spider monkeys (*Ateles geoffroyi*) in their native haunts in Panama. He states:

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They frequently make long jumps outward and downward, covering at times more than thirty feet. While jumping, the animal spreads all of its appendages, thus increasing both the air-resistance and the possibility of making contact with the objects towards which it is jumping. Several times animals have been seen to release all holds and drop straight downward for twenty or twenty-five feet to lower limbs or tree-tops.

Spider monkeys are to be observed in small groups. These may consist of (*a*) a female and one or more young, (*b*) a number of females with their respective young, (*c*) one or more males and many more females with their young ones, or (*d*) males only. If these smaller groupings are followed for a day, it will be discovered that they eventually join with others in various combinations. The sub-groupings first observed may belong to a larger grouping that contains as many as forty individuals. To reverse the description, if the large group is found in the early morning and closely observed, it may be seen to divide into many smaller groupings that become separated from each other for varying distances and for different periods of time during the day. The divisions of the larger group or over-group will keep more or less in touch with one another by means of vocalizations that are exchanged among them. The individuals that make up the sub-groups usually stay within sight of one another.

Spider monkeys in the wild have no distinct breeding-season.

Young spider monkeys pass through a black-colour phase during approximately the first six months of their lives, as has been determined from a captive specimen. After this they begin to take on the reddish coloration of the adult; this colour-phase is fully developed when the animals are about ten months of age. During the black-

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colour phase, the young are almost entirely dependent on their mothers. They are rarely seen travelling alone during progression of the clan, and are usually found close by the mother while she is at rest. The period of infant dependency in spider monkeys is seemingly much longer than in either howlers or capuchins. The young spider monkeys are dependent to a large extent on their mothers until they are well into the reddish colour-phase, *i.e.*, until they are about ten months of age. Then they gradually pass from a period of dependency to one of independence.

Female spider monkeys appear to be more careful of their young than are howler females. Spider monkeys have been seen to travel across several tree-tops, catch their infants, put them on their backs, and carry them away. At times the females behave as if guarding their young from other monkeys or from a human observer or hunter. Like howlers, spider monkeys help their semi-independent infants across difficult places in the arboreal pathways. This is usually done by pulling together the separated vines or branches over which a crossing is to be made. Sometimes there are periods of delay of forty or fifty seconds between the time when the female pulls the supports together and the young makes the crossing. At other times the females take the young ones on their backs, carry them across the difficult passage, and then put them off on the other side.

Mr Carpenter has also described how a female spider monkey held a vine close to a tree-trunk while five young animals, which could not otherwise have crossed, passed from the vine to the tree.

Very like the spider monkeys in appearance are the so-called squirrel monkeys (*Saimiri*), represented by four species and inhabiting the forests of South America

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from Costa Rica to Brazil and Bolivia. They are among the commonest of all American monkeys and are extremely popular as pets. All the squirrel monkeys are about as large as the rodents from which they take their names, and are characterized by long, non-prehensile tails, opposable thumbs, and the enormous development of the brain-case. The brain is indeed actually larger in proportion to the body than that of civilized man; it projects far to the back of the skull in the manner known to anthropologists as 'dolicocephalic,' giving the entire animal a top-heavy appearance.

Although so popular as a pet, reliable information as to the squirrel monkey's habits in the wild is far from complete. It is known to go about in troops of from ten to thirty, sometimes mingling with capuchins. The females are said to be far in excess of the males. One remarkable feature of squirrel-monkey society, seen also in the howler monkeys and marmosets, is the phenomenon popularly known as the 'nursing father.' On many occasions male squirrel monkeys have been seen carrying babies on their backs, the infants presumably being only handed over to the maternal parent when their nourishment becomes imperative.

Squirrel monkeys are far more carnivorous than most old-world species. Eggs, lizards, small birds, and insects of every kind are acceptable. At one time, when squirrel monkeys were kept in the London Zoo's insect-house, the little primates spent most of their time watching for stragglers that escaped from a large brood of stick-insects living in a glass case adjoining the monkeys'

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quarters. As soon as a stick-insect climbed through the perforated zinc top of the case, and unwittingly entered monkey territory, there was a fierce scuffle for the coveted *bonne bouche*.

Very unlike the foregoing, but still characteristic of the South-American jungles, are the so-called owl-faced monkeys, or douroucoulis (*Aotus*), known in their own country by the Indian name of *Ei-d*. The five species are found from Nicaragua to the Amazon and Eastern Peru, and though tolerably abundant, they are seldom seen, owing to their small size and nocturnal habits. They rarely do well in captivity, and for our knowledge of their jungle-life we are still chiefly indebted to Bates's account, written nearly eighty years ago. Owl monkeys are so called by the round face being covered with the same dense, brownish fur that clothes the body, and the enormous eyes, much more suggestive of a bird of prey's than a mammal's. It is interesting to note that South America, the world's most prolific country as regards insects of every description, also produces the greatest number of insect-eating mammals and birds. The douroucoulis, though not disdaining fruit, much prefers eggs, birds, and, above all, insects, the size or offensive weapons of the latter never being allowed to stand between it and its appetite.

Douroucoulis are little larger than squirrels, consort in pairs, or small troops, and the female, who not infrequently produces twins, takes sole charge of the family.

Bates, who kept a young example of the three-striped

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douroucoulis—so-called from certain markings on its forehead—observes:

These monkeys, although sleeping by day, are aroused by the least noise; so that when a person passes by a tree in which a number of them are concealed, he is startled by the sudden apparition of a group of little striped faces crowding a hole in the trunk. It was in this way that my companion discovered the colony from which the one given to me was taken. It was a great favourite with every one, on account of the cleanliness of its habits and the prettiness of its features and ways. My own pet was kept in a box, in which was placed a broad-mouthed glass jar; into this it would dive, head foremost, when anyone entered the room, turning round inside, and thrusting forth its inquisitive face an instant afterwards to stare at the intruder. It was very active at night, giving vent at frequent intervals to a hoarse cry, like the suppressed barking of a dog, and scampering about the room after cockroaches and spiders.

This pet could on occasion be remarkably savage. The slightest attempt at rough handling made it strike with its hands, bite savagely, and spit like a cat. An allied species, the feline douroucoulis, made nights hideous by emitting terrific feline yells, quite disproportionate to its size and dainty appearance. According to Bates, owl monkeys are in great demand in most parts of tropical South America, since they quickly clear the houses, not only of all insect vermin, but of giant spiders, centipedes, mice, and even bats.

Of all South-American primates, none—not excepting the popular capuchins—have so captured popular imagination as the marmosets (*Hapale*). These diminutive

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monkeys are somewhat smaller than squirrels; many are brightly coloured or otherwise strikingly ornamental; and all have captivating habits, and give voice to almost avian cries.

The name marmoset is derived from the French, *marmouset*, meaning a grotesque, ridiculous figure. Scientifically the group includes all South-American primates other than those already reviewed, and comprises a variety of forms divided into short- and long-tusked species. Marmosets are the lowest of the new-world primates, and despite their great diversity they have certain more or less well-marked features in common. The face and ears are always naked, the tail is non-prehensile, and the thumb, lying in line with the other digits, is not opposable, so that the hand is more paw-like than in other primates. They show considerable affinity with the insectivores in possessing claws rather than finger-nails, and, in some species, in the production of relatively large families—three young at a birth being not uncommon in marmoset-society. This latter trait may perhaps be in part responsible for the large share which the male takes in the upbringing of the family, the result of generously offering to share the burden of a harassed mate.

Whatever the cause, the fact remains that the responsibilities of the male marmoset now go far beyond the mere begetting of a family. With few exceptions, female marmosets take but the most perfunctory interest in the progeny. This curious reversal of the usual mammalian order has been closely observed in the common marmoset

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(*Hapale jacchus*), characterized by its ringed tail, grey, mottled pelage, and tufts of white hair, one on either side of the head. In captivity, as a rule, only one infant is produced at a birth, and this is from the first handed over to the male parent for safe keeping. All his activities are hampered by the infant, which at first clings tightly to the long fur of his breast. Only when sustenance is required is it 'taken over' by the mother, who, having accomplished her perfunctory duties, at once passes it back to her consort and then decamps, with a mind enviably relieved of all responsibilities.

As the infant grows, its increasing bulk automatically brings about a change in its carriage. When several weeks old it moves from its father's breast to his hip, usually the left, and later mounts upon his back. From this coign of vantage it makes its first essays in solid nourishment, snatching scraps of food from the paternal mouth by passing one clutching hand over his shoulder. Thus for a considerable time the father marmoset goes through life, burdened, like Sindbad, with the old man of the sea, securely fastened to his back. Not until the infant is entirely able to fend for itself do his responsibilities cease.

The young of this marmoset is without ear-tufts, thus resembling the pigmy marmoset (*Hapale pygmaea*), which claims the distinction of being the world's smallest primate. It is also the most widely distributed of the marmoset family, extending northward as far as Mexico. Like most marmosets, the pigmy species has a very ornate head and face, possessing in its particular case a

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pair of florid, brownish whiskers, which are brushed back over the ears.

The long-tusked marmosets, or tamarins (*Mystax*), are distinguished from the short-tusked group by possessing canine teeth which are much longer than the incisors. They have the habits common to the whole tribe, feeding on fruit, eggs, and insects, and expressing themselves in twittering, piping voices very suggestive of small birds. They are all expert climbers, and being exceedingly light can sustain a fall from a tree-branch fifty feet above ground without sustaining the slightest injury. The general standard of intelligence is much lower than that of most primates. The imitative instinct is almost entirely wanting, and they do not appear to learn by experience. Frank Buckland recalls how one he kept as a pet had a *penchant* for swinging on a gas-bracket. When the gas-jet was alight, the marmoset's tail frequently came in contact with the flame, sometimes passing completely through it. As a result the hair suffered considerably, and finally disappeared entirely. Yet the marmoset never appeared to associate the flame with the lighted gas, and eventually in its own interests restraint—as represented by a waist-belt and a chain—had to be put upon it.

In certain parts of South America, Spanish ladies not infrequently allow pet marmosets to nestle in the abundant coils of their hair, from which retreats the animals scuttle forth at odd moments to capture spiders, returning to their strange bowers to enjoy the prize at leisure.

Of the long-tusked marmosets, two of the most ornate

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are the 'emperor' and the 'lion.' The former has enormous curling moustaches. The lion is one of the most vividly coloured of all mammals, the long silky fur being of a flaming orange hue that glows like a veritable sunset. There is also the common grey species, of which one is now kept in health at the London Zoo, thanks to the use of sun-ray lamps and halibut-oil—two of the greatest factors in combating rickets, the chief obstacle to successfully maintaining these delicate primates in a foreign climate.

Miss Alice FitzGerald has kept and bred marmosets in captivity in New York, where her pets have bred on several occasions. She states that the important considerations in the rearing of marmosets are temperature, sunlight, food, water, and cleanliness. The temperature should never fall below seventy-five degrees, although a higher temperature does not harm the animals. Direct sunlight, however, should be avoided except for a few minutes at a time. During the winter, Miss FitzGerald kept a seventy-five-watt blue electric bulb lighted in each cage throughout the day, and the animals gathered round the bulbs with obvious pleasure. In an article in the *Journal of Mammalogy*, Miss FitzGerald makes some interesting observations on her charges. She writes:

The sleeping-habits are regulated by the clock and not by the sun; the animals sleeping from thirteen to fourteen hours out of the twenty-four. In addition to their night's rest, marmosets generally take a *siesta* after their luncheon. The grooming of the hair is a very important part of the animal's life. Much time is spent in the process. Grooming

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consists of separating the hairs (its own or those of another animal) with the fingers and nails, the groomer watching intently all the time for particles of dead cuticle or bits of any foreign substance that may have lodged in the fur. When found, such objects are picked up by the lips, which are kept moistened by the tongue. Much interest and anticipation are shown by the groomer. The request for grooming comes from the 'groomee,' who approaches the groomer and, facing him, lies down flat in an inviting attitude. The animal that is being groomed relaxes completely, but keeps moving its body so as to present every part of it in turn for inspection. The eyes of the groomed animal may close; his facial expression is always one of ecstatic contentment. No noise of any kind accompanies the operation.

An experienced groomer sits on his haunches and has perfect freedom and control of his arms; but a novice has to lean on the 'groomee' and has to use only one arm at a time. The marmoset does not sit up with ease until its third year. The older the groomer, the more thorough his work; and a good groomer is in great demand. The process can at times be quite painful; for instance, when a matted bunch of hair must be untangled or removed, I have seen an animal raised off the floor by the groomer's efforts to bite away such a tangle. Some animals welcome a daily fine-tooth combing. Sometimes the combing is painful, but no sound or effort to escape is ever made. Grooming is extended to the mouth, where the teeth are gone over with particular interest.

Playing is an important part of the life of the marmoset. It consists mainly in hiding and seeking. The animals slap at one another, playfully attempt to bite each other, and race wildly in all directions. While playing they are apt to misjudge distances and to fall; but generally they land on their feet. In temperament, the marmoset is highly nervous

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and easily startled and frightened; but a disturbed animal soon resumes its normal state and regular routine in sleeping, eating, and grooming. The marmoset is not considered an affectionate pet. Even when tame and easily handled it does not show any pleasure when greeted nor any sorrow when left alone.

As a rule marmosets are not quarrelsome, but in some isolated cases permanent antagonisms have been observed among them. In one instance a mother and her eldest daughter have never been friendly. Scolding outbursts occur quite frequently between them. A pair of twins (females) had a quarrel that lasted two days and caused their mother to spend much time stepping in between them to prevent bodily violence. A second example of quarrelling was exhibited by two other females (evidently twins) bought from a local dealer. From frequent quarrels the differences led to real fighting. After some serious damage had been done, mainly to feet and tails, these two animals had to be separated. Most quarrels between males can be definitely traced to sex problems and to desire for supremacy in the family unit. A fight between two animals of opposite sex has never been observed.

It is essential not to frighten marmosets with any sudden noise or movement, as either one will throw the group into a panic. Noises practically inaudible to the human ear may have this effect, and the disturbed state of mind of one animal seems to spread to others through voice-contact.

CHAPTER VIII

HALF-MONKEYS

THE half-monkeys, or lemurs, immediately preceded the apes and monkeys both in Europe and North America and became extinct—at least in Europe—when the true monkeys appeared. To-day the group is confined to Madagascar and a few regions of Africa and Asia; but it is in Madagascar that the lemurs are most abundant and attain their fullest development. Fossil-remains show that they are the last remnants of a once much-more flourishing race, and recent discoveries point to the former existence of gigantic forms, rivalling the largest man-like apes in stature. The largest of all probably became extinct well within the historic period, and for our knowledge of this giant we are indebted to De Flacourt, who in 1658 gave the following account of a fearsome beast locally known as the '*trétrétrétré*'—presumably in allusion to its cry:

The *trétrétrétré*, or *tratratratra*, is an animal of the size of a two-year-old calf, with a rounded head and human-like face, both fore- and hind-feet being like those of a monkey. It has the hair wavy, the tail short, and ears like those of a man. It is a solitary creature, held in great terror by the natives, who flee whenever it comes in sight.

This description accords well with a closely allied animal that is known, by fossil-remnants, to have also lived in Europe.

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Lemurs are less intelligent than monkeys, and like the marsupials, they owe their comparatively flourishing condition on an island to the lack of competition resultant from such an environment. Like the marsupials also, the lemurs have found that wherever they have attempted to colonize the mainland, the presence of larger and more intelligent creatures has sent them to the wall. Thus all lemurs on the mainland of Africa and Asia are inconspicuous animals, relying for safety upon concealment, much as do the few marsupials that have contrived to exist upon the mainland of America.

The lemurs differ so strikingly from monkeys, and indeed all other creatures, that a few details of their peculiar make-up may be mentioned. The limbs are long and powerful, and the hands and feet most remarkably developed. In all, the thumbs and great toes reach an extraordinary size, and even the terrestrial species have immense gripping-power.

The skull is long and dog-like, with huge eye-sockets and very peculiar teeth, the lower incisors suggesting the teeth of a comb. The animal's diet being chiefly frugivorous, it is natural that such teeth should often become somewhat involved with pips and pulp, sometimes to an embarrassing extent. Such a situation is met by a unique development of the animal's tongue. In all lemurs, the lower surface of the tongue bears what is virtually a second tongue, having its tip extended into a sort of fringe. This virtually performs the function of a multiple tooth-pick, and pushes out from between the teeth all food-scrap which, if retained, might lead

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to their decay. Most lemurs have a long tail, which is used as a balancing-pole.

The true lemurs, of which there are eight species, all come from Madagascar and the Comoro Islands. They are highly popular at the Zoo, and, given proper care and attention, make charming pets, though of less equable temper than many monkeys.

The best-known species is the handsome black-and-white 'ring-tailed' lemur (*Lemur catta*), that has all the monkey's handiness, although in the wild it lives entirely among rocks instead of trees. The late Sir W. S. Gilbert had a passion for these animals, and he kept a number in his private monkey-house. Two of these lemurs—Adam and Eve—wandered about their owner's extensive grounds at will, always returning home at night. One autumn Eve presented her partner with a son, which, apart from one reared at the Zoo in 1881, was the first of its species born in this country. For the first three months of its life this infant clung tightly to its mother's breast, its legs locked round her waist and its hands buried in the fur of her shoulders. It maintained this position, whatever the acrobatics of its lively parent. After some time it graduated to a jockey-seat on the maternal back, until, at the age of seven or eight months, it found its own feet. This infant was most attached to its distinguished master, always sitting on his shoulder while he dressed, and climbing on to his head when the toilet obliged a temporary change of its position. A leading characteristic of this lemur is its fondness for sun-bathing, and it will sit with arms extended for hours

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in a blaze that might try the endurance of even a desert-living lizard.

The typical lemurs show a great range and variety in size and coloration, but all are of much the same build and ways of life. A few are more or less omnivorous, but the majority are vegetarian, and without exception these animals are adept climbers, whether among rocks or trees. For some reason not yet satisfactorily explained, the lemurs of Madagascar have developed on much more restricted lines than the marsupials of Australia. Whereas the marsupials have mimicked the animals of the mainland in a hundred ways—some developing on the lines of typical carnivores, others parodying herbivorous types—the lemurs show a much greater uniformity of design.

Thus the handsome black, ruffed, brown, and mon-goose lemurs, though strikingly different in coloration, are easily recognizable as being nearly related to the typical ring-tailed species. The range of stature is admittedly considerable, and at the bottom of the scale are the mouse lemurs, which are not much larger than the rodents from which they take their name. They live in rather open country, feeding on scanty vegetation and insects, which food-supply may all but vanish in the hottest months of the year. Such an exigency these lemurs meet by the process known as *æstivation*—the converse of hibernation. With the hot season in sight they eat to repletion—as do our native squirrels and badgers when winter approaches. Not only do these little lemurs fortify themselves against the lean months ahead by accumulating a large store of fat beneath their

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skins, but they carry an emergency ration in the tail, much as do certain desert mice and lizards, or the camel in its hump. When a mouse lemur is ready to 'close down' for the dry season its tail resembles a rather unwieldy club, and is with some difficulty tucked into the nest of twigs which the animal prepares in some dense thicket. The smallest of all the mouse lemurs, known as the dwarf, is only four inches from nose to root of tail, and, like the rest of its clan, hops from bough to bough in a manner suggestive of a bird rather than a mammal.

The giant of the tribe is the indri, and is regarded as being the highest of the lemurs, *i.e.*, the most closely akin to the true monkeys. It is tailless and measures over two feet from muzzle to rump, while its enormous limbs give it an appearance of being a much larger animal than is actually the case. The indri, or babakoto, as it is locally known, is the nearest relative of the giant extinct lemurs, and is in all probability the original of the 'dog-headed' men described in ancient works of natural history dealing with the fauna of East Africa. In medieval times, when such legends were accepted facts, the general conception of Africa was decidedly vague, and the few existing maps equally so. It is possible that the indri may have lived upon the mainland until historic times, though as suggested in another chapter these strange stories may well have originated in early travellers' first sight of the well-organized troops of baboons. The indri, like the ruffed lemur, displays a striking 'dazzle' pattern, which in dense scrub and vivid sunlight tends to break up the creature's outline and render it practically

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invisible. Like the great majority of lemurs, the indri has never been kept in captivity, and even preserved specimens are not abundant.

Nearly allied to the indris are the three species of sifakas, distinguished from other lemurs by the exceptionally long tail, and the ears being almost entirely concealed in their dense, woolly fur. They are gentle, inoffensive creatures, living entirely on vegetable substances, and being most active at dusk or early morning. Sifakas usually travel about dense jungle in small family-parties of six or eight, and are entirely arboreal, showing some very interesting adaptations to this form of life. The fold of skin, which in all mammals stretches from the back of the shoulder-blade to a variable point on the body, is in these little lemurs exaggerated to form a sort of parachute; in fact, they appear to represent a half-way stage between the normal lemurs and a few 'aeronautic' forms.

There is considerable diversity of opinion as to the classification of the lemurs, but the aye-aye (*Daubentonia Madagascariensis*) is generally placed near the sifakas, though it has little obvious kinship with anything except itself.

The popular name of aye-aye is variously represented as an interpretation of the animal's cry, or the exclamation of simple Malagasy natives when shown the animal by the French explorer Sonnerat, who first brought it to civilized notice in the seventeenth century. Much as the word 'kangaroo' is believed to represent the bushman's equivalent of 'What do you mean?' so the name

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aye-aye is accepted as one of those cognomens, the precise origin of which must always remain a little ambiguous.

The animal itself might justify any title—none could be too bizarre for it. It is a lemur adapted to a peculiar dietary, judging by its anatomy and the few first-hand accounts we have of its habits. The ears, like those of some other lemurs, are enormously developed, and the eyes are of great size, both features pointing to a nocturnal mode of life. Its front teeth are more suggestive of a rodent's than a lemur's, but most remarkable of all are the animal's hands. The fingers are so exaggerated as to suggest a five-legged spider rather than a hand of any kind within the meaning of the term, while the third finger of each is so attenuated as to appear completely skeletonized. According to most accounts the aye-aye scours bamboo thickets by night, listening with its immense ears for any sounds indicative of larvæ tunnelling the bamboo stems. Should a beetle or other grub be detected, the huge incisor teeth are brought to bear upon the stem, and when the grub is laid bare it is easily drawn out by means of the wire-like third finger.

So much for theory; but in captivity at least the aye-aye refuses to make good what appears to be a very plausible explanation of its nightmarish make-up. It resolutely refuses insect-food in any shape or form, but readily takes to a diet of eggs, milk, and fruit.

That its front teeth are actually used for gnawing was amply proved a few years ago at the London Zoo, when a pair of aye-ayes were provided with a willow log,

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which they quickly gnawed with gusto, though never eating the wood or bark. The few privileged to see these animals—which only became alive at night—saw the remarkable third finger in action. It was used not for skewering insects, but as a means of obtaining drink. The aye-aye is supposed to obtain its drink only from such water as may collect in the axils of leaves—a position that could scarcely admit ordinary methods of lapping. At the Zoo, of course, drinking-water was supplied in a small dish, and this the aye-aye soon emptied in its own fashion. By a peculiar revolving motion of the outstretched third finger—the others being clenched—an almost continuous stream of water was caused to span the short distance between the animal's lips and the trough. It drank at the rate of forty to fifty sips per minute. An egg was treated in like fashion.

Throughout Madagascar lemurs are taken in traps of the portcullis, or mouse-trap, variety, though the capture of any specimens is now happily under strict supervision.

Perhaps no order of animals grouped under the very elastic term 'lemur' have so commended themselves to human notice as the dainty little lemuroids known as galagos (*Galago*) or bush-babies. *Galago* is a native name of uncertain origin, but bush-baby refers in no uncertain manner to the terrific cries which these little creatures can raise—cries which are altogether disproportionate to their size, and which are highly suggestive of a fractious infant.

Galagos are confined to Africa, and the several species

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range in size from that of a mouse to a domestic cat. All are nocturnal, a feature clearly indicated by the immense lustrous eyes. The fur is soft and dense like that of other lemurs, but of even finer quality, resembling chinchilla. The tail is long and bushy, the ears are extremely large, and the hands and feet are remarkably plastic. Two remarkable features of the galagos are the capacity of folding up the large ears at will and a strange habit of moistening the palms of the hands and soles of the feet at frequent intervals when climbing. This trait suggests the workman's similar habit of anointing his hands before gripping pick or shovel, though it is rather puzzling that the galagos alone of all the monkey-tribe should thus emulate what one might expect to be a purely human prerogative.

The almost fairy-like daintiness of the galagos naturally much commends them as pets, though it must be confessed that they are, in their home-life at least, much less dainty than they look. They are omnivorous and highly predacious, not even stopping at cannibalism. Should one be killed in a duel—a not uncommon occurrence—the victor almost invariably banquets on the vanquished's brains. The best-known species are the Senegal galago and its southern representative the maholi galago; Garnett's galago—with a white streak on its nose; Monteiro's galago from Angola; and the great galago of Mozambique. This last is the giant of the race, and is known as the 'cat of the coconut-palm,' in allusion to its favourite daytime haunt. Galagos of all species are very heavy sleepers during the hours of sunlight,

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and like some of the lemurs proper will even sleep, or drowse, for weeks together when severe drought brings about a food-shortage.

In connexion with the galago's formidable lung-power, I was recently informed of the following amusing story. A planter was for many nights on end so distracted by the after-dark harmonic meetings of the local bush-babies that he finally—in a fit of exasperation—flung a mug of table-beer over the choir. A grateful silence ensued—a silence in which the bush-babies indignantly licked the beer from their sodden coats. When the last had been removed, the ale took effect upon them, and all further thoughts of vocal exercise were forgotten in Bacchanalian slumber. But the planter's drastic action failed to have any lasting quietening effect on the galagos. The next night the dreadful din redoubled—nor did it cease until another deluge of malted liquor turned the animals' thoughts into another channel. It soon became apparent that the galagos had acquired the flavour, and were prepared to sing for the fluid portion of their supper with a will. After a week or so the planter fully grasped the situation and happily anticipated the choir by placing a saucer of beer ready for its enjoyment—a strategy that reaped its reward in much appreciated silence.

Although somewhat pugnacious, galagos soon become very gentle with their owners, and will even become on friendly terms with squirrels or domestic animals.

The lorises are represented by two species, the slow and the slender, though slow might aptly describe both. The slow loris (*Nycticebus coucang*) of South-east Asia is a

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heavily built little creature, not much larger than a guinea-pig, with a dense woolly coat which at first seems misplaced upon a creature hailing from Eastern India and Malaya. As with all lemurs, however, it is often exposed to very cold nights, especially in the tree-tops, and its dense fur may furthermore protect it—like that of the coarse ‘horse-hair’-textured coat of the aye-aye—from the attacks of resentful wasps and bees whose nests it raids in search of grubs and honey.

As with all lemurs, the hands are remarkable. The first finger has the characteristically lemuroid elongation of the nail, though the digit itself is very short and almost rudimentary. The thumb, however, is disproportionately large, almost exceeding the entire palm, and the great toe is equally exaggerated.

The word ‘loris’ is derived from the Dutch *loeris*, signifying a clown, which well describes the creature’s quaint face and big staring eyes. Apart from an occasional spring to seize insect prey, its movements are always extremely slow and deliberate. Sir William Jones, in his *Asiatic Researches*, describes one kept as a pet.

At all times he seemed pleased at being stroked on the head and throat, and he frequently allowed me to touch his extremely sharp teeth. But his temper was always quick, like that of a squirrel. . . . When a grasshopper alighted within his reach, his eyes as he fixed them on his prey glowed with uncommon fire, and having drawn himself back to spring on his prey with greater force, he seized it with both his forepaws and held it till he had devoured it. He never could have enough grasshoppers, and spent the whole night in prowling for them.

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The slender loris (*Loris tardigradus*), sole representative of a separate genus, is confined to Southern India and Ceylon. In general build it is not unlike the foregoing, but has its attenuated limbs covered by such a close short fur that it has been aptly described as suggesting a furry-coated chameleon. Apparently both species of loris have but one young at birth, which is carried, lying on its back and clinging tightly to the maternal bosom, like the young of the ring-tailed lemur when but a few weeks old. Even when able to walk unaided, the young loris may reassume this nursing-position when tired, by walking on all fours between the maternal hind-legs and then very deliberately twisting itself over on to its back.

Though altogether harmless, the lorises are the subjects of the strangest superstitions in their own lands, for which reason it has, until recently, been very difficult to persuade natives to procure them for zoological collections, though the animals are not uncommon. They particularly frequent low trees and bushes near centres of civilization.

The pottos (*Perodicticus*), represented by several races from Western Africa, are, like the lorises, small lemuroids with woolly coats, and the same deliberate movements— if possible, even more exaggerated. The tail is represented by a short thick stump. The first finger of the hand is quite rudimentary, and the second toe entirely wanting. But both hands and feet have immense, blister-like pads, and the thumbs and great toes reach an extraordinary size, even for lemurs.

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A distinguishing feature of the pottos is the extraordinary development of the neck vertebræ, the points of which in the true pottos almost pierce the skin and stand up on the back of the animal's neck like a row of little cribbage-pegs. The skin immediately round them is bare, and when the animal curls itself into a ball, the spines stand out in bold relief. They are associated with special glands, and apparently play some part in sexual attraction.

Last of the half-monkeys is the strange little creature known as the spectral tarsius, the first name being sufficiently descriptive, and the second referring to its much elongated tarsus, or ankle-bone. As already mentioned in the opening chapter, the tarsus is by some regarded as representing the root-stock of our race, however little the creature may suggest this to the casual observer; to-day the little creatures—little bigger than mice—no longer enjoy their once wide distribution but are confined solely to Malay and the Island of Celebes. They are described as hopping about trees and bushes more like frogs than mammals, and indeed the tree-frog is suggested in the semi-adhesive pads of their fingers and toe-tips which materially assist in their peculiar mode of life.

CHAPTER IX
*MONKEYS IN FOLK-LORE, LEGEND,
AND RELIGION*

IT is scarcely surprising that the monkey, so like ourselves in form and habits, should figure largely in the folk-lore, legends, and religious beliefs of almost every country in the world. Its fame seems only to have stopped short at the Arctic and Antarctic circles.

As might be expected, the impressions it has made on mankind vary enormously. In some countries certain species are venerated, even deified; in others the ape and monkey figure merely as a synonym for all our own less admirable qualities. This is particularly the case in European countries which, with the exception of southern Spain, know the monkey only as a curiosity, and have little or no first-hand knowledge of its more intimate life. In Europe some of the earliest monkey-legends have emanated from the pen of Æsop, the erudite Phrygian slave, whose wit and wisdom won him his liberty. Some six hundred years before Christ he collected a number of monkey-fables, none of which, however, does the monkey full justice.

The fable of the apes and the two travellers holds up the monkey as the epitome of vanity. Two men, one probably a journalist of the period, the other renowned for his love of truth, came to the kingdom of the apes, and were taken before the king, who had disposed his

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court about him so as to look as much like a human retinue as possible. The first man, asked what he made of it all, replied that he had never met a more noble king, nor a more enlightened assemblage of councillors—and was forthwith handsomely rewarded. The second man, incurably truthful, said that they were indeed a very fine collection of ‘apes’—and only just escaped with his life for thus outraging the animals’ self-esteem.

The story of the monkey and the dolphin shows the much-maligned simian as a not too skilful liar. Saved from shipwreck by a dolphin who let him ride on its back, he entered into conversation with his rescuer. The monkey, asked if he was an Athenian—which he was not—answered “yes” without hesitation. Asked if he knew Piræus (the famous harbour of Athens) he replied that he had known the man for years, whereupon the indignant dolphin suddenly sank from under him.

The story of the camel who made an exhibition of himself by trying to dance as cleverly as a certain monkey, who delighted a gathering of animals by his Terpsichorean efforts, at best shows the simian as an amusing buffoon, and this is largely the character in which he is regarded by most Western peoples to this day. It is still quite usual to speak of a person being as artful as a ‘cartload of monkeys.’

The particular attitude of various primitive races towards ethical problems is very well indicated by local monkey-legends. In numerous widely separated tribes, for example, there is a very prevalent belief that the monkey is actually a human being condemned to go on

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all fours, as the result of choosing a life of idleness and pilfering, rather than a career of honest toil. In the Philippine Islands a typical example of this thesis is shown in the story of the monkey working in the rice-field. Two labourers were toiling side by side, one strenuously, the other considerably less so. Asked by his industrious neighbour why he idled, he gave such an unsatisfactory and irritating reply that the virtuous one hurled his stick at the latter, striking him at the base of the spine. Instantly the loafer shrank to the size of a monkey, and the stick, firmly adhering to his rearward portion, became one with his altered make-up, and became perpetuated as the simian tail.

In parts of the Island of Celebes, the famous black ape is the hero of innumerable stories, testifying to the monkey's resource and sagacity, if not the highest integrity. In the tale of the ape and the turtle, the former does not shine. It appears that a monkey and a fresh-water terrapin agreed to grow bananas, each undertaking responsibility for one half of the venture. The turtle worked assiduously, and soon raised a noble crop, whereas ill-luck seemed to dog the monkey's efforts, his trees dying by inches and finally disappearing altogether. Actually the greedy ape had been unable to resist eating the young shoots as fast as they developed. However, appearing to bear his misfortune with the noblest stoicism, he generously offered to collect the short-sighted terrapin's well-earned harvest. And the chelonian consenting, up went the monkey, and ate to repletion, adding insult to injury by pelting his partner

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with the skins. The reptile, bestirring himself, thereupon planted a row of stakes round the tree, and the perfidious ape, too gorged to act rationally, lost his foothold and came to a bad, if deserved, end.

Usually, however, the ape is victorious, whatever the merits or otherwise of his behaviour. The natives of Celebes have endless stories of his scoring off the unpopular crocodile, one of their arch-enemies. According to one popular tale, a young ape was marooned on a rock by a ferocious crocodile, intent upon eating him then and there. The ape pointed out that it would be a more sporting death if other crocodiles came to the feast, and the reptile, agreeing to the justice of the proposition, whistled up a score of companions. The ape now pleaded bad eyesight and besought the crocodiles to arrange themselves nose to tail that they might the more easily be counted. This they did, whereupon the ape, taking a deep breath, used them as a living bridge, and leaping over their scaly backs at lightning speed, regained the mainland in safety.

Equally popular in Celebes is the story of the ape who was caught by one leg in the jaws of a huge crocodile while fording a river. By a series of long-winded but ingenious arguments delivered, one imagines, in peculiarly trying circumstances, the ape persuaded the crocodile that it had actually seized a log by mistake, and as the reptile opened its jaws to rectify the error, the ape leapt ashore in the nick of time.

To the average Occidental it is virtually impossible to realize what the sacred langur monkey means to many

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millions of devout Hindus. The nearest parallel one can offer is, perhaps, the Agnus Dei of our Western faith.

The sacred langur, or hanuman, is about twice the size of the common rhesus, has a black face and extremities, and ranges over India from the Deccan northward to the south bank of the Ganges. In its rôle of a sacred animal, dedicated to the god Hanuman, it is unique, even in a country peculiarly rich in sacred animals. A charming volume has of recent years been devoted to these monkeys by Frieda Hanswirth Das, a noted authority on matters Indian. Therein the reader learns that these monkeys are neither wild nor tame. They drift up and down the country as they like, at one time enjoying a spell of jungle-life, at another descending upon a village, or even a great city, and there making their temporary home, to the embarrassment of the human populace. Rigidly protected from any kind of violence at the hand of man, they seem to realize their privilege and abuse it heartily. The principal temples of two great cities, Puri and Benares, are specially dedicated to these monkeys, and are infested with them, in varying numbers, the year round. Puri, the stronghold of Jaganatha, is perhaps less honoured than that of the Goddess Durga at Benares. Durga, the wife of Shiva, is regarded as delighting in death and slaughter, and the terrifying carvings of her temple are drenched in goats' blood to appease her sanguinary demands. The tourist, however, forgets the gruesome surroundings in the hordes of monkeys that play endless pranks upon one another and even the worshippers. In the streets without they are still more

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in evidence, and if the monkeys are sacred to the human populace, nothing and nobody is sacred to the monkeys. They pilfer from every shop, invade dwellings, and show an impudent disregard for all and sundry.

So great are their thieving and destructive propensities that on more than one occasion the Hindus, debarred by religious scruples from themselves offering the monkeys any resistance, have appealed to the British Government. As a result, hundreds of monkeys have been captured at a time and transferred to other cities a considerable distance away. This procedure, however, has of recent years proved less effective than it might be, for the city destined to receive the monkeys has proved so unappreciative of the threatened honour as promptly to return the animals whence they came.

The complete veneration accorded to the langur is well described in the late Rudyard Kipling's gruesome story of "The Mark of the Beast," which tells of the uncanny revenge taken by priests—with the assistance of a leper—upon an Englishman, who, in bibulous mood, insulted the image of Hanuman in a wayside temple. W. T. Hornaday thus describes the Doorga Khond, or monkey-temple, of that city:

Buying half a gallon of grain from a priest at the entrance, we stepped within the enclosure, and then another priest who was with us cried out "Ah! Ah! Ah!" Directly there was a grand rush through the doorways, over the walls, and from the top of the Banyan, as about a hundred and fifty monkeys of all ages, sizes, and degrees of fatness came crawling around us to be fed. Some impudent rascals

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snatched handfuls of grain and scampered off, cramming it into their cheeks as they ran; some took the food timidly and with suspicion, but when we threw handfuls of it on the floor there ensued a vigorous game of 'grab-and-s snatch-it.' So long as the grain held out we were the centre of attraction, and each pair of watchful brown eyes was fixed upon us. Some fat old fellows sat and gravely looked at us, others made wry faces, some winked, and some grinned from ear to ear. A few were quarrelsome, and there was continuous biting and squealing, while, after the feeding was over, others busied themselves in examining one another's heads for vermin, just as I remember seeing people do in the streets of Naples more than once.

Here are specimens with a vengeance, but one might better risk shooting a native than one of these sacred pets. These monkeys are very sacred, because they are descendants of Hanuman, the famous monkey-god of Southern India who (according to Jerdon) aided Rama in the conquest of Ceylon by forming a bridge of rocks opposite Manaar. The figure of the monkey who thus greatly distinguished himself is often found in Hindu temples in the guise of a man with a black monkey-face and a long tail.

Some Anglo-Indians have assured me that at Benares anyone killing a monkey would be almost torn in pieces by the natives.

Often these sacred monkeys attach themselves to the innumerable holy men who wander throughout the length and breadth of India, or isolate themselves in lonely hillside huts, where they are idolized and fed by the nearest villagers.

Kipling, describing one such modern saint in "The Miracle of Purun Bhagat," describes how

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The langurs, the big grey-whiskered monkeys of the Himalayas, were naturally the first [*i.e.*, visitors], for they are alive with curiosity; and when they had upset the begging-bowl, and rolled it round the floor, and tried their teeth on the brass-handled crutch, and made faces at the antelope skin, they decided that the human being who sat so still was harmless. At evening they would leap down from the pines, and beg with their hands for things to eat, and then swing off in graceful curves. They liked the warmth of the fire too, and huddled round it till Purun Bhagat had to push them aside to throw on more fuel; and in the morning, as often as not, he would find a furry ape sharing his blanket. All day long, one or other of the tribe would sit by his side, staring out at the snows, crooning and looking unspeakably wise and sorrowful.

When, later, torrential rains induce a fearful landslide, the 'grey apes' are the first to warn the holy man, who in turn gives the alarm to the surrounding villages. This is a perfect picture of one aspect of Indian monkey-life, described in the *Second Jungle Book*.

Whereas the langur still retains its high estate among the world's sacred animals, the sacred, or hamadryad, baboon appears to have quite outlived its glorious past. It is a favourite exhibition-animal with itinerant showmen throughout Egypt and Northern Africa, but only the numerous ancient monuments remain to hint at the veneration in which the animal was once held.

In the ancient civilization of Egypt, the hamadryad baboon was dedicated to Thoth, the ibis-headed scribe of the gods. Thoth is recognized as the author of the great collection of funerary texts known as the *Book of*

the Dead. He was also the 'tongue' of the Creator, the vague but all-powerful presence to which the innumerable identified gods of Egypt owed allegiance; and in addition, Thoth uttered the words that created heaven and earth, measured time, and invented the arts and sciences.

Of such a personage the baboons were the chosen bodyguard. The Seal of Thoth, the ancient city of Hermopolis, was, in the days before the Christian era, literally a city of baboons, and the animals must have enjoyed their freedom, much as the langur who now overruns Benares and Puri. Many thousands of baboon-mummies were laid to rest in serried ranks within special mausoleums, each embalmed corpse being placed in the attitude often assumed by the animals in life, *i.e.*, seated upright with a hand placed on each knee. This dignified pose is also repeated in innumerable human representations on monuments and mural paintings.

Egypt's very existence turns to-day, as it turned in the long ago, upon the rising of the Nile and the sun; and the baboons were intimately connected with the Egyptian cult of sun-worship.

The animal's well-known habit of issuing from its sleeping-quarters at sunrise and climbing to some rocky promontory may in part be responsible for this legend. On Egyptian monuments both baboons and humans are constantly seen with hands upraised—the characteristic pose of a devotee greeting the sunrise. A remarkably fine example of baboons thus sun-worshipping is to be seen on the base of a huge obelisk, taken from Luxor,

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and now standing in the Place de la Concorde, Paris; it is the French 'Cleopatra's needle.' Baboons in this attitude also largely decorate the famous rock-temple of Rameses II.

As the henchman of Thoth, the baboon was also emblematic of law and order, and in this connexion is thus not infrequently represented in the act of paying tribute to Pharaoh.

It was only in the latter stages of the civilization of early Egypt that actual resurrection of the body was generally believed in. Prior to this the soul—in the form of a human, or ape-headed, bird—was believed to revisit periodically the body, so that in either case its decent preservation was imperative. The baboons appear to have had their various social strata, at least in human estimation, and burial was of three separate grades; the cheapest embalmment cost about twenty or thirty pounds, the second sixty, and the highest grade as much as two hundred and fifty—in the standard of the period.

Whatever the method employed, the body was almost invariably 'set' in a seated attitude, and in the earliest times, before embalmment became general, it was simply placed in a hole in the sand.

The higher-grade method of embalming first necessitated the removal of the brains and viscera, the cavity containing the latter being afterwards washed out with the purest palm-oil and then sprinkled with powdered spices. Swathing in fine linen might involve over a hundred feet of material and was a lengthy business, since between each winding priests were employed,

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sprinkling the body with spices, inserting amulets on which were written protective charms, and repeating highly involved prayers or incantations appropriate to the occasion.

The fingers and toes of the baboons were sometimes bandaged separately. Finally, the animal's name was written in ink on one of the outer coverings. Recent discoveries have shown that some of the earlier methods consisted simply of steeping the deceased in a preparation of soda for seventy days, or even immersing it permanently in a large jar of honey. Frequently the brains and viscera were preserved separately in 'canopic' jars, four jars being employed, each one of which was dedicated to one of the four sons of Horus, the sun-god.

The monkey not unnaturally played an important part in the religion and folk-lore of the Chinese, and as a sacred animal it still holds an honoured place in many parts of the Celestial Empire. According to ancient tradition, for example, it is held that the monkey was a powerful entity before the earth, or even heaven, came into being. The monkey is reputed as having collected energy from the sun and moon, and having travelled through space to earth in a series of somersaults averaging one thousand miles each. Being of a restless and peripatetic nature from the earliest times, it then travelled—still by somersaults—back to the Heavenly Palace, after which it made trips to the Isles of the Immortals and to Hades. During its sojourn in Paradise, it stole the Peach of Immortality—a legend of peculiar interest, since it obviously has some relationship to the story of the

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famous apple taken by Eve from the Tree of Knowledge in the Biblical chronicle—and armed with his peach, the monkey did battle with, and ultimately defeated, the Emperor of Heaven and all his hosts. This smashing victory alarmed Buddha, who foresaw in this fresh triumph of the ape illimitable possibilities and probably alarming consequences. Accordingly he captured the monkey and incarcerated it in a hill, from whence, after some centuries, it was released by a traveller.

The monkey occurs throughout Chinese mythology as one of many composite deities. It is represented as a blend of ape and wolf, of shining gold, and serving as a sort of living footstool to the Goddess of Mercy, Kuan Kin, who also uses this celestial hybrid for equestrian exercises through inter-planetary space.

In China at least the monkey thus figures equally as the villain of the piece and as a beneficent power on intimate terms with the gods themselves. Throughout most Chinese mythology, indeed, the ape is respected as a creature of more than ordinary bestial intelligence, and a fount of wisdom, rather than a mere animal buffoon.

In the legend of two cats quarrelling over the possession of an oyster, for example, the monkey is invited to act as arbiter. Having delivered an interminable homily upon the evils of vain strife, when calm deliberation and amicable controversy is obviously the most dignified and becoming course indicated, he calmly appropriates the oyster to himself, and presents each cat with a benediction, a warning, and one half of the empty shell.

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A parallel legend occurs in the fables and fairy-tales of many Western countries. Most of these represent the monkey as a legal dignitary dispensing justice, and much shocked when the fox is brought before him on a charge of stealing a chicken from the wolf. The story—like that of the cats and the oyster—is an admirable warning against the dangers of too eagerly entering into litigation. The monkey first hears the wolf's version of the affair, and then, with equal patience, listens to an impassioned plea of innocence from the fox. Having reviewed the case in every conceivable aspect, Mr Justice Ape then condemns the wolf to pay costs for bringing a false charge, and solemnly warns the fox that he is exceedingly lucky to escape hanging as a common thief. The fowl he takes charge of himself, as a just fee for legal services capably rendered.

Civilization travelling ever westward naturally brought legend and ancient tradition to countries that relinquished barbarism much later than the Chinese Empire. Thus the ape has gradually insinuated itself into otherwise essentially European folk-lore, such as that enshrined in the prolonged and complex legend of Reynard the fox. In this story, concerned though it is mostly with common animals of the Continent, the ape appears as a venerable female seer and soothsayer.

The ancient compilers of European folk-lore took considerable liberties with natural history, and they present the ape as standing in the relation of aunt to the fox. In this *rôle* she makes an excellent case for the fox when the latter is implicated in a more than usually

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outrageous escapade and haled before the lion, as King of Beasts, to receive justice. In this instance the wily ape shows itself as capable of perverting as of supporting the law, and thanks to his aunt's advocacy, Reynard is once more liberated to wreak vengeance on a less quick-witted world.

East of Suez, folk-lore and legend figure in pictorial art even more than in the Western world. At the recent exhibition of ancient Chinese art this was very apparent, and in our great permanent national collections the monkey is abundantly represented both in the art of China and Japan. In the former it is usually a long-tailed macaque that is represented, and in bronze and pottery such examples take on a strictly utilitarian form. Often the monkey is ingeniously adapted to form a ewer, or jug, the pouting lips serving as a spout, and the tail, or ears, being designed to serve as handles. In very early Chinese paintings a species of gibbon is frequently represented, suggesting that this ape possibly had a wider distribution in the pre-Christian era than it enjoys to-day.

Most famous of all Oriental monkey-representations, however, are the innumerable renderings of the three sacred monkeys of Japan. The three wise monkeys, as they are called, are invariably the red-faced Japanese macaque, posed so as to inculcate three primary dicta of the Buddhist ideal. One covers his ears with his hands, the other hides his mouth, and the third his eyes—thus enjoining all who see them neither to hear, speak, nor see evil of anyone or anything. This quaint morality-

lecture is rendered in countless wall-paintings, carvings, and ornaments of every kind throughout Japan. The virtues thus inculcated have so caught public fancy that of recent years the three wise monkeys have become part of the stock-in-trade of every *bric-à-brac* shop throughout the world.

To probably few people unassociated with the College of Arms is the monkey realized as playing a notable part in the ancient and honourable cult of heraldry. While it must be admitted the monkey ranks, with the otter, ermine, hedgehog, and bat, as among the rarer heraldic creatures, and not to be compared with the lion, lamb, hart, or dragon, it is still sufficiently in evidence, and crops up very frequently in the crowded pages of *Burke* and *Debrett*.

The appearance of the animal in this connexion may surprise many. It must be remembered, however, that heraldry itself, though now a most complex and elaborately regulated form of identification, originated with extremely primitive peoples, and in its earlier stages was confined to crude symbols of the severest simplicity, often very childish in conception and design. When the monkey first appears as an heraldic device, or 'charge,' in the insignias of nobility scattered throughout the United Kingdom, the general conceptions of the quadrumana were, to say the least of it, remarkably vague. Even the knowledge of *savants* was largely founded upon highly coloured, and very imperfectly authenticated, travellers' tales. As pointed out in an earlier chapter of this book, ape and monkey were interchangeable terms, and the

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creatures included in both titles were as often as not confused with the numerous tales of forest demons and wild men. There is little doubt, indeed, that the satyr and allied monsters had their beginnings in primitive man's first contacts with the larger and more spectacular examples of the order of primates.

In the United Kingdom at least, the monkey of heraldry is more or less identifiable with one of the longer-tailed macaques or guenons, the two genera most likely to come within the notice of early navigators and wandering priests and those adventurous gentlemen-at-arms who covered themselves with glory in the various crusades.

The earlier examples of monkeys in heraldry show the animal as very decidedly 'humanized,' but later figures, though vague enough as regards the precise identification of the species intended to be represented, at least maintain a tolerably conscientious fidelity to Nature. Whereas all other heraldic animals are, if chained, shown with the leash attached to a collar encircling the creature's neck, the monkey is invariably chained at the hips, and it is of interest to note that in some early Oriental heraldic emblazonments, the big fighting apes, kept by divers Eastern potentates, are represented as being chained at both neck and loins, just as are the hunting cats, such as cheetahs, caracals, and servals, to this day. In Elvin's famous *Dictionary of Heraldry*, there exists the only example of a winged ape, though its precise origin is still a matter of investigation by the College-of-Arms authorities.

Since early in the thirteenth century the monkey has

figured both as a crest and 'supporters' of the shield carried by the famous Irish clan of FitzGerald. This FitzGerald device of the monkey has a curious origin. It appears that in 1303 a terrific fire broke out in the castle of one of the branches of the family. In the confusion, the infant son of the house and sole inheritor of the title was given up for lost, despite a room-to-room search by the distracted parents and their retainers. When at last hope had been abandoned, the infant was espied, high up on one of the flame-swept battlements, where sat perched a tame monkey, which had broken its tether and now clasped the infant safely in its arms. From that day onward the monkey was raised to its present exalted position on the family crest, and the additional motto "*Non immemor beneficii*" was emblazoned beneath the device. Very fine examples of this heraldic monkey figure as supporters to the shield of the Leinster arms. Whereas in early versions of this device the monkey was shown wearing an uncomfortable metal girdle and heavy iron chain, the creature is now more humanely represented as being restrained only with a leather band and a soft woolly cord!

The monkey is shown heraldically upon the crests of various other families. Most of them show a monkey of doubtful species rearing itself out of a tower or mural coronet, the creature appearing from the waist upward only, and beating the air with its paws in the manner approved by lions rampant. This device is heraldically described as a "demi-monkey, rampant."

On some armorial bearings there is represented a

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monkey's head only, in the condition known as 'errased,' *i.e.*, severed from the body with the hair of the neck teased out to conceal the place of severance. This crest originated with the house of York, which claims to have first brought a living monkey to these islands, no doubt as one of the souvenirs carried home by a victorious crusader.

The lines of demarcation between an heraldic device, a sports-team mascot, and a mere trade-mark are not so rigid or concise as might be supposed. To the commoner at least, the very humanized monkey that has spread the fame of a certain soap that "won't wash clothes" is probably better known than any of the simian crests favoured by nobility. But throughout the whole realm of monkey-heraldry as seen in these islands one looks in vain for any trace of a monkey among the numerous zoological patrol-emblems of the scouts and guides. A recent consultation with the governing authorities of those bodies elicited the fact that whereas a bear, wolf, buffalo, beaver, bee, or raven might be consistent with the dignity and high ideals of scouting, a monkey lent itself to too much ribald misrepresentation.

Very closely associated with heraldry is the art of the sign-board, and a high percentage of these efforts are founded upon the crest of some noble family. It was but natural that a feudal innkeeper should seek favour with his baronial landlord by adopting for the sign of his establishment the arms of the dignitary to whom he paid his rent and other dues.

The very few examples of monkey inn-signs, however,

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owe their being less to a baronial crest than a once-popular pastime, now happily discredited. From medieval times until the close of the seventeenth century, it was not unusual to present the spectacle commonly known as the 'monkey on horseback.' This was generally staged in bull- and bear-baiting rings, where it was greatly appreciated by all classes of the community. It consisted of tethering a small monkey, usually a macaque, to the saddle of a horse that had not been broken in. The equine's frantic efforts to dislodge his tenacious rider, and the monkey's equal unwillingness to be flung violently to the ground and be either trampled to death or dragged hither and thither, caused peculiar delight among the onlookers.

Eerie legends in connexion with the 'half-monkeys,' or lemurs, are extremely abundant, and a few are mentioned in the section dealing with that group. One or two, however, may find a place here.

The very name 'lemur' means ghost, and refers to the weird spectacle many species afford as they flit through the forest at night. But all are not entirely nocturnal, and one of the species most intimately associated with the occult is the more or less diurnal indri (*Indris brevicauda*), or giant lemur, of Madagascar.

In its own country the indri is known as the babakoto. In the jungles of Tamatara it is held in the greatest reverence, never being molested in any way. Trees which it frequents are supposed to harbour wonderful medicinal properties, and according to the French naturalist, Coquerel, it is held that should a spear be flung at it

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the indri sends it back to the thrower with deadly aim. An extraordinary legend surrounds the creature's birth. It is held that when first born the mother hurls the helpless babe to her mate, who is stationed at a distance, and he returns it. This spartan test of its endurance is repeated twelve times or more. Should the infant fall to the ground, it is abandoned, whether dead or alive, but provided that it survives this 'trial by catch-ball,' it is given a regal upbringing.

Another name for this favoured primate is 'amboanda,' or 'dog of the forest.' It is reputed to go in troops, and, owing to the possession of a laryngeal sac, can utter terrific cries, which have been compared to agonized human wailings. A specimen caught in an ordinary trap is at once liberated, and a chance dead specimen found in the forest is buried by the local chief or witch-doctor with solemn rites.

A famous story of the island recounts how a certain tribe, beaten in battle by a rival faction, fled through the forest in complete disorder. The pursuers intended to complete their massacre, but suddenly came face to face with a troop of indri. They at once thought only of their own safety, and in turn panicked, never once slackening speed until safe in their own village. The tribe thus delivered by the indri have since become not only the animal's chief champion, but also the most influential people throughout all Madagascar.

As pointed out in another chapter, that tiny half-monkey of the Far East known as the tarsius suggests in many ways the tree-frog, since the semi-suctorial pads

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terminating in fingers and toes enable it to obtain a firm grip of slippery branches and creepers, whereby it can nimbly chase the insects and spiders which largely constitute its diet. Having caught an insect, it keeps its immense eyes tightly shut, while with its sharp teeth it neatly removes the insect's wildly kicking legs. This operation safely accomplished, it opens its eyes and devours the tit-bit at leisure. Although natives must enjoy ample opportunities for observing this performance, they persist in adhering to a grotesque legend to the effect that the animal subsists entirely upon a diet of charcoal. This absurd belief seems to have had its origin in the fact that the tarsius is most commonly found after a patch of forest has been cleared and burned prior to cultivation. The presence of these little animals is usually made known in deforested areas by their powerful bat-like odour. Efforts to keep them alive until a buyer is found generally consist of putting the unfortunate creatures upon an exclusive diet of burnt twigs. Not unnaturally, they almost invariably die, unless a more enlightened purchaser is found very shortly after their capture. It may be mentioned that by day the pupils of the animal's eyes are reduced to the finest of vertical lines, but nightfall causes them to expand until they almost completely cover the iris.

With the half-monkeys at least, legend and superstitious dread engendered by such tales have done almost more to protect certain species than all the legislation enforced during more recent times. The aye-aye, for example, apart from the restrictions guarding its exportation, as lately set forth by the French Government,

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has always enjoyed the unofficial patronage and safe-keeping of the tribes in whose territory it is chiefly found. This veneration and respect are said to have had their origin in the appearance of an aye-aye crawling out of an ancient tomb containing the relics of a tribal chieftain, and the regard ever since accorded the animal extends even to the huge bird-like nest which it constructs.

The African potto is the subject of some most curious beliefs, which have arisen from its 'slow motion' progress through life. For example, tolerably educated natives persistently assert that once the animal is lodged in a tree it remains there until every leaf, bud, and scrap of bark has been devoured. This orgy results in the animal attaining a noticeable *embonpoint*, in which condition it slowly descends and rests upon the ground, sometimes for days on end, thereby undergoing a very necessary 'slimming' process before it can recommence its search for food. The pangs of hunger returning, it laboriously ascends another tree. Should this, however, prove to be exceptionally high, it halts from exhaustion half-way up, and there, being unable or unwilling to relax its tenacious grip, it so remains until it slowly succumbs to starvation. Natives have the greatest repugnance to handling pottos, believing that once the animal obtains a hold upon any portion of its would-be captor it cannot be dislodged, and so must be carried about for ever after—a state of affairs offering disadvantages that can be fully appreciated without any very great effort of the imagination.

IN FOLK-LORE, LEGEND, AND RELIGION

In Siam that curious half-monkey of the Far East, the loris, is called Ling-lom, or wind-monkey, in allusion to its tuneful whistle when pleased—a sound regarded by maritime natives as presaging wind. A volume might be devoted to the legends associated with this little animal. Major Stanley Flower, in a contribution to the Zoological Society's *Proceedings* in 1900, says that the slow loris is credited in Malaya with an influence, chiefly in a malign direction, over all human beings—an influence which may be just as active when a loris has long ceased to live.

Thus a Malay may commit a crime he did not pre-meditate, and then find that an enemy had buried a particular part of a loris under his threshold, which had, unknown to him, compelled him to act to his own disadvantage.

This tiny *Deus ex machina* is indeed made the excuse for any felony commending itself to the native mind.

In some parts, however, the fur is used to heal wounds, while a sailing ship with one on board is said never to be becalmed. There would indeed appear to be scarcely any event in the life of man, woman, or child, or even domestic animals that may not be affected for good or ill by this peculiar half-monkey. But despite its powers, it is regarded as being far from happy, for it is continually seeing ghosts—for which reason it covers its face with its hands; this action is explained by the fact that the huge eyes are highly sensitive to sunlight, and the loris naturally gives them what protection it can.

Sir J. Emmerson Tennant has given an equally interesting account of the species of loris found in Ceylon.

APES AND MONKEYS

According to this author, the creature's name of Nama-Thavangu refers to the light spot in the middle of its forehead, which is regarded by the pious as the holy mark of an Eastern deity; this veneration, however, does not save the loris from the local 'doctors,' who extract its eyes for the concoction of various medicines and love-potions.

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