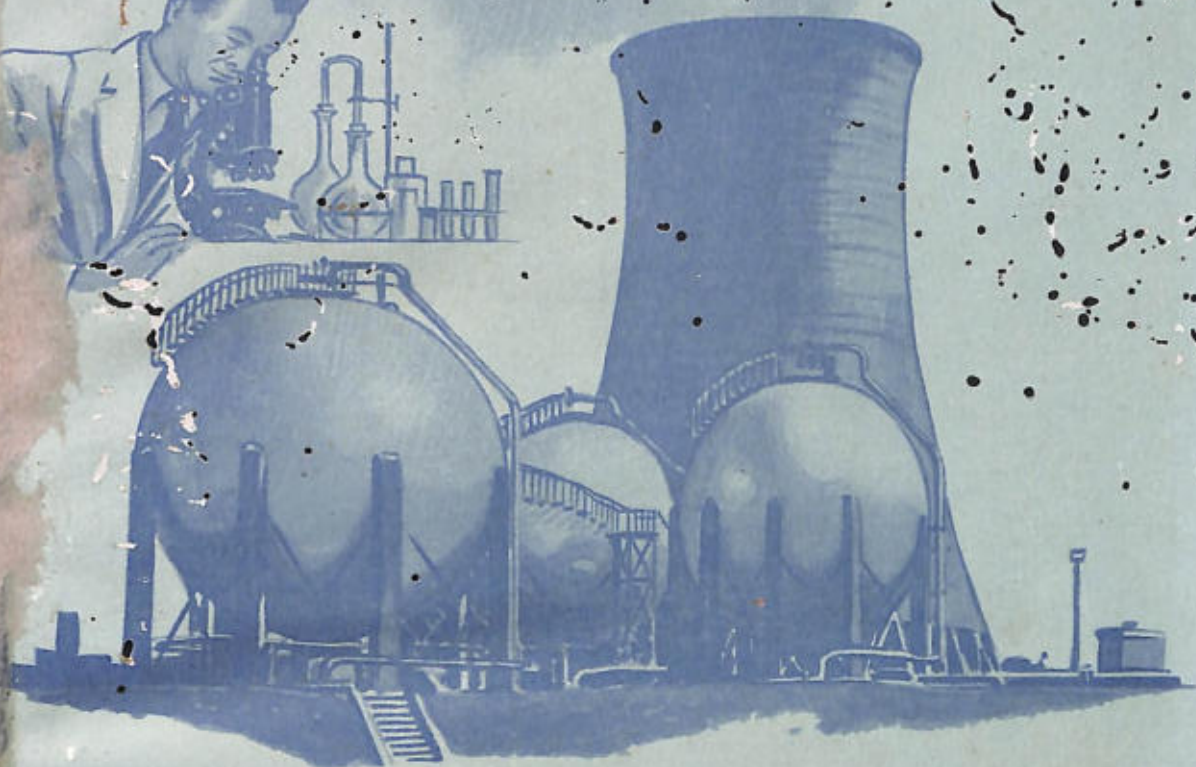






BOOK OF WILD LIFE



B.O.W.L.

KANGAROO AND YOUNG

The young Kangaroo is allowed to look out on the world from the safety of his mother's warm pouch before he faces life on his own. Here he is in a peculiar position with his legs doubled over his head.

CHILDREN'S ENCYCLOPEDIA OF KNOWLEDGE

BOOK OF WILD LIFE



COLLINS
LONDON AND GLASGOW

This Edition 1964

© Wm. Collins Sons & Co. Ltd.
Printed and made in Great Britain by
William Collins Sons & Co. Ltd.
London and Glasgow

CONTENTS

AUSTRALASIA'S TOPSY-TURVY CREATURES <i>John R. Crossland, F.R.G.S.</i>	PAGE 7
ALL ABOUT BATS <i>W. S. Berridge, F.Z.S.</i>	27
THE BIG CATS <i>C. Bernard Rutley</i>	35
THE GIRAFFE AND HIS KIN <i>M. V. Jack</i>	59
ANIMALS VERGING ON EXTINCTION <i>W. S. Berridge, F.Z.S.</i>	66
THE FASCINATING MONKEY TRIBE <i>W. S. Berridge, F.Z.S.</i>	72
BEARS AND THEIR COUSINS <i>C. Bernard Rutley</i>	86
LEATHER-SIDED GIANTS <i>W. S. Berridge, F.Z.S.</i>	101
MAMMALS OF THE SEA <i>C. Bernard Rutley</i>	121
THE HORSE AND ITS RELATIONS <i>Harold Keeble</i>	134
ANTELOPES AND GAZELLES <i>W. S. Berridge, F.Z.S.</i>	149
THE CAMEL AND HIS RELATIONS <i>C. Bernard Rutley</i>	165
BIRDS OF PREY <i>Oliver G. Pike, F.Z.S., M.B.O.U.</i>	171
SNAKES <i>Dr. Burgess Barnett</i>	175



AUSTRALASIA'S TOPSY-TURVY CREATURES

By
John R. Crossland,
F.R.G.S.



[Mondiale

Here you have the Kangaroo in characteristic pose before the camera. Note especially his strong, hind legs and powerful tail. These hold the secret of the tremendous leaps with which he covers the ground.

If you have a mind for the marvellous—here is a chapter to your mind! In Australia are animals not to be met with elsewhere. Isolated during long centuries they have evolved in a manner quite their own! Such are the Marsupials, or pouched mammals, and the Platypus; the Black Swan, Kiwi, Kookaburra and Lyre Bird. The present chapter gives us wonderful glimpses of these creatures and their homes and haunts.

THE islands of "Down Under" furnish the world with animals, birds and reptiles of singular appearance and construction. These islands, Australia, New Zealand and Tasmania, are shut off from the rest of the world, and research points that once there was, in far-off days, an antarctic continent separated from the rest of the world. This continent enjoyed a temperate climate, and there existed wild life of a type not seen elsewhere. In the present Antipodes this life, in various modified forms, still thrives.

In South America there have been found traces of fossil animals related to the present wild creatures of Australasia, but apart from the opossum of America and certain animals of New Guinea, the two main classifications of animals, the Marsupials and the Monotremes, are found to-day only in the islands of "Down Under."

New Zealand seems to have no native mammals, but has a variety of birds. Tasmania is rich in wild life, and Australia also has a large collection of interesting creatures peculiar to the continent. Of the Marsupials, or animals bearing a pouch in which they

carry their weak and helpless babies, the Kangaroo is best known to the world in general. Two-thirds of Australia's mammals are marsupials, and there are over one hundred types of these pouch-bearing animals.

There are members of the Kangaroo family as small as a rabbit, while there are others much larger than a sheep—200 lb. kangaroos that, when poised on their long hind legs and propped up, tripod fashion, on their strong tails, are as high as a man. The kangaroo has weak fore-limbs and shoulders, but his hind legs are long and immensely strong. He goes forward with huge leaps, covering ten feet or more at a bound, and developing a high speed, his tail stretching out horizontally behind him. He eats grass and small shrubs, and can become a nuisance to the farmer. When eating he is on all fours, and presents a curious appearance.

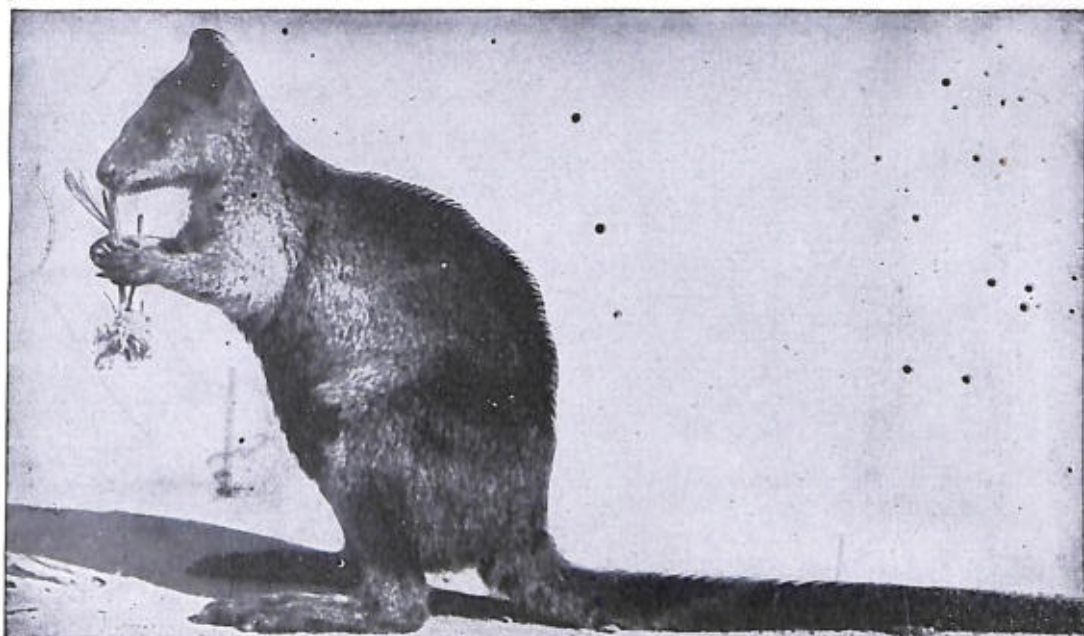
His hind feet have a long central toe, armed with a sharp, curved claw. When at bay he will seize his tormentor with his front paws and by means of a quick, tearing movement of his hind foot inflict a terrible wound. Hunted by dogs, in a kangaroo hunt, he will swim out



THE LYRE BIRD.

The lovely Lyre Bird, so-called because its tail is arranged in the form of an ancient Greek lyre, is a native of Australasia. The male is a skilled mimic, reproducing very cleverly the songs of other birds.

[E.N.A.]



THE BLACK WALLABY.

[Mondiale

The Black Wallaby, a small Kangaroo, is hunted by trappers for its soft and thick fur. Its flesh is excellent for eating. The Wallabies are also known as Brush Kangaroos.



[W. S. Berridge

WALLABY AND YOUNG.

The young Wallaby seen above has grown to the stage when it is almost ready to vacate the pouch.

B.W.L.

into a river or lake, or even into the sea. Should a dog follow him he will seize it in his front paws, push it under the water and deliberately drown it. Normally, however, he is quiet and inoffensive, desirous only of being left alone. The great Grey Kangaroo, known as the "Boomer" or "Old Man Kangaroo," first noted in 1770 by Captain James Cook, is the largest of the species, the great Red Kangaroo coming next in order.

The Kangaroo as a boxer.

When baby kangaroo is born he is no more than one inch in length, and is utterly helpless in every way. His mother picks him up gently with her lips and places him in her pouch, where he may feed on her milk. A special breathing arrangement enables him to lie attached to the milk glands of his mother for long periods in the depths of the pouch, the milk being supplied to him without any effort on his part, and he often stays in his warm home until he can run about and fend for himself.

The Brush-kangaroos, known as Wallabies, are smaller, while the Hare-wallabies are exceedingly swift in their motion. Kangaroos, with the exception of the Tree-kangaroo, live in the open plains. The tree-kangaroo has



THE KANGAROO.

[F. W. Bond]

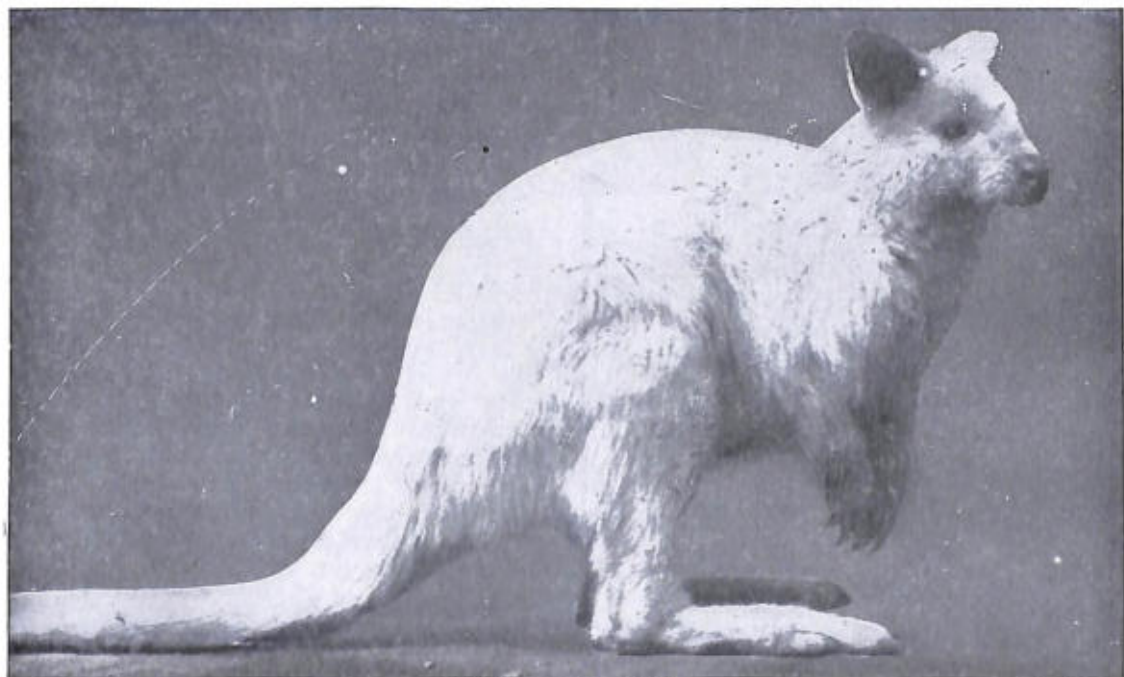
When feeding, the Kangaroo goes on all fours, the better to reach the grass and small shrubs which form his staple diet. The last joint of his immense hind legs, doubled up on the ground, looks like a giant's foot.

shorter hind limbs and longer fore-limbs, to enable him to live in the branches and climb with agility. The Kangaroo-rats or Rat-kangaroos are only the size of rabbits, and though they are able to hop along with amazing rapidity they love to burrow in the soil near tree roots in the open spaces.

The larger species of kangaroo have been tamed with success, though at times the playful methods of these strong animals result

in bad falls for their owners. Boxing kangaroos have been trained to spar with men, and the latter have found to their cost that there is strength in the fore-paws of these pretty animals, when the weight of the body is thrown by means of a jerk of the tail on the ground behind. Even experienced boxers find the blows received to be serious.

The Bandicoot is found in New Guinea as well as in Australia and Tasmania. There



ALBINO WALLABY.

[F. W. Bond]

Depicted above is a Bennet's Wallaby displaying his fine white coat and powerful tail. Though smaller than the Kangaroo, the Wallabies are very similar. Their home is in the Australian brush or backwoods.

AUSTRALASIA'S TOPSY-TURVY CREATURES



THE RED KANGAROO.

[F. W. Bond

The Red Kangaroo makes a good landing! He is a famous jumper, propelled through the air by his strong hind legs as by a giant spring. His tail acts as a rudder to guide his flight.

are several kinds, and these small animals become a source of annoyance to farmers, as they harry the fields and gardens in search of worms and insects. They live on the ground, building for themselves nests of twigs and leaves. Here they nestle most of the day and feed, generally, by night. The largest of these small marsupials is some eighteen inches from nose-tip to the end of the body. In appearance bandicoots resemble mice or rats, excepting that some have long hind legs, thus bearing some likeness to the jerboa.

An amusing little fellow who spends his life "up a gum tree" is the native bear of Australia, known as the Koala. He is a furry animal about two and a half feet in length, covered with a woolly fur, generally grey. He has no tail, and is slow-moving and clumsy. His face is that of a comedian, with its small, humorous eyes set wide apart, and its queer "carnival" nose.

Bears that live in trees

The koala is found in the eastern half of the continent, and its diet is composed of the leaves of the tall Queensland gum trees. Clinging tenaciously to the high branches of these trees the little animals seem like birds' nests. They often live in one tree for long periods without ever coming to earth.

Baby koala is slung on mother's back as soon as it can cling firmly, and there it lives until it is too large to be carried conveniently. The sight of one koala carrying another quite half

as big as itself is laughter-provoking, for both animals wear that surprised, ingenuous expression seen on the faces of humorous stage characters. The koala generally sleeps tucked into a ball and hanging to a branch of a gum tree until evening, when the work of feeding begins in earnest. This animal is generally looked upon as one of the chief members of the Phalanger family, which includes the opossums and flying squirrels. The Australian Opossums are of varying types, some as small as a mouse, others as large as a rabbit. The Sooty opossum of Tasmania has the finest coat, and its fur is of great value. The Grey



THE BANDICOOT.

[E.N.A.

This rat-like Australian marsupial measures about eighteen inches, and has very destructive habits.

AUSTRALASIA'S TOPSY-TURVY CREATURES



[F. W. Bond

THE TREE KANGAROO.

A clumsy, melancholy-looking creature is the small Tree Kangaroo. Though it lives in the trees, it is not an agile climber, being too intent on keeping its balance and clinging to the branches with its claws.

and Ring-tailed opossums are other species. Generally speaking, the opossums have long prehensile tails, bare on the under-side near the end. These they use for gripping the branches of the gum trees where they live. With the addition of the strong tail to the four capable "hands," the opossum is able to climb, dangle

or sleep in incredible postures among the branches. His upstanding ears and wide-awake, beady eyes give him an alert appearance.

How the Phalangers "fly."

The Flying-phalangers, known as Flying-squirrels, are beautiful animals. They resemble our own squirrels but have a membrane connecting front and hind legs. When the animals wish to leap from one tree to another the legs are held stiffly apart and outstretched. The membrane then acts as a parachute, and it is easily possible for a leap of thirty feet to be accomplished with accuracy and safety. The smallest of the family is the Pygmy phalanger, who, though not three inches in length, can launch himself through the air like a baby aeroplane, and, with tail stiff and horizontal, cover incredible distances at a time.

The Cuscuses are also of the phalanger family. There are five kinds, about the size of a cat. Of these only one is Australian; the rest inhabit Malaya. The Australian cuscus



THE RAT-KANGAROO.

[Montagu

The Rat-Kangaroo (or Kangaroo-Rat) bears only a very slight resemblance to the common rat. It is about the size of a rabbit, and, like most Australian mammals, it carries its young in a pouch.

AUSTRALASIA'S TOPSY-TURVY CREATURES



THE FLYING SQUIRREL.

[F. W. Bond

This beautiful little creature carries his own parachute about with him! He can "fly" for quite long distances among the trees with the help of a membrane stretched between his fore and hind limbs on either side.

is found in the north. It is the handsomest of the species and is known as the Spotted cuscus. The male spotted cuscus has a beautifully marked coat of black and reddish-brown irregular markings on a ground of yellowish white.

In Southern Australia and Tasmania there are burrowing animals known as Wombats. They are root-eating marsupials that sleep by day and sally forth for food by night. The largest of these, the Common Wombat, is a yard in length.

The hair is coarse and the colour generally yellowish or yellow tinged with black. Almost

badger-like of head and expression, slow-moving and contented, the wombats are often tamed and kept as pets. The pelt of the Tasmanian wombat is used for mats in places where tough floor coverings are needed—it never wears through! The Hairy-nosed wombat of South Australia is smaller than the common wombat, but larger than the Tasmanian species.

Australia has a mole of its own, known as the Pouched Mole. This queer animal is yellowish in colour, and does not burrow so consistently and thoroughly as does our own species. Its diet consists of insects. The pouched mole has a hard shield that protects its nose, and boasts a tail of leathery texture.

A devil by name and nature.

Another group of animals is generally classified as the Dasyure family. Of these the largest is the Tasmanian Wolf, also known as the Thylacine. Slightly less than the European Wolf, it inhabits Tasmania, and is hunted with vigour because of its depredations among the sheep. It has a close fur of grey-brown, with dark stripes on the hinder part of the back and the loins. The tail is long and very thick at the base, tapering to a point at the tip. The female thylacine carries her young in a pouch.

Another carnivorous member of the dasyure family is the Tasmanian Devil, and never had creature a more fitting name. About the size of the common badger, this ugly, ferocious animal has an exceptionally large and strong head, with bull-dog jaws and a set of formidable teeth. Its strong claws enable it to burrow by the roots of a tree during the day, while at night it engages in an orgy



AZARA'S OPOSSUM. [W. S. Berridge

This bright-eyed little Opossum, curling his prehensile tail round a branch, is one of several varieties found in Australia. They are valued for their fur.

AUSTRALASIA'S TOPSY-TURVY CREATURES



WEID'S OPOSSUM. [F. W. Bond]

Here is another native of "Down Under." There are various American species also.

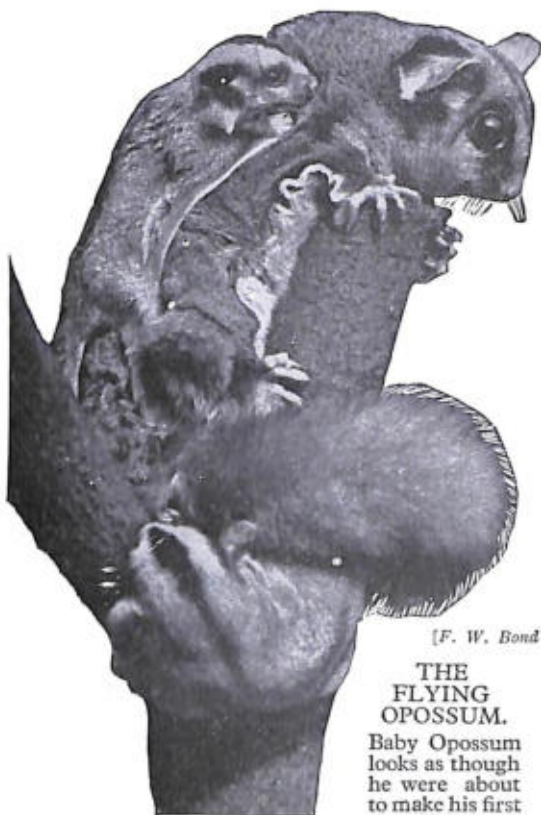
of killing, even attacking sheep in its blind ferocity. No animal is safe when the Tasmanian Devil is around; it kills for the sake of killing. Birds and reptiles share the same fate if they come across its path. Like most bullies, human and otherwise, however, this undesirable animal can at times prove an arrant coward.

The native cats are of the dasyure family, and are generally spotted white upon grey or brown fur. They have long ears and are civet-like in their slender grace of build. The largest of the family is the Spotted-tail dasyure. The dasyures live in trees, and feed on eggs, young birds and small animals. They raid poultry yards and cause a great deal of damage. The Banded Anteater is the size of the squirrel, and has a long, cylindrical tongue specially adapted for its diet of ants. Like the thylacine, it has banded markings on back and loins. It has a long muzzle and pointed ears. Its tail is long and bushy.

The female has no pouch, and the young ones cling to the long hair of the mother's

body and feed on her milk until they are strong enough to look after themselves.

Possibly the most curious of the Australian animals are those of the order of Monotremes. These queer creatures, though animals, lay eggs. The Duck-billed Platypus is an amazing mixture. Covered with close, soft, mole-like fur, this animal has a bill somewhat in the style of a duck's bill, but broader and flatter. This bill is not attached to the skull, but only to the skin. At its base is a ridge or fold of skin



[F. W. Bond]

THE FLYING OPOSSUM.

Baby Opossum looks as though he were about to make his first flight.

acting as a guard when the bill is used in burrowing in soft mud. The feet are webbed, the web on the front feet extending beyond the claws. This is folded back when the platypus is burrowing. The male has a sharp spur on the heels of his hind feet, used often in marital squabbles, and with a channel once believed to carry a flow of poison to his victim should he be compelled to fight.

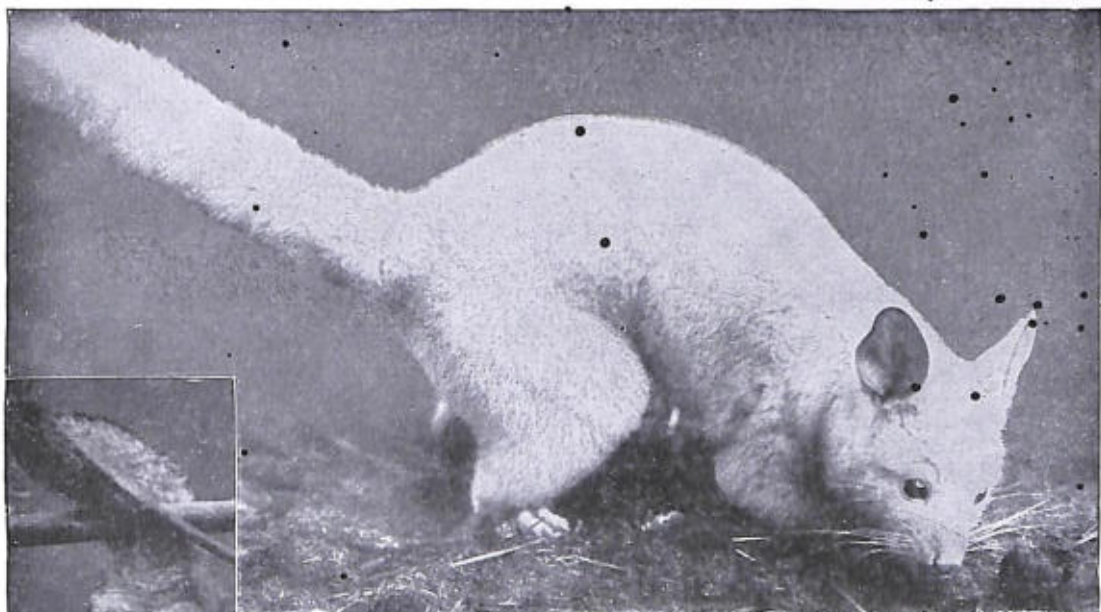
The young of the platypus have teeth, but these soon disappear and in their place grow horny plates. They are born naked, hatched from small eggs, and they feed on their mother's milk. Their home is a masterpiece of burrow-



THE RING-TAIL OPOSSUM.

The Ring-tailed Opossum is the only Australian Opossum to build a nest.

F. W. Bond]



ALBINO OPOSSUM.

[Mondiale

Unlike some other Opossums, this beautiful Albino has his tail well covered with hair.

ing. The platypus burrows into the bank of a stream or pool, and his home has two entrances, one below water and one above. The latter is screened with twigs and leaves. The passage from under the water slopes upwards, and often a tunnel of fifty feet is made before the central chamber is excavated.

In order to protect his family from intruders this quaint animal makes a series of false passages leading off from the main tunnel, and his pursuer finds himself time and time again at a dead end. It is not unknown for the platypus to block up the entrance to the central chamber so that it, too, appears from the outside as a cul-de-sac.

The night-ranging Echidna.

Another queer creature is the Echidna, or Spiny Anteater. Covered with rough hair from which grow thick, sharp spines, an echidna curled up asleep looks like a hedgehog or porcupine; standing or walking it looks like nothing else on earth but an echidna. Its head is small and terminates in a tube-like beak covered with hard skin. Its tongue, like that of the banded anteater above described, is long and cylindrical. It has five toes on each foot, furnished with strong claws, and the males, like the platypus, have sharp spurs on the hind feet. When walking the echidna puts the backs of its hind feet on the ground, with

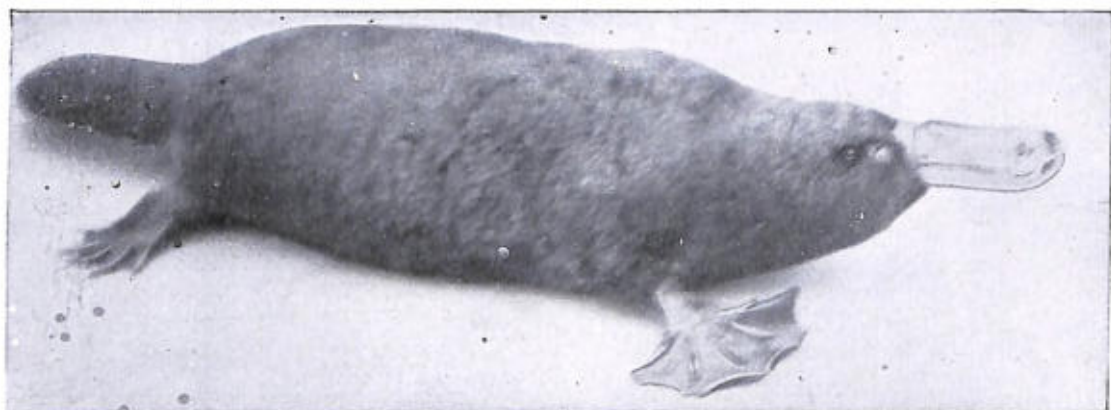


[F. W. Bond

WOOLLY OPOSSUM AND YOUNG.

Here is a very interesting picture showing the Woolly Opossum carrying its tiny family on its back.

AUSTRALASIA'S TOPSY-TURVY CREATURES



THE PLATYPUS.

[W. S. Berridge]

Outside Australia nothing remotely like the Platypus will be found! Unique among mammals, it has fur like that of a mole, webbed feet, a duck's bill—and it lays eggs! It is very rare and may not survive much longer.



THE KUSIMANSE.

[F. W. Bond]

This queer animal, the Kusimanse, is another of Australia's topsy-turvy creatures.

“palm” pointing skywards and claws backwards. The Tasmanian type has long hair that almost hides its spines and its nose is shorter. Echidnas vary from fifteen to twenty inches in length. They are nocturnal feeders, and have no teeth.

The Warrigal or wild dog, known as the Dingo, is the only Australian animal not a marsupial or monotreme. The dingo is a large dog with a long light-tan coat. Its ears are upstanding and it carries its head high as though eternally on the alert. There is a wolf-like look in its face, and with its bushy tail and long, soft, furry coat it presents a handsome appearance. The sheep farmers, however, fail entirely to appreciate its good points, as the dingo causes considerable havoc among the flocks. There-



THE NATIVE CAT.

[E.N.A.]

This Australian Native Cat—one of the dasyure family—has a striking spotted coat and bushy tail. It lurks among the trees, emerging at night to forage for food. It feeds on eggs, young birds and small animals.

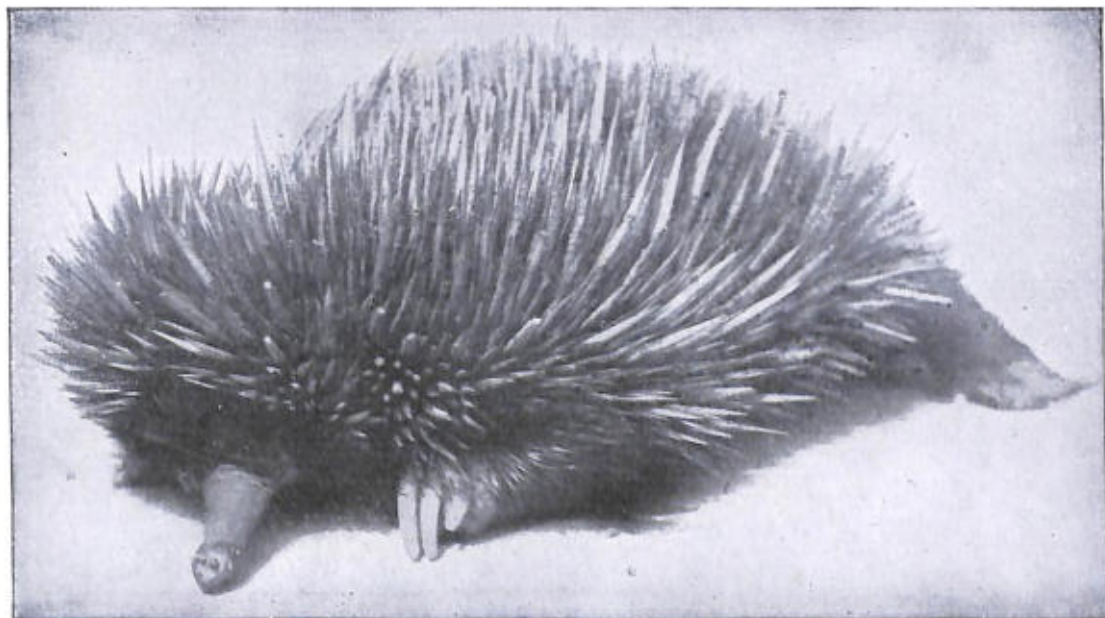
AUSTRALASIA'S TOPSY-TURVY CREATURES



NEST OF PLATYPUS.

[Mondiale

This remarkable photograph shows the grub-like babies of the Platypus family in their underground nest.



THE HAIRY ECHIDNA.

[W. S. Beerridge

This prickly customer, the Hairy Echidna, has no teeth. Sharp spines provide it with means of defence.

AUSTRALASIA'S TOPSY-TURVY CREATURES



Photo : Francis Birtles

AN EXPERT HUNTER.

[Mondiale

This little aborigine, photographed with his "bag" of two small kangaroos, has his home in Central Australia. He carries his spear and "throwing stick," a native device in the use of which he is an expert.

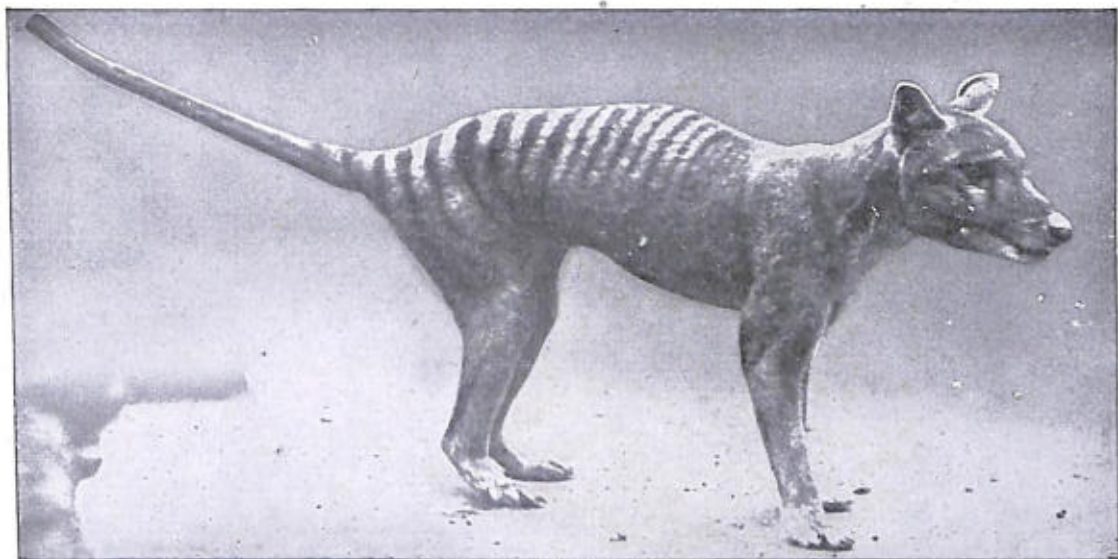


ANIMALS AT PLAY.

[Central News

It is very amusing to watch the antics of animals at play. Here is the Australian Tree Kangaroo having his pulse felt by his friend the Silvery Gibbon—one of the most comical members of the Ape family.

AUSTRALASIA'S TOPSY-TURVY CREATURES



THE TASMANIAN WOLF.

[W. S. Berridge]

The Tasmanian Wolf or Thylacine has been almost exterminated because of the havoc it works among sheep. Lurking among clefts of rocks, this wolf-like mammal hunts by night and is very voracious.

fore the farmers wage continual war on this destructive beast, and give it short shrift when it comes within range of their guns and traps.

Experts have often endeavoured to prove whether this, the only non-marsupial animal in the Australian continent, has always lived there, or whether it was, in the long ago, introduced by man. The matter is not yet satisfactorily settled, but the remains of the dingo have been found mingled with those of the kangaroo's ancestors and with those of extinct animals.

The dingo can be trained and may become

a reliable pet. It also interbreeds with domestic dogs. It is not found in Tasmania, the Thylacine being its counterpart in the island.

Both fruit-eating and insect-eating Bats exist in Australasia, the Flying-foxes, who are fruit eaters, being the largest. These bats hang suspended from the trees by day looking like crumpled-up masses of leaves. Their nocturnal forays among the orchards cause much damage. Their habits and description belong, however, to our chapter "All About Bats."

Seals abound off the coasts and both the



THE DINGO.

[F. W. Bond]

Nothing escapes the raging blood-hunger of the Dingo—the wild dog of Australia—which causes great havoc among flocks. It is quite a handsome beast, somewhat smaller and more dog-like than the common wolf.



A WOMBAT WITH HER BABY.

[E.N.A.]

The Wombat, a creature peculiar to Australia and Tasmania, is somewhat bear-like in appearance, with a strikingly heavy, bulky body. In the picture a mother is seen with her youngster in the Australian bush.

Sperm Whale and the "Right" Whale disport in the waters that surround the continent. The Dugong is also prevalent round the northern shores. This sea animal, often fifteen feet in length, has a body shaped like an extra thick cigar. The snout is blunt and the lips full. The natives love its flesh and the oil is a fine substitute for cod-liver oil. The young mothers are very affectionate and should a young dugong be captured its mother literally comes and gives herself up to the captors. The salted flesh is said to have the taste of bacon.

Turning to the bird life of the Antipodes we first deal with the Australian counterparts of the ostrich. These are the Emu and his near relative, the Cassowary.

THE emu in some ways resembles the ostrich of Africa and the rhea of South America. It is, however, of more slender build than an ostrich and has a shorter neck, covered with feathers, and thus appearing fatter than that of the ostrich. Its body is covered with dull-coloured plumage, and there is no large decorative plume in the male's tail!



THE TASMANIAN DEVIL.

[E.N.A.]

Tasmanian Devil is a very suitable name for this small but powerful and very destructive animal. As it has been placed under Government ban, however, it is possible that it may soon be completely exterminated.

AUSTRALASIA'S TOPSY-TURVY CREATURES

Father Emu is a faithful bird and remains loyal to his spouse. He is smaller than she, and while she, by manipulation of a curious formation in her windpipe, can utter a drum-like boom, he can only grunt when angry or alarmed. Mother Emu lays her eggs, from half a dozen to thirteen, in a hastily scooped out hollow in the ground, and her husband there-



THE KANGAROO. [Central News

Ready for the match! This Kangaroo is in boxing attitude, poised on hind legs and tail as on a tripod. It is almost as expert as a man at this sport.



[W. S. Berridge

THE FRILLED LIZARD.

The collar-like frill round its neck stands out in a threatening manner when the Frilled Lizard is at bay, but folds neatly to the body when undisturbed.

poun sits calmly upon them for seven or eight weeks, a patient example of good husbandry and mutual control. Then beautiful striped chicks appear, with spotted legs. Their beauty soon fades, however, as they grow up.

The emu is becoming scarce in Australia and is now seen in the more lonely parts of the interior. When attacked the bird can, like the ostrich, administer a dangerous kick with its thick-toed foot. It can also quickly detect fear in any one who approaches it, and take advantage of this temerity.

The spike of the Cassowary.

The Cassowary is found in the north of the continent, and also in New Guinea and other islands not far from Australia. It is rare, however, in the continent itself. Unlike its cousin the emu, the cassowary has a brilliantly coloured head and neck, with a horny helmet-like arrangement on its head. Coloured wattles dangle at the side of the coloured skin of the neck.

The legs are long and powerful. The spike on the foot is a dangerous weapon, and the wound it can inflict is quite as severe as that made by a kangaroo's middle claw. As cassowaries are very quarrelsome, those intending to trap or capture them must take every precaution against swift and unrelenting attack.

AUSTRALASIA'S TOPSY-TURVY CREATURES



[W. S. Berridge]
THE KEA PARROT.

Short shrift is given to the Kea in his native New Zealand, where he is a ruthless destroyer of sheep.

Australia is renowned for that freak of water-birds, the Black Swan, examples of which are to be seen in some British municipal parks. There is also a bird that builds itself a bower, turkeys that make mounds, and a bird with a gorgeous tail shaped in the form of a lyre.

The Bower Bird is brilliantly plumed, and has the peculiar yet interesting habit of building for itself a bower or covered avenue of twigs and leaves, which it may use as a playground or a salon for courtship display. One species even goes so far as to lay down a "pavement" of bits of bone, shell and stone. Some of these bowers are over a yard in length.

A "nest" made of rubbish.

The Megapode or Brush-turkey is remarkable for the manner in which it arranges for the hatching out of its eggs. The birds, sometimes working in parties, collect rubbish and vegetable matter from round about and stack it up until a large heap or mound is built. Some of these mounds are as high as a man.

The mother birds then dig holes in the mound and in each hole lay one egg. The young brush-turkeys eventually emerge, hatched by the warmth of the mound, as fully-fledged birds. Strange to say, they are able to fly almost as soon as they see daylight.

The Lyre Bird is noted for the magnificent tail of the male. At the approach of the breeding season the cock bird makes a mound for himself and uses it as his stage. Up he mounts and begins to show off his tail to his wife, spreading it and waving it, while he scratches the ground and pecks at it. The birds go about in pairs, and build a nest with a domed roof, and only one small hole for entrance. The nest is beautifully made and carefully lined with a large leaf. No wonder that the chick—for only one egg is laid—stays a long time in such a nest before it ventures out into the world. Lyre birds have a pleasant song. They are also good song-mimics and can repeat the calls of other birds quite creditably.

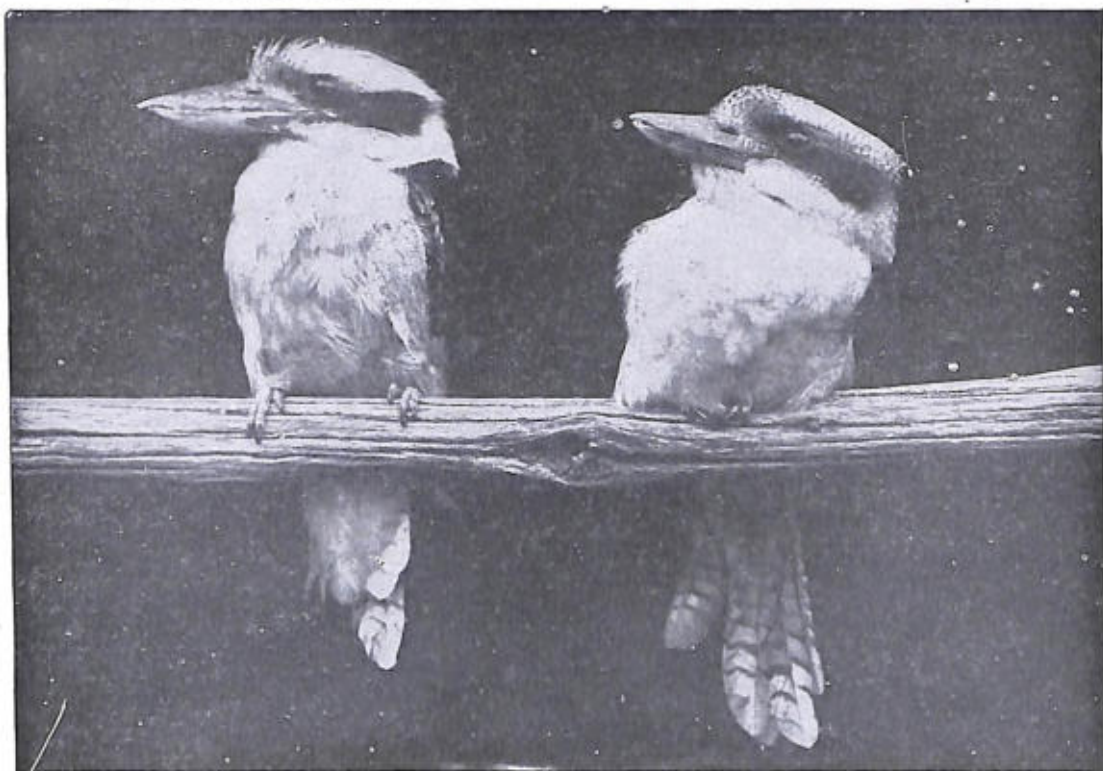
Lories love honey.

Some sixty types of birds of the Parrot family are to be found in Australasia, though some of the better known kinds are becoming rare, and are in danger of total extinction owing to the depredations of wild animals, natives and in some cases the farmers themselves. The Brush-tongued parrots, belonging to the species known as Lories, are to be found in Australia. On their tongues is a brush-like tip, used by the birds in licking up honey, of which they are inordinately fond. These birds



[F. W. Bond]
THE TAWNY FROGMOUTH.

Here is a queer, night-flying bird called the Tawny Frogmouth. Insects form the chief item of its diet.



THE KOOKABURRA.

[Australia House

The Kookaburra or Laughing Jackass derives its name from its curious, discordant cry, uttered at such regular times that it is also referred to as the bushman's clock.

are beautifully coloured, and as they are easily tamed they are much sought after as pets.

The Keas of New Zealand, on the contrary, have a bad reputation. They belong to the family of Nestors, and cause damage to flocks. Furnished with long upper beaks, they hunt in packs or flocks, and are liable to fly down on a sheep, and dig through its fleece until they reach the skin. Then they tear through to the intestines, with fatal results to their terrified victim, when they proceed to feast greedily on the fat and flesh. These birds, however, are being slowly exterminated. They are sombre in colouring, and are of no value as pets.

and shows, in captivity, considerable intelligence.

One of the most curious birds to be found anywhere on earth is the Apteryx of New Zealand, more commonly known by its Maori name of Kiwi. About the size of a large domestic fowl, the kiwi is a queer bird, round of body, with reddish or greyish-brown feathers, and strong legs with three toes in front and one behind. Practically wingless, the kiwi has a long, narrow beak, curving gently downwards and strong as a rapier of steel. It is nocturnal of habit, and lives mostly on earth-worms.

The wingless Kiwi who lives on worms.

Another New Zealand parrot is the Kakapo, or Owl parrot. This nocturnal bird has markings round its eyes resembling the circular feather arrangement round the eyes of an owl. By day the kakapo lies in hiding in crannies under tree trunks, for it does not fly. At night the birds gather in flocks and march forward together grazing on the grass and picking up seeds, berries and even small reptiles that lie in their way. The kakapo makes a good pet

Though the bird is capable of swift movement along the ground, it moves stealthily and slowly when feeding, striking its long beak deep into the ground and withdrawing it gently, generally with a worm struggling between its mandibles. The head is then raised, the beak opened, and the worm tossed into the throat.

Kiwis affect a sniffing noise as they forage around, as though smelling out their prey, and sometimes they may be seen resting with the beak on the ground, propping



THE KIWI.

[F. W. Bond

This inquisitive creature is the Kiwi, which has a coat of wiry brown feathers and a very long beak, with nostrils at the tip. About the size of a domestic hen, it lays very large eggs.

up their curious heads. When fighting, they raise one foot up until it touches the chest, and bring it down quickly with considerable force. The hind claw is thus able to tear at the bird's assailant and inflict a dangerous wound.

A large member of the kingfisher family inhabiting Australia rejoices in a quaint selection of names. Locally known as the Kookaburra, on account of its gurgling sound, it is also called the Laughing Jackass, and the Settler's Clock. This bird, larger than a rook and brown and white in colour, has the large head and long beak of the kingfishers, but, unlike them, lives in hot districts where oftentimes water is terribly scarce. Its food is vermin and reptiles, and it is protected by law because of its good work among poisonous snakes. The kookaburra acts as an alarm clock just before sunrise each morning, and shrieks with asinine laughter, whoops and shouts, until it is impossible for humans to stay in their beds. The bird is popular with all, and it realises that man is its friend, so that it really stands in the same relation to the Australian as does our robin to us in the British Isles—a friendly bird who does nothing but good, and whose presence is everywhere regarded as a good omen.

Turning to the reptiles of Australia, we first think of the giant crocodiles of Queensland, sometimes reaching a length of thirty feet. Of lizards there are the monitor, the frilled

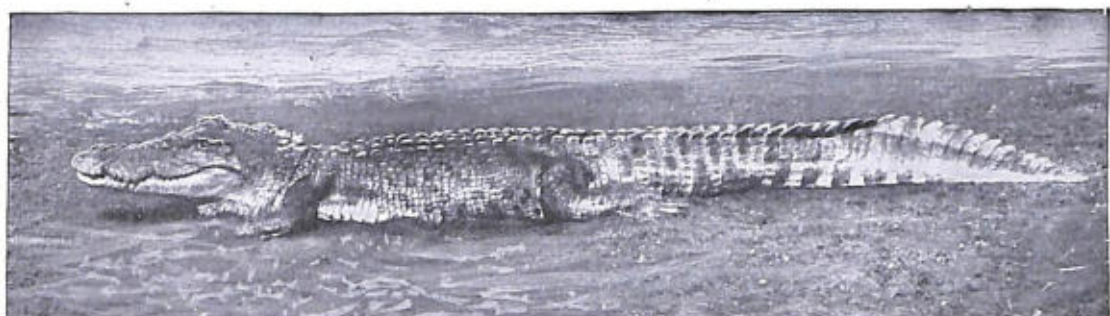


THE PELICAN.

[F. W. Bond

Though there is a heavy, clumsy look about the Australian Pelican, it has wonderful powers of flight, and is expert at the peculiar form known as "soaring."

AUSTRALASIA'S TOPSY-TURVY CREATURES

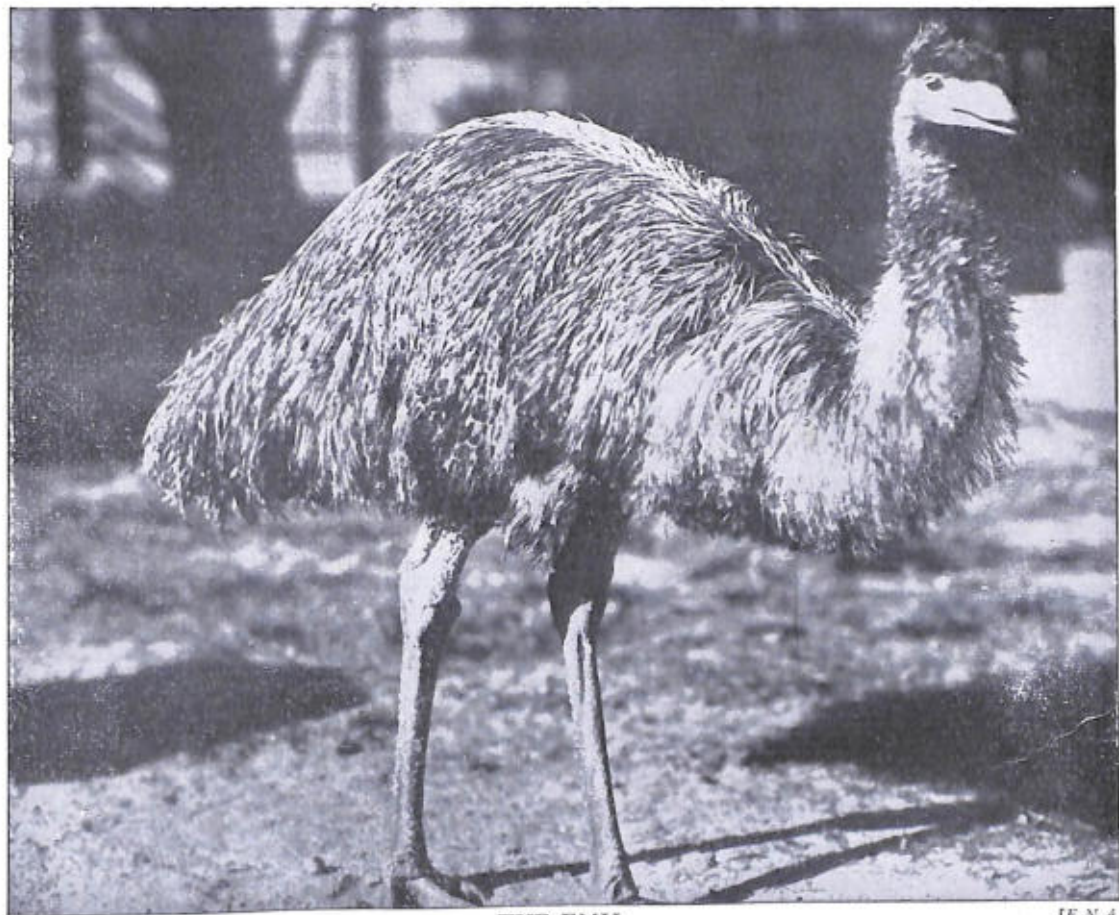


THE AUSTRALIAN CROCODILE.

[Australia House

This truly fearsome monster has its home in the shallow waters off the coasts of Queensland. Sometimes reaching a length of thirty feet, it is as strong and formidable (and quite as repulsive) as any Saurian alive. Besides lizards, the Moloch lizard and many others. Tasmanian black snake, a swift and deadly reptile, passes along the ground as if sailing on the water. The sea snake, with its flattened tail, used as a rudder, is also highly poisonous. The continent harbours exceedingly venomous snakes, such as the death-adder, the black snake and the tiger snake. The

There are tortoises of various kinds, including the long-necked water tortoise, and turtles



THE EMU.

[E.N.A.

This Australian bird is rather like an ostrich in appearance, though slightly smaller and having his neck well-covered with feathers. The male Emu hatches the clutch of large greenish eggs laid by his mate.

AUSTRALASIA'S TOPSY-TURVY CREATURES



A BIG BILL.

The Australian Pelican rejoices in an immense beak with a capacious pouch into which he stows fish.

of great size are found in the coral reefs off the western coast of Australia. Frightful creatures are the horned toads and the ugly

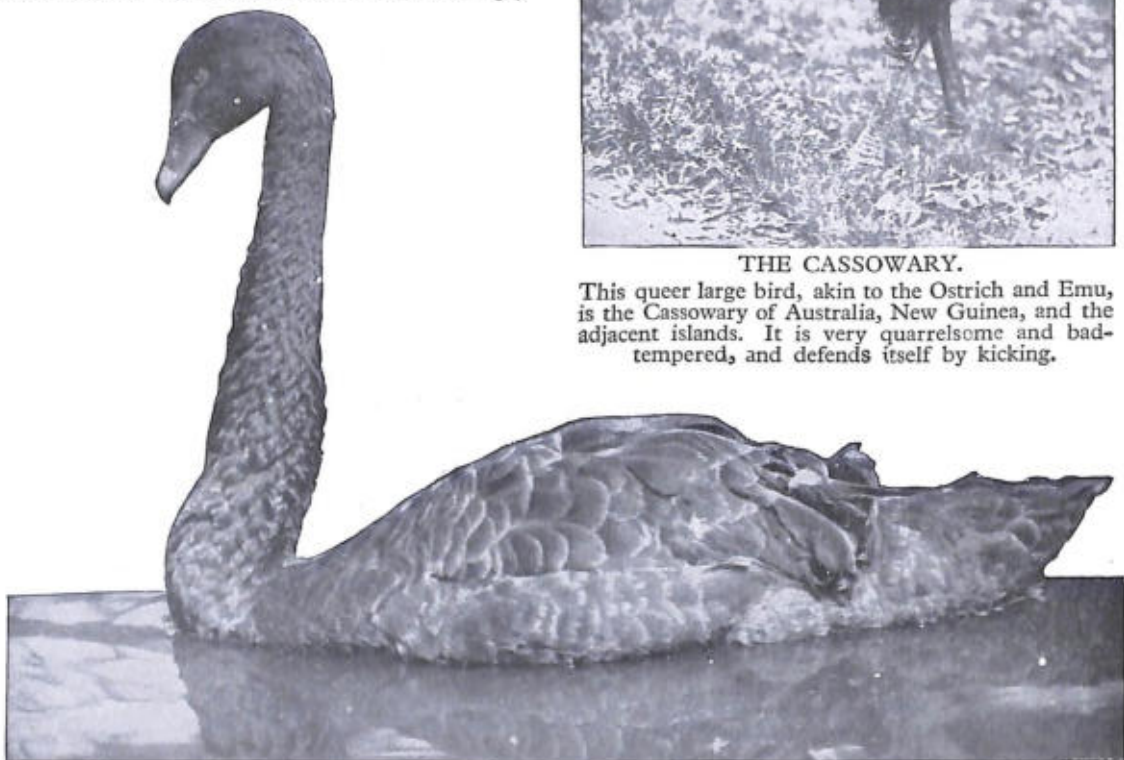
strong-spiked mountain devils of the deserts of Central Australia, the latter being able to tear the flesh of the hand that attempts to pick them up.

There are also stump-tailed lizards, spine-tailed lizards and many other varieties. As the reptiles and batrachians of Australia, however, come under their family headings elsewhere in the book, they are not described here.



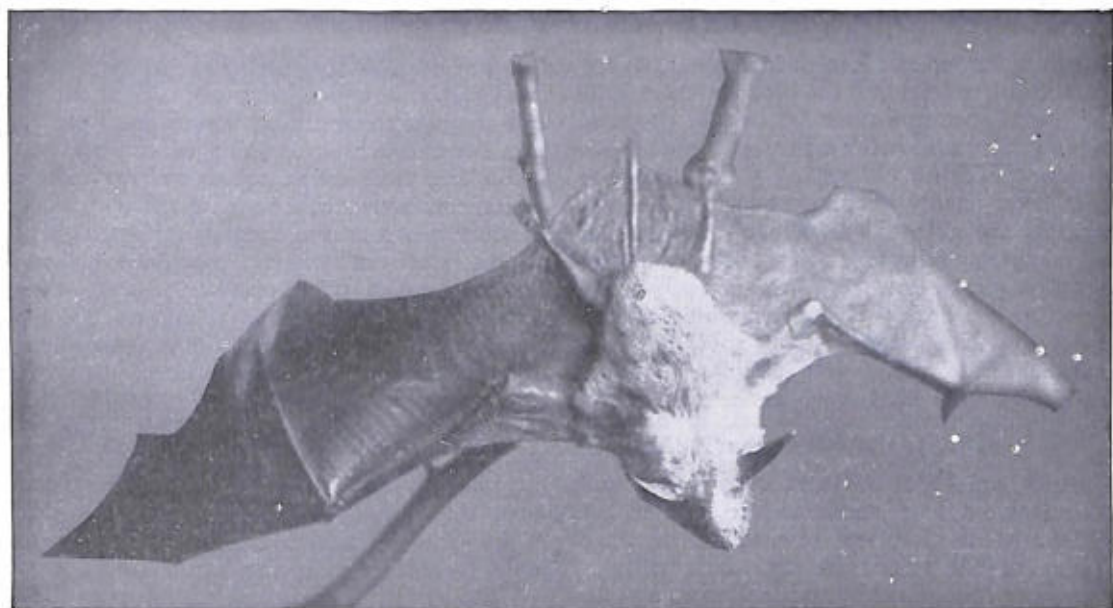
THE CASSOWARY.

This queer large bird, akin to the Ostrich and Emu, is the Cassowary of Australia, New Guinea, and the adjacent islands. It is very quarrelsome and bad-tempered, and defends itself by kicking.



THE BLACK SWAN.

This stately Australian Black Swan has been introduced into Great Britain, and is now a familiar sight on ornamental waters. Its soot-black plumage is set off by white quill-feathers and a coral-red bill.



"Flittermouse" is the pretty country name for the Bat, descriptive not only of his hairy little body, but also of his queer, erratic flight through the air. In the daytime he hangs head downwards among the ivy. [Mondiale]

ALL ABOUT BATS

By W. S. BERRIDGE, F.Z.S.

THERE is an eerie fascination about the Bat. "Witch-bird or fairy-mouse," he flits from out of the ivy in the evening dusk, and darts hither and thither in search of invisible insects. Is he a beast—strangely endowed with power to fly? Or is he a queer four-footed bird with fur instead of feathers? Whatever else he is, he is certainly a paradox! In this chapter we read the absorbing story of his life.

BATS are strange creatures in many ways, but the most remarkable thing about them is their manner of locomotion. Of all mammals they are the only ones that can fly, though it must be stated that certain other animals are able to skim or glide through the air (for short distances, and in a downward direction) by means of flaps of skin attached to the sides of their bodies, and connected to their hind and fore limbs. When these flaps of skin are stretched taut they act like the wings of an aeroplane.

The flight of bats, however, is like the flight of birds; in both cases the wings are flapped up and down and beat the air, offering sufficient resistance to that element to support the creature's weight. Bats are well constructed for flight. The bones of their arms, for instance, and especially the bones that correspond to our fingers, are extremely long. They are connected by membraneous skin that extends to the sides of the body and the hind-

legs, which, in turn, are often connected by a membrane to the tail. The toes of the hind feet, as well as the thumbs, are free, while each of the latter is provided with a hooked claw that serves as an admirable instrument for climbing. When a bat is at rest the wings are neatly folded up and lie along the side of, or are wrapped around, the body; but when the creature is flying those members are opened and stretched out to their fullest extent by means of the supporting bones which act like the ribs of an umbrella.

Most bats are entirely crepuscular or nocturnal in habits, but a few come forth from their hiding places during the daytime. All species found in the British Isles hibernate throughout the winter, but some kinds found elsewhere migrate to warmer countries when the cold weather sets in, and their food supply disappears. Bats feed chiefly upon insects, but some favour a diet of fruit; a few are blood-suckers, and one kind includes birds and

ALL ABOUT BATS

lizards in its menu. Except in the case of the fruit-eating species and the blood-suckers, bats catch and consume their food while they are flying; they also drink when on the wing.

In spite of the old saying "as blind as a bat," it is hardly necessary to state that the animals are able to see, though the eyes of some are very minute. It is not on their power of vision alone, however, that they rely when flying in the dark; it appears that they are endowed with some other special sense, unknown to man, that enables them to avoid obstacles that may lie in their path.

• What is the Bat's secret?

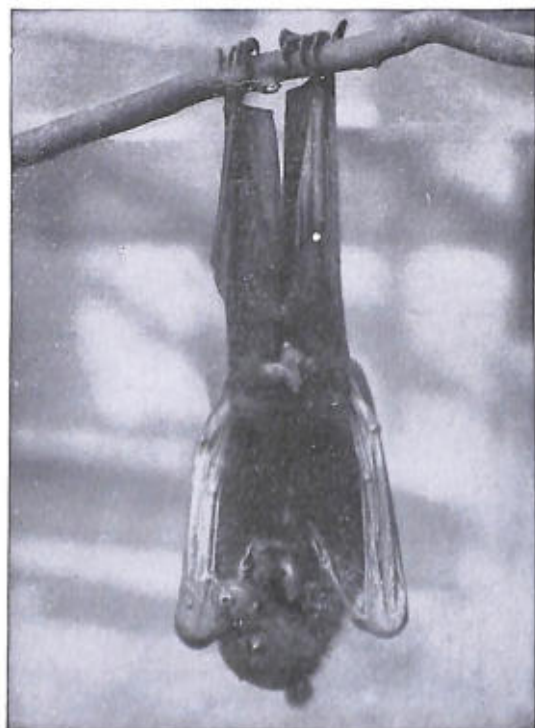
Many experiments (some of a very cruel nature) have been made in the past in an endeavour to find out the secret of their ability to flit about in the dark without damaging themselves by suddenly coming into contact with some object. Bats have been caught, blinded, and then set free in a room from the ceiling of which were suspended a number of long threads. Although deprived of the use of their eyes, the little animals flew about just as well as if they had not been blinded; they dodged the threads and never

knocked up against them. To test whether the body was endowed with any special sensitiveness to guide them during their flight, their fur was covered with a coating of varnish, but again they flew about just as well as before. Their ears were then stopped up with wax, in an endeavour to discover whether those organs were of special assistance to the creatures when flying, but once more they were in no way incommoded, and dodged the threads as easily as ever. Musk, camphor, and other strong-smelling substances were then applied to their noses to see if they could evade the obstacles when deprived of their power to smell; but all these experiments failed to find out whether bats really do possess a special sense that guides them when flitting about in the air after dusk, and, if so, what the sense really is, and whence it arises.

Many curious beliefs are held in regard to these animals. The Chinese say that the creatures fly head downwards because of the great weight of their brains. They call them by the names of "heavenly rat," "fairy rat," or "night-swallow," and state that they live to a great age because of their habit of swallowing their own breath. They are regarded as a symbol of happiness, and if a Chinese wishes to pay a guest a special compliment, he will offer him some tea in a cup upon the bottom of which are depicted a number of bats. These are meant to be emblems of health, wealth, goodness, long life, and a peaceful death. In this delicate symbolical way the Chinaman is wishing his friend "The best of luck."

As already mentioned, many bats hibernate through the winter. During that period their breathing almost ceases, a fact that has been proved by placing some of the animals for several hours on end within a box containing carbonic-acid gas. Although under normal conditions one breath of the gas would be sufficient to kill the bats, when hibernating they are able to pass through the ordeal without any ill effects.

There are five hundred or more different kinds of bats found throughout the world, the largest of which are the Fruit-bats. The latter, which are to be met with only in the warm regions of the Old World, are often called Flying-foxes, because of their sharp-pointed muzzle and the general fox-like appearance of the head. Their range extends from Egypt to Australia, and thence to the Pacific. Their ears are unlike those of other bats, for the



THE KALONG. [W. S. Berridge]

Folding his slender wings about him, the Malay Bat, or Kalong, suspends himself from a branch.



THE LONG-TAILED BAT. [W. S. Berridge]

Before his winter sleep this Long-tailed Bat eats heartily and stores up fat around his tail for future use.

margins in front join at the base and form a circular opening. Moreover, most of the fruit-bats have a small claw upon each forefinger, in addition to that upon either thumb; while some possess a short tail, and others have none at all.

The most familiar of the fruit-bats is the Indian species. Its body is about eleven inches long, and its wings, when open, measure from tip to tip as much as four feet. It has very pointed ears, and no tail; the colour of its fur is mainly dark-brown. Indian fruit-bats associate in large numbers; it is by no means an unusual sight to see many hundreds of them hanging from the branches of one tree. Sometimes so many of them suspend themselves from a bough that it breaks beneath their combined weight. Although expert climbers, when on the ground they are almost helpless. They move along with the greatest difficulty; using their hooked thumbs, and pushing themselves forward with their hind feet. Their flight is slow but strong. They can fly for many hours on end, and often cover long distances at a stretch. They have been

seen two hundred miles out at sea. At dusk the bats go forth to seek their food; they leave the trees where they have been roosting in twos or threes, and form up in single file. At dawn they return once more to their home, but between the hours of nine and eleven they frequently take a short flight to dry their wings after the morning mists. Before settling down in the trees a great deal of squabbling and hustling takes place in order to obtain what are considered to be the most comfortable sleeping quarters, but eventually their bickering ceases and slumber reigns. The flesh of these bats is eaten by the low-caste Hindus, who capture the creatures when they are asleep in the trees, knocking them down with sticks.

Bats that live in the Pyramids.

Australia is the home of the Grey-headed fruit-bat, a somewhat smaller species than the foregoing with a wing-span of about three feet. Its depredations in fruit-growing districts are so great that shooting parties are periodically arranged for the special purpose of waging war against the animals. Some idea of the damage these bats commit can be judged by stating that orchards have been completely stripped of fruit by these creatures in a single night.

The largest of all bats is the Kalong or Malay fruit-bat; its outstretched wings measure five feet from tip to tip, and its body is fourteen inches long. As is the case with the Indian fruit-bat, the natives eat the animals' flesh which is stated to taste like that of a hare.



THE FLYING FOX. [F. W. Bond]

The Fruit Bats of the Old World, known as Flying Foxes, are not unlike Reynard the Fox.

ALL ABOUT BATS

As, however, the skin and fur of the creatures possess a very strong foxy smell it is necessary to make use of flavouring spices when preparing them for table.

The fruit-bats we have so far mentioned have no tail, but there are others in which that member is present. Some of these dwell in trees, others in caves or amid the ruins of buildings, while the Egyptian fruit-bat is of special interest as it inhabits the dark chambers of the Pyramids.

Very curious are the Harpy or Tube-nosed fruit-bats, in which the nostrils take the form of small, tubular growths that diverge outwards and project beyond the end of the snout. They have a very short head and a rounded muzzle.

Among the bats known as Horse-shoe bats, so called because of the leaf-like growths upon the nose, one part of which is shaped like a horse-shoe, two species, namely the Greater and the Lesser horse-shoe bat, are found in the British Isles. Both are of small size, the greater species having a wing-span of about thirteen inches, and the lesser species but nine inches. Their eyes are so small that they look like minute beads set in the fur.

The Long-eared bat is another kind found in the British Isles; it is sometimes seen in London. As implied by its name its ears are of considerable length. They can be folded, when the sharp-pointed inner part, or tragus, as it is called, is alone visible. Mainly nocturnal in habits, though occasionally seen abroad in daylight, this bat shelters in church towers, outhouses, or under the roofs of buildings. Sometimes large numbers of the creatures are found huddled together, asleep in their cosy retreat. Long-eared bats feed chiefly upon moths; in captivity they will often become so tame as to take food from a person's hand.

The rarest of British bats is the Barbastelle, a little creature that measures two inches in length, and has a wing-spread of ten inches.

It selects all kinds of situations for its habitation; caverns, holes in trees or in old walls, beneath the roofs of buildings, and behind shutters, all are equally to its liking. An instance has even been recorded of an individual being found down a mine at a depth of seventy feet below the surface. The barbastelle is usually solitary, both during its flight and when hibernating.

The commonest of our bats is the Pipistrelle, or "Flittermouse," as it is often called. It is

the smallest British species, and measures only a little more than one and a half inches in length, with a wing-span of eight and a half inches. The animal is to be met with in both town and country; it hides in belfries, buildings, and behind gutter pipes. Its food consists chiefly of gnats, but, should the opportunity arise, it is also partial to a diet of raw meat. It has been found clinging to, and feeding upon, an uncooked joint that was hanging up in a larder. The pipistrelle does not begin its period of hibernation as early as other British bats; moreover, it frequently comes forth from its hiding-place and commences to lead an active life again as early as the middle of March. When flying, it progresses very rapidly, and turns aside from its direct course with sudden twists. It is able to



[W. S. Berridge]

THE SEROTINE.

This British Bat does not make his appearance until quite late in the evening.

run along the ground with considerable speed, and can rise into the air therefrom by taking a sudden upward leap, and then spreading out its wings. In this respect it is unlike the majority of bats, which have to climb up to an elevated position before they can launch themselves into the air and take to the wing.

The Noctule or Great bat (another species found in the British Isles) may be recognised by the straight course it takes when flying, as well as by the speed and height of its flight. Its body is about three inches in length, and its outspread wings measure fourteen inches across. It possesses a broad head with widely

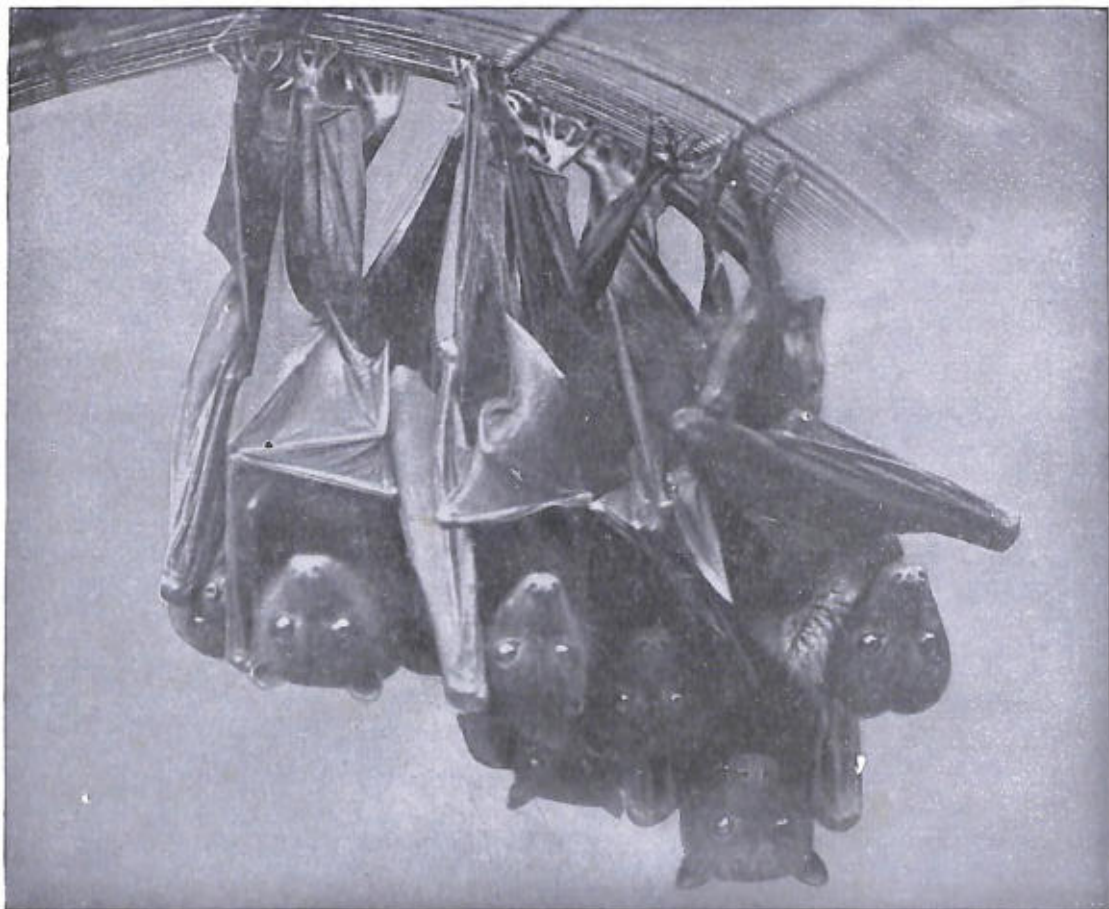
ALL ABOUT BATS



THE NOCTULE.

[W. S. Berridge]

The Noctule, known also as the Great Bat, is another native of the British Isles. Though no more than three inches long it has a wing span of fourteen inches. Like most of its tribe it is nocturnal in habit.



FLYING FOXES.

[W. S. Berridge]

Here is a picture that brings out to the full the eerie character of these Indian fruit bats. Wide-eyed and huddled close together, they hang head downwards under an arch—are they asleep or silently watching us?

ALL ABOUT BATS

separated ears ; while its fur is of a reddish-brown colour. In England this bat is to be found as far north as Yorkshire.

Yet another British bat is the Serotine bat. Its Latin name is *Vesperugo serotinus*, the latter word signifying "that happens late," and referring to the creature's habit of not commencing to fly until late in the evening, and continuing to do so until dawn. It is also known as the Dusky bat, and is somewhat rare and very local in the area of its distribution.

A Bat that looks like a butterfly.

Most bats are of a sombre hue, but the Painted bat is an exception to the rule. Its fur is of an orange tint, and the membranes of the wings are decorated with orange and black ; when the creature flies it looks almost like a butterfly. This bat is found in the forest regions of India, Ceylon, Sumatra and Java ; the Cingalese call it "*Kehelvoulha*" (plantain-bat) because of its habit of sleeping within the shelter of folded plantain leaves.

South and Central America is the home of

the remarkable Pig bat, so called because of the truncated nature of its rather long snout. The most curious thing about it, however, is that the soles of its hind feet, and also its thumbs, are provided with suckorial discs that enable the creature to climb up a smooth surface, just as a fly walks up the perpendicular face of a sheet of glass. Though many creatures exhibit a modification of this principle it is seldom developed to such a pitch as this.

The Long-tailed bat, found in North-East Africa, India, and Burma, is one of a group known as Free-tailed bats, most of which have the tail projecting beyond the membrane connecting the hind legs. During the cold season this animal retires to some shelter where it remains hidden until the return of the warm weather. Before settling down to its long rest it eats heartily and thus accumulates an enormous amount of fat around its tail and thighs ; this is absorbed into the animal's system during the time it is hibernating.

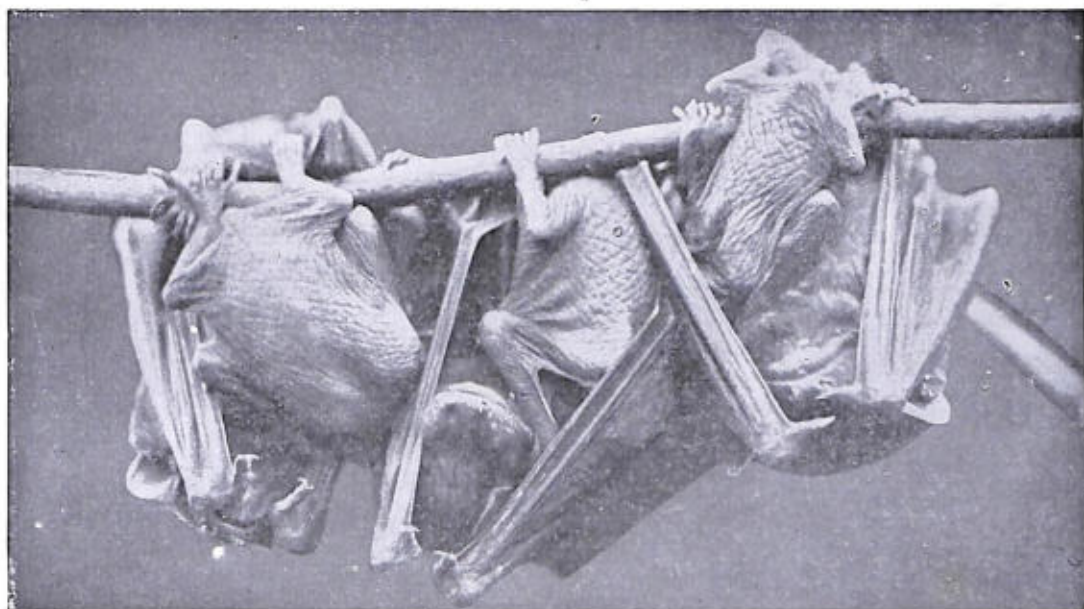
The Naked, or Collared bat, found in the



THE LONG-EARED BAT.

[Mondiale

Long ears are the distinctive feature of this Bat, which is a native of Great Britain. Strange to say, its ears can be folded almost out of sight, with only the sharp inner part apparent. Moths are its principal food.



BATS ASLEEP.

[Mondiale]

Above is a curious picture of Bats asleep, in somewhat inelegant postures. Their wings are closely folded round their bodies, and their grip on the branch is so firm that even during hibernation it is not relaxed.

dense forests of the Malay regions, has earned the reputation of being the ugliest of all bats. Except for a slight fringe or collar of hair around the neck, its thick, black skin is almost naked. This absence of fur makes it impossible for the young ones to cling to the bodies of their parents in the normal manner, so Nature has endowed the latter with a deep pouch, situated below the arms, in which the babies are carried in the days of their infancy.

To the ordinary person none of the bats is of more evil repute than the Vampire, and one invariably associates it with the gruesome habit of sucking blood. As a matter of fact, however, there are quite a number of different kinds of vampires, and very few indulge in this objectionable practice. Many vampires feed entirely upon insects, others upon fruit; all are found in Central and Southern America only.

Of the harmless or fruit-eating species, the Great vampire has a wing-spread of about twenty-eight inches. "Nothing in animal physiognomy," writes Mr. Bates, "can be more hideous than the countenance of this creature when viewed from the front; the large, leathery ears standing out from the top of the head, the erect spear-shaped appendage on the tip of the nose, the grin, and the glistening black eye, all combine to make up a figure that reminds one of some imp of fable.

The vampire, however, is the most harmless of all bats, and its inoffensive character is well known to residents on the banks of the Amazon."

With the Long-tongued vampires we have a group that are characterised by the great length and narrowness of their muzzle, and also by the unusual length of the tongue which can be protruded for a considerable distance beyond the lips. Upon the upper surface of the tongue the tip is provided with numerous small, thread-like growths which enable the animals to obtain insects hiding in the recesses of flowers, as well as fruit-pulp from the interior of hard-skinned fruits. Formerly it was believed that this curious tongue was employed by the bat for the purpose of sucking blood.

Two kinds of Vampires.

There are only two species of Blood-sucking vampires. The common kind, ranging from Central America to Brazil, is quite small and measures only three inches in length, while the second species, found only in Brazil, and comparatively rare, is not so large.

The more usual victims of these bats are horses, cattle and fowls; the latter quickly die from loss of blood as the result of a bite. Human beings, however, when sleeping, are sometimes the victims of the bats' unpleasant attentions; the parts generally selected for the

ALL ABOUT BATS



[Ray Palmer

THE NOCTULE.

Here is the Noctule as he appears by day — head downwards and fast asleep.

withdrawal of blood are the big toes or the nose of the slumberers.

It seems strange that the victims of the blood-sucking vampires should allow the tiny creatures to dine upon them without protest, for it would be quite easy to drive off the unwelcome guests. The bats, however, proceed to make their meal in such a manner that their victims are unconscious of the animal's presence. When about to feed, the vampires first of all shave off a thin and horizontal layer of their victims' skin with the aid of their razor-like incisor teeth. Thus the capillary blood-vessels alone are pierced, and no pain is caused; the bats then suck up the blood that gently oozes from the wound. When the creatures have finished their meal they seal up with their saliva the puncture they have made, so that the blood ceases to flow. Very often, however, some unconscious movement of a victim causes a bat to fly away

before it has had its fill and has acted in this manner, in which case the blood will continue to ooze from the wound for a long time after. In spite of the superstitious terror they inspire, these bats are not really dangerous to human beings.



A NIGHTMARE BAT.

[W. S. Berridge

The Vampire is the demon of the Bat world. Quite apart from his practice of sucking the blood of his victims, he has a very hideous face. A sleeper awaking suddenly might easily mistake him for a nightmare.

THE BIG CATS

by C. BERNARD RUTLEY



Photo: Paul Hoefer

[Mondiaie

The strength of a lion is almost incredible, as every jungle animal knows. It has been seen to lift a heavy antelope and walk off with it, and with one paw to turn over a five-hundred-pound zebra.

MONARCHS of the wild are the Big Cats. Strong, lissome and ferocious, they symbolise for us the hidden forces of untamed nature, the deadly terror by night, the pitiless cruelty of the jungle. "Nature red of tooth and claw" is an apt description of the Big Cats. Yet as we trace them in these pages—hearken to the blood-curdling roar of the Lion in the African desert; watch the Tiger slinking through the grassy jungle, or the Leopard lying in wait for his prey along the branch of a tree—we are impressed by their beauty and grace almost as much as by their sheer bulk and magnitude.

THE Felidae or Cats are widely distributed throughout the world, but the larger members of the family are found only in the New World, and in Africa, Asia, and India. They belong to the carnivora, or flesh-eating mammals, and are solitary and unsociable in disposition when compared with many other animals. In habit they are more or less arboreal, and though the Lion and Tiger are poor climbers, other members of the family display an agility amongst the branches little inferior to that of monkeys.

It is doubtful if the Lion deserves its title of King of Beasts, but it is certainly the most distinctive of the cats. Africa is its chief home, but it is also found in the province of Kathiawar in North-West India, as well as in Mesopotamia and in other parts of South-Western Asia, and it thrives just as well in the hot, open plains of Africa as in the forests of Persia, or the reed-covered swamps and jungles of the Euphrates.

The usual colour of the adult lion is tawny,

though animals are sometimes found with reddish-brown coats, or even with coats of silvery-grey. In the male the mane is a distinctive feature not shared by the other great cats. This mane does not begin to grow until the cub has reached its fourth year, and then it continues to increase for three more years. It consists of long hair ranging in colour from tawny to a brownish-black, and it grows all round the head, neck and chin, reaching as far back as the shoulders. It is this mane that gives to the lion its majestic appearance. The lioness has no mane. The male lion also has a tuft of hair at the end of its tail, and there is usually a fringe of long hair down the middle of the underside of the body. The lion in captivity often carries a larger mane than his wild brothers. The reason for this is that in the wilds the hair has to survive the raking and tearing of the trees and various obstacles through which the animal passes in his hunt for food.

With the exception of the Tiger, no other cat

THE BIG CATS



[South African Rhys.]

THE BRAVE LIONESS.

We can distinguish the lion from the lioness by the absence of mane in the latter. The female is almost as strong as the lion, however, and her courage is very highly developed.

approaches the lion in size. A full-grown male may have a body seven feet to seven feet six inches in length and a tail thirty-six inches long, while a lioness measures about a foot less.

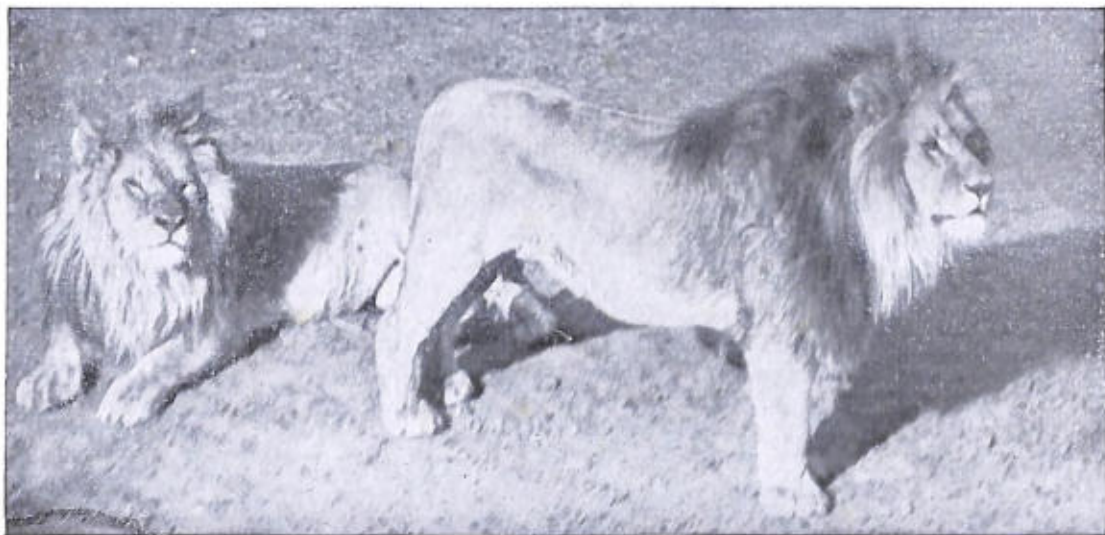
Barring accidents, and they are many, a lion in its wild state may live from thirty to forty years, but in captivity its length of life is considerably shorter.

There is great difference of opinion regarding the character of the lion, and while some

authorities speak of it as a noble but ferocious animal others describe it as being mean and cowardly. Probably the truth lies between the two descriptions. In ordinary circumstances, and in the light of day, a lion, which is not a man-eater, will not attack and will even take the trouble to avoid an encounter with man; but if hungry, or surprised at its kill, wounded, or otherwise provoked, it becomes as bold and aggressive as in other circumstances it will appear timid and retiring. In defence of her young a lioness always displays great courage, and will attack with savage ferocity the unwary hunter who dares to approach her lair.

How the Lion kills.

A lion's philosophy may be described as live and let live, and the same applies to its human neighbours. In some parts of Africa the natives show little fear of the numerous lions which inhabit the country, and so long as men and beasts mind their own business all goes well. But once a lion is molested it becomes dangerous, and in the same way a lion will receive short-shrift once it begins to feed upon the inhabitants or the inhabitants' cattle. In such a case a troop of natives, armed with spears and shields, trace the marauder to its lair, where they surround and kill it. This is not done without injury to the hunters, for a cornered lion will sometimes leap into the midst of its attackers, and, rushing from side to side, strike down man after man with



TWO FOREST KINGS.

[F. W. Bond]

The tawny king of the forest is the largest of the cat tribe, being 9 feet from nose to tip of tail and weighing about 500 pounds. The two regal lions seen above, on the look-out for prey, are very fine examples.

THE BIG CATS



PLAYFUL PETS.

[Shepstone]

Lion cubs are like soft, playful kittens, easy to tame but liable to fits of temper and not to be trusted. When young, dark spots show through their fur.

furious blows from its mighty paws before it finally falls pierced by the spears of its enemies.

Even for the white man armed with a rifle, lion hunting can be a very dangerous pastime. If he gets into difficulties and there is a tree handy into which he can climb he is safe. On horseback the hunter can also usually escape, for the lion cannot overtake a horse, and the use of dogs likewise diminishes the risk; but even so, to follow up a wounded lion is a dangerous task, and a man has to be a good shot to foil the lightning-like leap of an enraged lion. Nor will dogs always distract the animal's attention, for driven to bay, a lion will often single out the hunter as its chief enemy, and rush straight at him regardless of the

dogs snapping at its feet. His motto is "Never say die!"

The cats, as a rule, are silent animals, and in this respect the lion is unlike the rest of the family. As regards the lion's roar there are as many opinions as there are respecting the lion's courage. Livingstone had small respect for the King of Beasts, and described its roar as being indistinguishable from the cry of an ostrich, whilst other travellers have extolled the grandeur of the sound as being unique and magnificent. No doubt environment and conditions account for these different opinions.

The voice of the Lion.

On a dark night, when the desert lies wrapped in silence, the roaring of a troop of lions is awe-inspiring. Sometimes two or more troops of strange lions meet at a drinking-place, and then each troop will greet the others with reverberating roars; at other times a single troop will perform a sort of titanic concert. First the leader will break the silence, and send its deep, rumbling note rolling across the desert; then, as the leader pauses for breath, a second lion will continue the wild chant, to be followed by a third, and a fourth, until the whole troop has joined in a terrific symphony, making the air tremble with waves of deep-toned sound. For some minutes the concert will continue; then the sounds will gradually diminish until silence again enfolds the desert. But only for a short time will the stillness hold. Suddenly the leader will re-awaken the night with its full-mouthed roar, and the whole magnificent chorus will begin all over again.

The roar of a lion is not a sign of danger, nor does it necessarily mean that the animal is hungry. A lion will roar when its hunger has been satisfied, but it will not roar when hunting. Its roar is intended solely for other lions, and is both a greeting and a challenge. A lion roars with its head pointing



REGAL MATES.

[South African Rlys]

The lion and his mate have here been caught in their native haunts by the camera. As jungle animals are by no means docile much patience and many hours of waiting are needed to secure such photographs in the wild.



Photo. : Paul Hoefer

THE LIONS SAY GRACE.

[Mondiale

Having made a kill of Zebra, the lions pause before starting their meal to examine the surrounding country for a sight of possible intruders. They did not notice the camera-man, however, who snapped them when their backs were turned and left them in peace to finish their meal.

towards the earth, a position which adds greatly to the intensity and volume of the sound.

Less grand, but far more to be dreaded than the lion's roar, is the irate grunting with which a lion, disturbed at its repast, will greet the intruder, or the savage snarling which issues from the animal's throat when, with twitching tail, flattened ears, and yellow eyes blazing angrily, it finds itself confronted by danger, and

is undecided whether to attack or to flee. This snarling is the warning signal of the lion, and as plainly as words tells the intruder to go away, and if the warning is disregarded, the next sound the intruder may hear is the cough-like roar with which the lion always heralds its attack.

Authorities disagree as to whether a lion is a monogamous or a polygamous creature, but

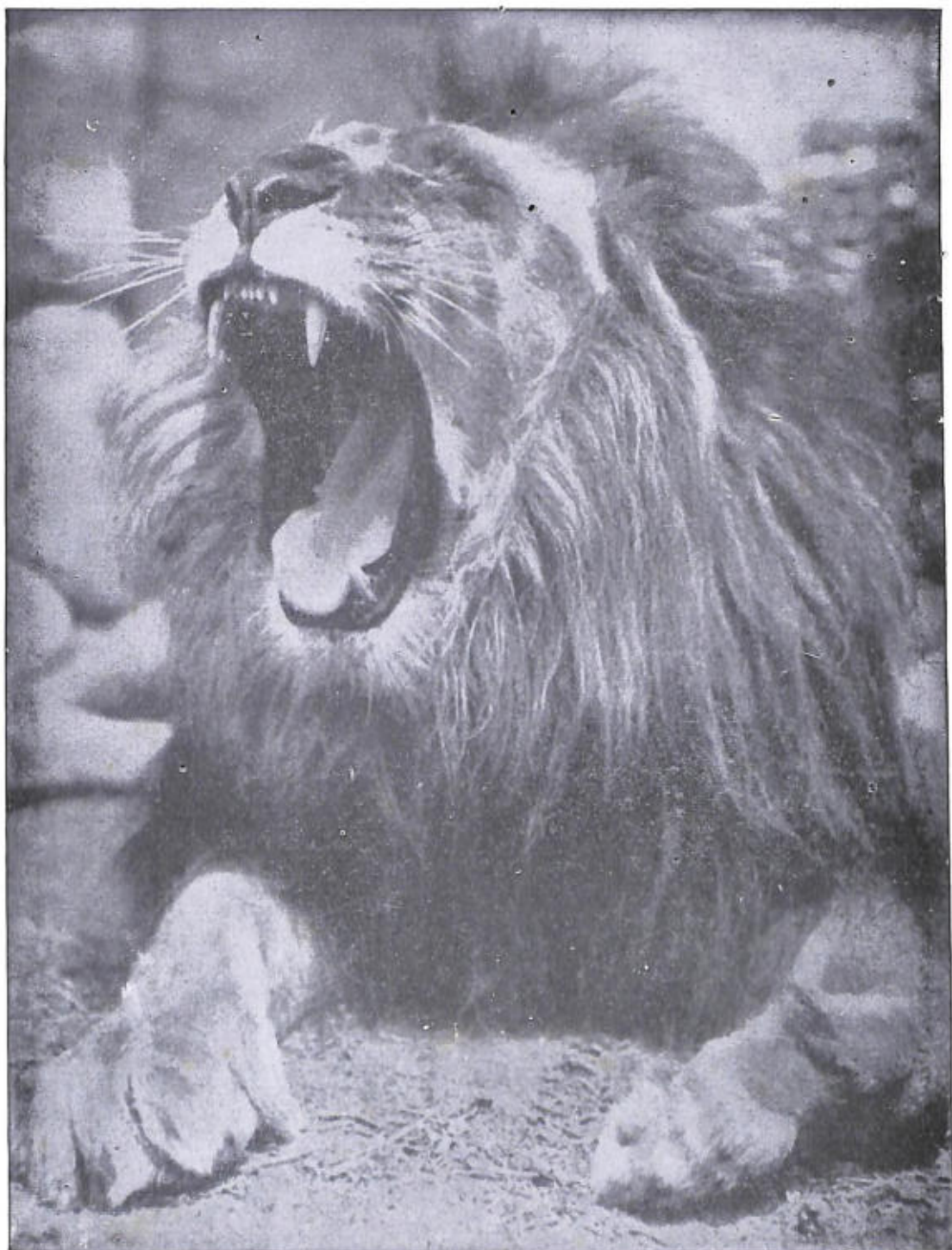


VIGILANCE.

[W. S. Burridge

Leo is having his photograph taken, and is not at all sure that he likes it. Head raised, tail twitching, claws extended, he watches while the camera clicks. One hint of aggression on the part of the strange machine and—active and agile as all the great cats are—he is ready to launch himself upon it and shatter it to fragments.

THE BIG CATS

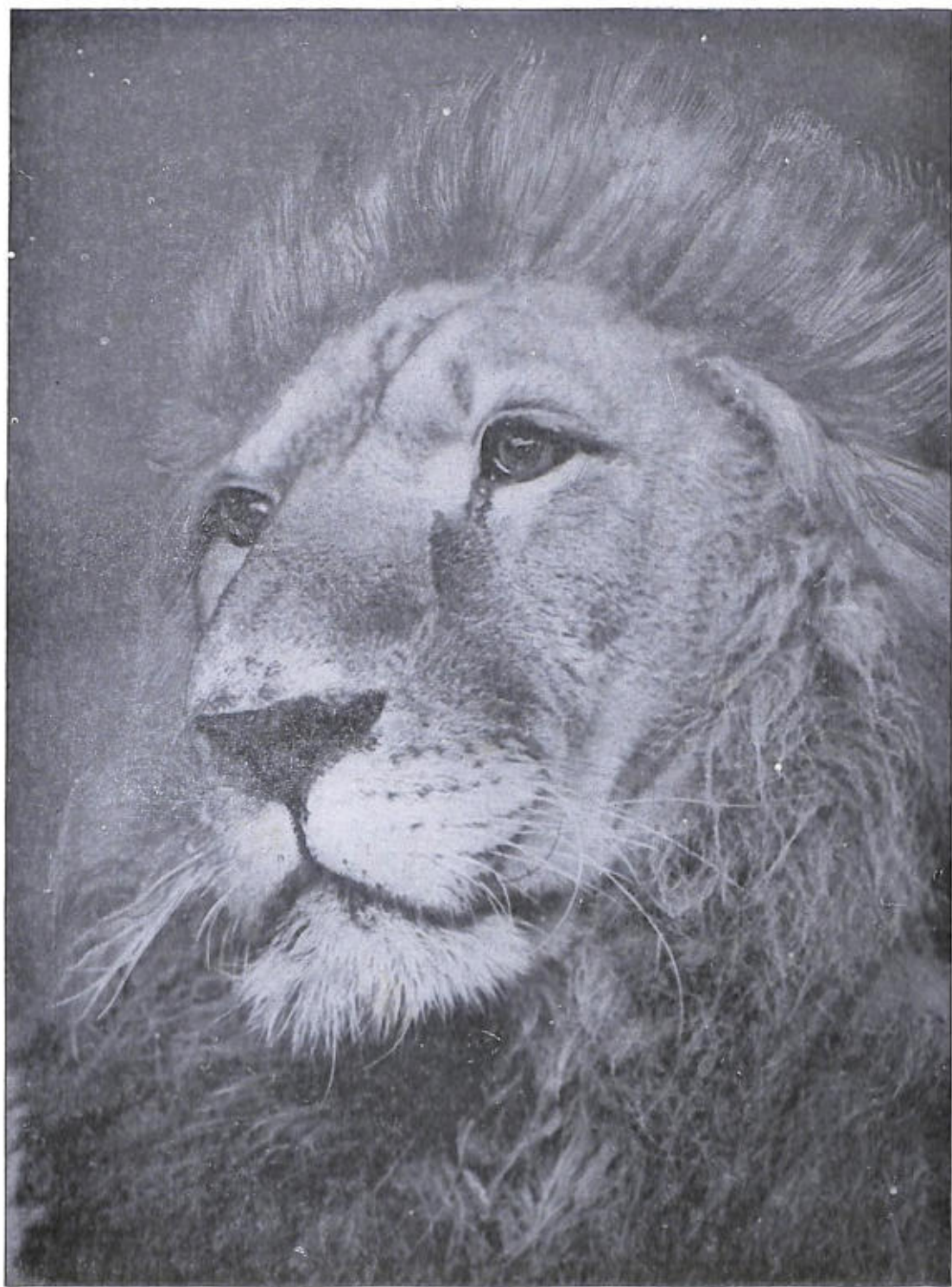


THE JAWS OF THE LION.

[Topical Press

Here is a wonderful display of the lion's dangerous fangs, which are so useful to him at meal-times. We can understand how terrified his prey must feel at his approach, and how little chance there is to escape. Still, with all his ferocity, there is in the lion's massive strength something fine and beautiful.

THE BIG CATS



MONARCH OF THE JUNGLE.

[Photopress

The majestic Lion is an awe-inspiring beast to watch, even in the security of the Zoo. There is a grandeur about his noble face, and a look of deep intelligence in the ever-watchful eyes of this great cat.

THE BIG CATS



THE SALT DESERT CAT.

[F. W. Bond

This lovely, lithe Cat, with its air of alertness, is native to the desert regions of North-West India.

certainly the male lion remains with the lioness long after the cubs are born, and assists in their upbringing. A troop of lions may consist of animals of the same sex, or a lion and lioness and their almost full-grown cubs. On the other hand, a male lion may be seen with three or four adult lionesses and their offspring. A lioness will have three or four cubs at one

birth, and the young remain under the parental care till they reach their fourth year.

A lion hunts as much by stealth as by open attack. Having approached close to its victim, it makes one prodigious spring, and strikes the unfortunate animal to the ground, where it kills it by biting at its throat or at the back of its neck. Sometimes, however, the lion mis-



THE MARGAY CAT.

[F. W. Bond

The Margay, or Tiger Cat, is at home in America. It has a beautifully spotted coat and a handsome tail.

B.W.L.

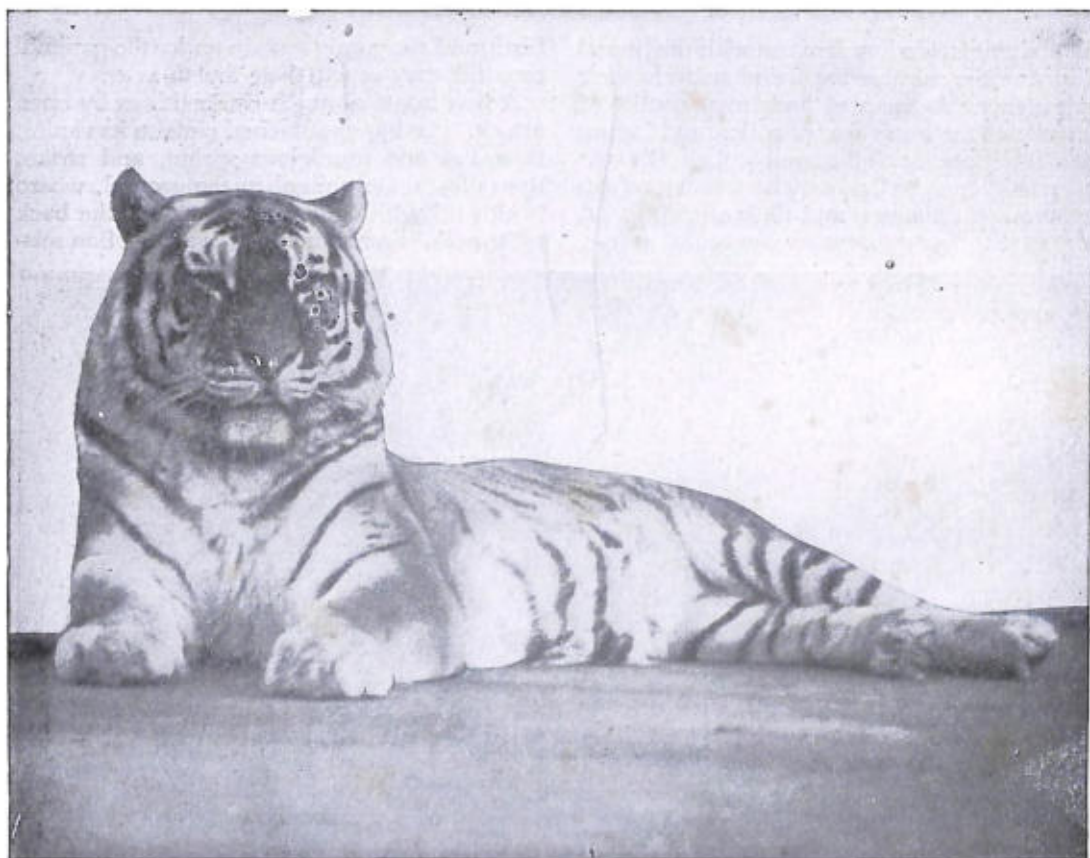
THE BIG CATS



AN ASIAN MOUNTAIN RAIDER.

[F. W. Bond

The Ounce, or Snow Leopard, comes from the mountains of Central Asia, where it lives among the rocks and preys on sheep and goats. Raiding the villages, it not infrequently adds human beings to its diet.



STRENGTH AND BEAUTY.

[W. S. Berridge

Feline strength and beauty as exhibited by the lordly Tiger. What centuries of evolution have gone to produce the graceful ease, the conscious power and pride which distinguish this monarch of the wild creation.



THE LIONS' DEN.

[F. W. Bond]

Not many people care to beard the Lion in his den—but here the camera-man has attempted it, and as a result has secured a fine informal picture of the Lion and his mate at the mouth of their rocky cavern.

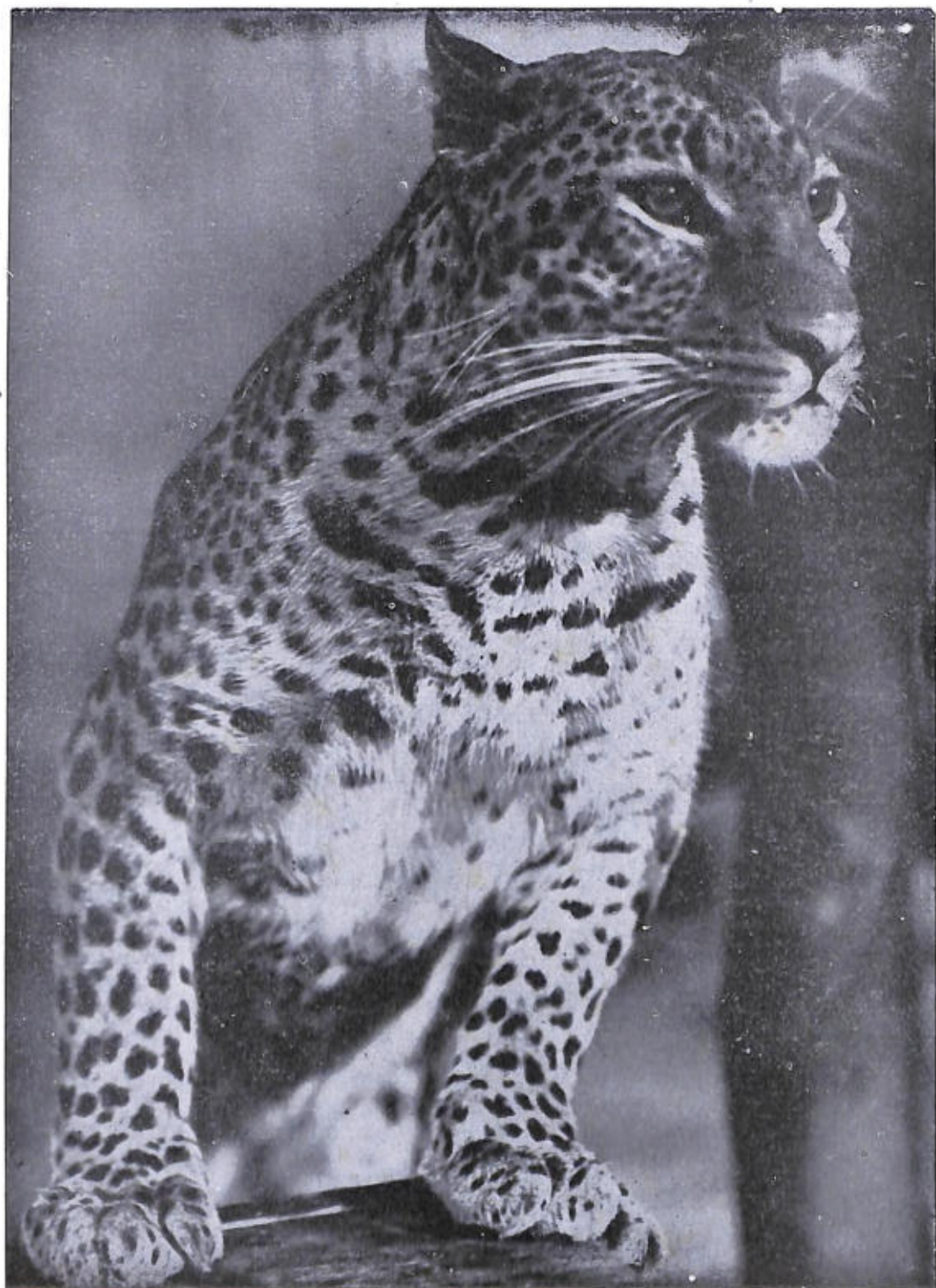
calculates its spring, or its victim leaps aside at the last moment. In such cases it will often make a second or even a third spring, and should these also fail, it will sometimes pursue its quarry for a short distance. Instances have been known of lions overtaking gnu in this manner, but the lion cannot maintain its burst of speed for long, and if it fails in its initial attack it retires to its place of concealment to await the next unwary animal which may come within reach of its terrible jaws.

Lions sometimes hunt in parties, on which occasions they seem to work upon a previously arranged plan of attack. Such a band, with its combined strength and ferocity, is a terrible

instrument of destruction, and a troop of lions will break up a herd of buffalo, themselves one of the fiercest and most dangerous animals in Africa.

Lions hunt chiefly at night, preying upon antelopes, zebras, buffaloes, and when opportunity occurs they will pull down and kill a young rhinoceros or elephant. Having killed, the lion may drag its victim away to eat it at leisure, but lions do not throw their kill across their backs, and stories which tell of them carrying off an ox or a buffalo in such a fashion are untrue.

Usually lions kill their own food, but they will also eat animals which have died from

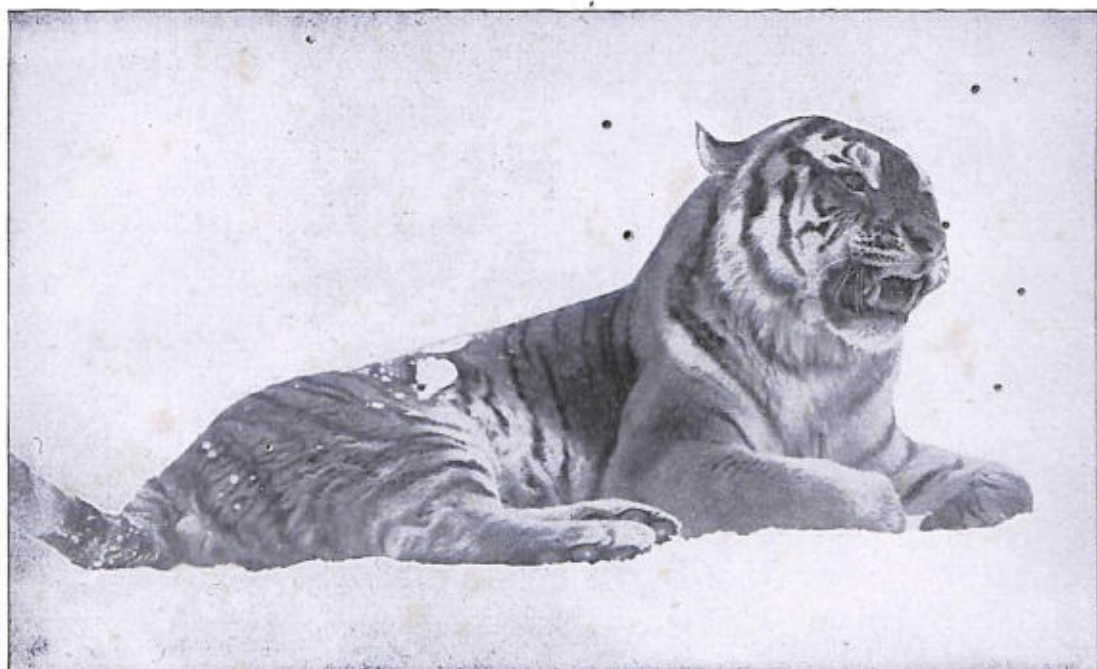


THE LEOPARD IN GRACEFUL POSE.

[Mondiale

This fine Leopard has been caught in an arresting pose, which well displays his subtle grace and vigour.

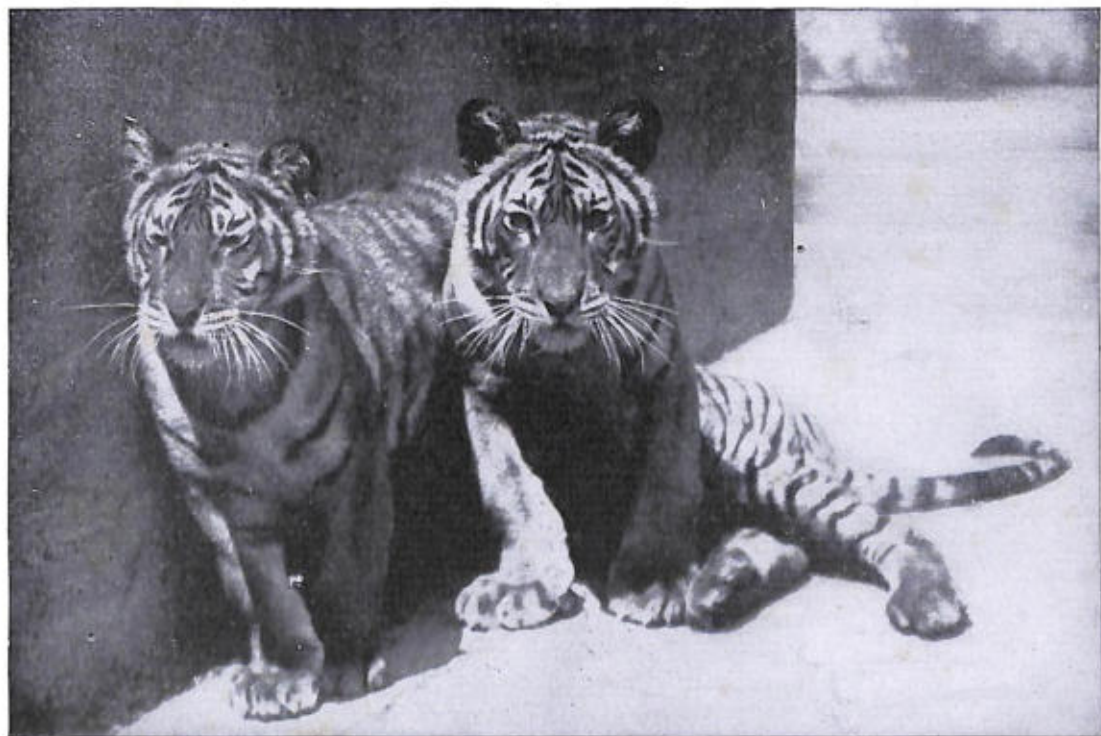
THE BIG CATS



MONARCH OF THE SNOWS.

[F. W. Bond

All Tigers are not tropical! Here is a magnificent specimen snapped amid the snows of his native Siberia.



UNWILLING CURIOSITY.

[F. W. Bond

A pair of Tiger Cubs cast a suspicious eye on the camera—perhaps they have not seen one before. As we may guess from their pose in the picture, they are at a shy and awkward stage of cubhood.

THE BIG CATS



A STUDY IN ANGER.

[Paramount

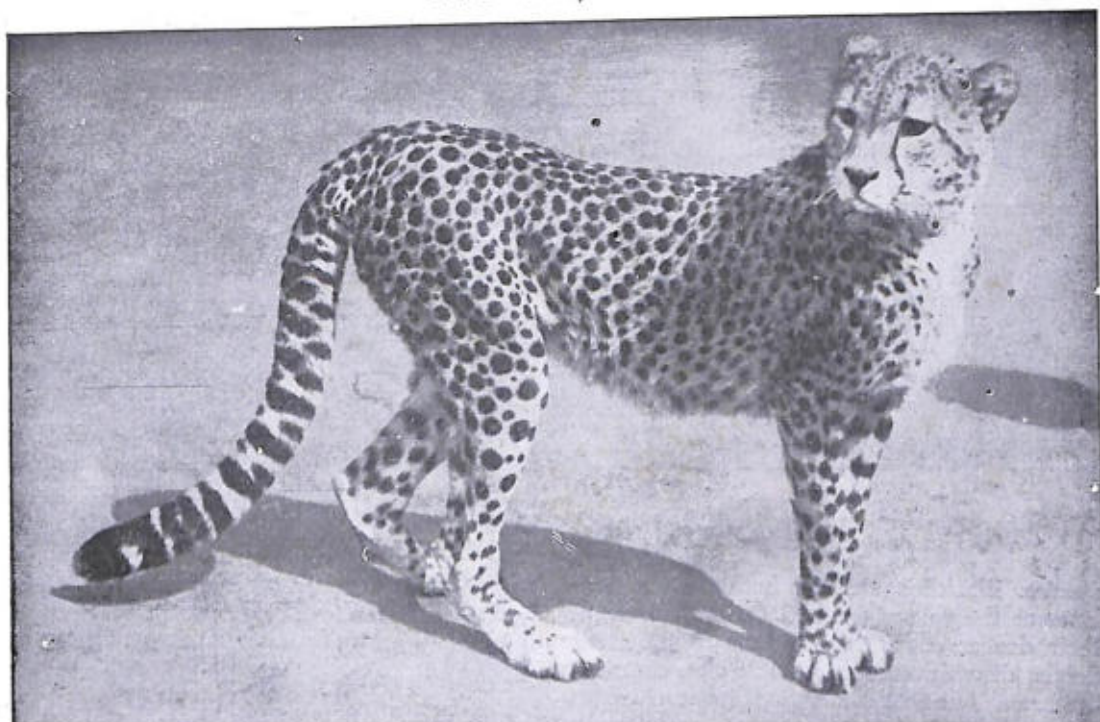
The Lioness has been disturbed in her lair and does not hesitate to curl her nose in defiance. She snarls and bares her deadly fangs, prior to making a spring that bodes ill for the luckless intruder.



A HOMELY SCENE.

[Paramount

With her family, however, the same Lioness calmly keeps watch while her children play. From her the cubs learn jungle-lore, how to defend themselves, how to attack, and how to find food and stalk their prey.



THE CHEETAH.

[F. W. Bond

This graceful beast, also known as the Cheetah, Chita, or Hunting Leopard, is three to four feet in length, and has a long, beautifully marked and somewhat bushy tail. As a reward for a successful "kill," the tame Cheetah is generally given a bowl of its victim's blood.

some other cause, and this especially applies to old lions which are too infirm to capture big game for themselves. Such lions also haunt the neighbourhood of villages, and prey upon the inhabitants' livestock, or upon the inhabitants themselves when occasion offers.

Man-eating Lions.

Man-eaters are not always old lions, however. Those lions which have developed a taste for human flesh will hand the taint down to their offspring, and such cubs will very likely become man-eaters on reaching full growth. Some man-eating lions have achieved a terrible fame. During the building of the railway in Uganda, work on the section at Tsavo was actually brought to a standstill by two such animals. These brutes established a perfect reign of terror amongst the labourers. Night after night for several weeks they carried off workmen from the various camps, and so panic-stricken did the natives at length become that they refused to continue work on the line, and it was not until the man-eaters were finally killed that the workmen returned to their labours. Such fame did the man-eaters of Tsavo earn that they were actually

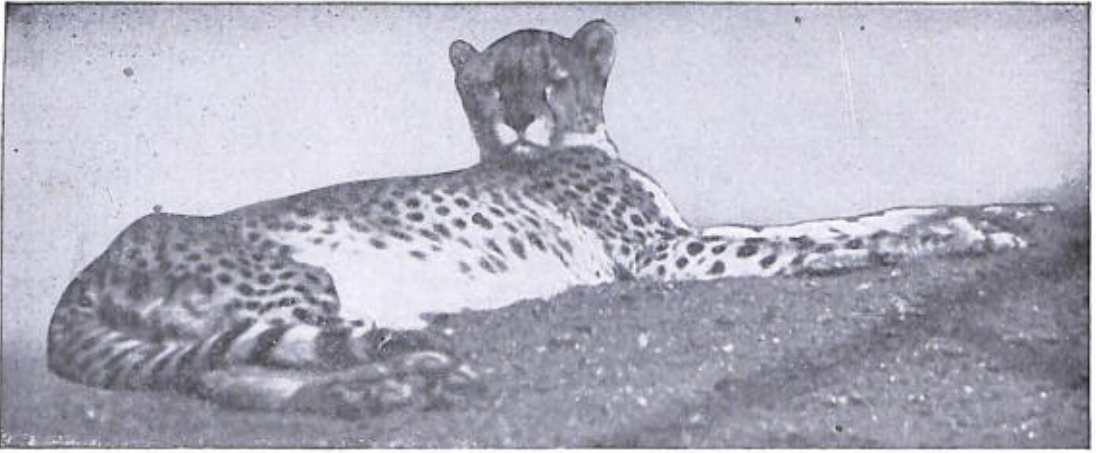
mentioned in Parliament, probably the only lions ever to receive such honour.

The second great cat to be found in Africa is the Leopard. Its habitat is not, however, limited to Africa. In India there is a large leopard which is generally known as the "panther," and all over Asia various races of the animal are found, differing from each other, yet all members of the same family.

The Leopard's camouflage.

In size leopards vary greatly. On the average they measure about two feet high at the shoulder, and between five and eight feet in length, of which measurements the tail may occupy between two and a half and three feet. The coloration of the leopard is well known. The majority have a ground-tint of yellowish-fawn upon which appear numerous dark rings irregular in shape and surrounding hair lighter or darker than the general tint. These rings appear only on the back, and they become dark, solid spots upon the head, tail, sides, and the lower parts of the limbs. The colour of leopards varies greatly, however, and ranges from black through brown and yellow to white. The colour does not always denote a distinct

THE BIG CATS



AN ANIMAL HUNTSMAN.

[W. S. Berridge]

This Cheetah, seen in repose, is demonstrating its great stretch of leg. Slender and long-limbed and very fleet of foot, it is often trained for hunting, and is on the whole loyal to its master.

species. Black leopards are found in the same litter as the yellow, spotted variety, but with their darker coats they appear to inherit a fiercer disposition than their more common brethren. The coat of a leopard is a marvellous piece of camouflage, and seems to vary in colour according to whether the animal inhabits the cold uplands of Tibet, the hot, sandy desert, or the dark forest. In fact, so wonderfully does its colouring adapt itself to the environment that a leopard is almost invisible in its native surroundings.

The most dangerous Cat.

Of all the great cats the leopard is the most savage and the most dangerous to man. It fears man less than do either the lion or the tiger, and is very vindictive and easily roused to anger. When infuriated it hisses and growls, and will attack the object of its anger regardless of odds, or will defend itself with savage fury. A leopard never reveals its presence as a lion does. Stealthy and cunning, it creeps through the jungle hunting its prey with a deadly persistence, and its teeth are often buried in its victim almost before the unfortunate creature is aware of the striped terror on its trail.

The female leopard gives birth to from two to four cubs at a time, but except during the mating season the animals live alone, and show none of the family instinct displayed by lions. Leopards are arboreal, and can climb with the agility of a monkey, but they do not live in trees. In India the leopard's favourite haunt is a rocky height from which it can survey the

surrounding forest at sunset. It is equally at home when in the African desert, or amongst the bleak, windswept solitudes of Tibet.

The Leopard's diet.

The leopard is a daring hunter, and cattle, deer, monkeys, sheep, and goats all form part of its regular diet. It is also very fond of dogs, and numerous instances are on record of dogs being snatched up in broad daylight and carried off right under the eyes of their masters. The



A LAZY LEOPARD. [F. W. Bond]

Not so large, but every bit as fierce as a tiger is the Leopard, seen above in a docile mood.

THE BIG CATS



READY FOR THE SPRING. [E.N.A.]

There is strength and cunning in the Leopard's pose as he prepares himself for a spring at his prey.

leopard is a destructive killer and, unlike the lion which kills only when hungry, it kills for the love of killing, or simply to slake its thirst for the warm, fresh blood of its kill. Pigs are another favourite food, but the leopard attacks only the females and the young pigs, for the wild male pig is the leopard's match or more, and in a fight between the two it is more than likely that the leopard would very probably get the worst of the encounter.

The Leopard pursues its prey.

In the neighbourhood of villages leopards take great toll of the natives' livestock. Approaching under cover of darkness the leopards climb or leap over the walls inside which the goats and calves are penned, and make off with an animal, or the trembling natives may hear the great cats creeping stealthily over the roof just above their heads. Leopards also lie in wait beside the track along which the herds are driven home for the night, and pounce upon any animal which may be straggling behind before the herdsman can come to its rescue.

A leopard displays great skill and cunning in pursuit of its prey. Approaching a herd of animals it singles out one which is lagging

behind, and attacks and kills it before it can rejoin its companions. In killing an animal it usually tears open the throat, or else it seizes its victim by the neck with its powerful jaws, and holds on until the unfortunate animal is either strangled or dies of a broken neck. Leopards do not often become man-eaters, but once a leopard has felt the taste of human flesh it becomes a far more terrible scourge than a man-eating lion, and there are records of animals whose victims have numbered a hundred, or even twice that number, before they have finally answered for their misdeeds.

The Leopard that hunts for man.

Leopard hunting, indeed, is a difficult as well as a dangerous sport. The animals have a habit of gazing up into the trees under which they prowl, and many a hunter has spent fruitless hours on a tree platform waiting for a shot at a leopard which all the time has been calmly observing him from amongst the undergrowth a few yards away.

An interesting member of the cat tribe is the Cheetah or Hunting-Leopard. Its colouring is similar to that of the leopard, being a yellowish ground-tint marked with black, solid spots, and it is found in India, Africa, Persia, and throughout South-Western Asia. The length of a full-grown cheetah is about six feet, of which the tail accounts for thirty inches. It has long, slender legs and stands higher than the leopard, and is altogether a more lightly built animal. In its wild state the cheetah inhabits low hills, and feeds upon small antelopes and deer with an occasional



THE CHEETAH'S PROFILE. [Mondiale]

The lovely Cheetah is incredibly swift, hurling itself at its prey before there is a chance of retreat.

THE BIG CATS



THE PUMA'S EYE. [W. S. Berridge]

Graceful and sleek, the Puma has a small head and large round eyes. An expert climber, this American animal scampers up the highest trees with ease.

sheep or goat, but no instance has ever been known of a hunting-leopard becoming a man-eater.

The cheetah is easily tamed, and is capable of an almost dog-like affection for its master. As far back as 865 B.C., Hushing, King of Persia, tamed hunting-leopards and trained them for the chase. Ever since Hushing's day a number of these animals has been an indispensable adjunct to the household of most eastern princes, certain of whom, we read, were accompanied to the chase by as many as a thousand hunting-leopards.

How the Cheetah is trained.

Hunting-leopards destined for the chase are trapped full-grown, and, for the first stage of their training, are placed in a room the occupants of which keep up a continuous chatter so that the animals may lose that fear of the human voice which is common to wild beasts. After this the training for the hunt begins. This occupies six or seven months, at the end of which time the cheetah is a highly proficient hunter, and as tame as a domestic cat, purring and rubbing itself against its master's legs with every sign of affection.

The method of hunting with a cheetah bears strong resemblance to old-time falconry. It is described in the chapter on Speed Fiends on Land, in Air, and in Water.

The Clouded Leopard comes from the East Indies. It is a large, lovely cat, with a buff coat with dark markings. In its native haunts it spends much of its life in trees. Unlike most wild cats, who remain savage and treacherous, it grows tame and affectionate in captivity.

Why the Tiger is striped.

If the lion has a rival to its title of King of Beasts that rival is the Tiger which matches it in strength, size, and ferocity. Tigers are found all over India, in Burma, China, and throughout a great part of Asia. Old ruins are a favourite haunt with the great cat, and so wonderfully does its brownish-yellow coat, marked with broad, black, vertical stripes, merge into the sun-flecked forests and jungles of reeds and grasses amongst which it lives, that the animal is practically invisible to a casual glance. The colour of tigers varies



LYING IN WAIT.

[E.N.A.]

This fine Puma or Cougar was caught by the camera in its natural haunts in the Texas Hills.

THE BIG CATS

slightly, but in all cases the stripes appear only upon the head, back, and sides; the underparts are white.

Black tigers are occasionally met with, and more rarely still, a white variety is found. In size, tigers range between eight and a half to ten feet in length, the tigress, however, being a foot less. The tiger's thick tail occupies rather more than one-third of the total length.

A curious superstition.

Amongst the more primitive inhabitants of India the tiger is still regarded with a great deal of superstition. To many it is an object of worship, and there is a widespread belief that the spirits of the men killed by a man-eater become the servants of the tiger, and not only help it to kill other human beings, but with their superior intelligence assist it to avoid danger, and warn it against the snares of its enemies.

It is doubtful, however, if the tiger is deserving of such tributes. A tigress with



THE SNOW LEOPARD. [Mondiale]

The Snow Leopard's beautiful colouring renders it inconspicuous when lying in wait for its prey.



THE TIGER'S PROTECTIVE COLOURING. [Mondiale]

Nature has fashioned the Tiger in a very wise and clever manner so that it has a chance to live even while surrounded by numerous enemies. The above picture illustrates how the animal's striped hide agrees with the background of coarse jungle-grass, thus concealing from a distance the identity of the Tiger.

THE BIG CATS

cubs is always dangerous, and so is a man-eater, or a tiger which has been wounded, but with these exceptions the great cats are afraid of men, and are often routed by the bull buffalo and other animals, while a tiger is by no means the embodiment of fierce, relentless courage it is supposed to be. Tigers are silent animals. Their roar is not unlike that of a lion, but it is seldom heard; more to be dreaded is the sharp hiss of the tiger about to charge. Tigers pair for life, but the male tiger has a habit of sometimes devouring its own young, and to save them from this fate the tigress is often obliged to hide her cubs away from their cannibalistic father.

The tigress is a devoted mother, and her cubs remain with her until they are almost full-grown, or about the end of their second year. During this time she is an untiring instructress, spending her hours in coaching her progeny in forest craft. She teaches the cubs to stalk and kill game, and at this period is terribly destructive of life, for she will slay needlessly, with no respect to hunger, in order to show her cubs how to kill. Young tigers are also

inclined to kill for the sake of killing, but as they grow older this tendency passes, and the average adult tiger kills only when hungry.

The fight for food.

Tigers are nocturnal animals, and during the day they usually lie in the shade by some pool, or amidst the reeds fringing the course of a river. With the evening, however, they wake up, and, moving stealthily along the jungle ways, pursue their search for food. Tigers prey upon cattle, wild hog, deer, buffaloes, and antelopes. Like other cats they crawl from cover to cover until they are near enough for the final rush upon their unsuspecting victims. Contrary to popular belief, a tiger does not kill its prey by striking it down with its mighty paws. In the case of larger animals, at any rate, it grips its victim by the throat, and flings it to the ground in such a way that its neck is twisted and broken, or, if the animal is too big for such treatment, the tiger will hamstring it, and so bring it to the ground. The strength of a full-grown tiger is enormous. It can drag a large buffalo through dense jungle and up rough hillsides,



[W. S. Berridge

ON THE WATCH.

The Puma, or Cougar, often termed the "American Lion," ranges from Canada to the southernmost ranges of South America. When pleased it purrs like the domestic cat; it is docile with man, and instances are numerous of its being successfully tamed.

THE BIG CATS

and will sometimes even carry its kill a short distance. Some tigers live almost entirely upon domestic cattle, and it is not uncommon for a tigress with young cubs to settle in the neighbourhood of a village and live on the inhabitants' cattle and other livestock.

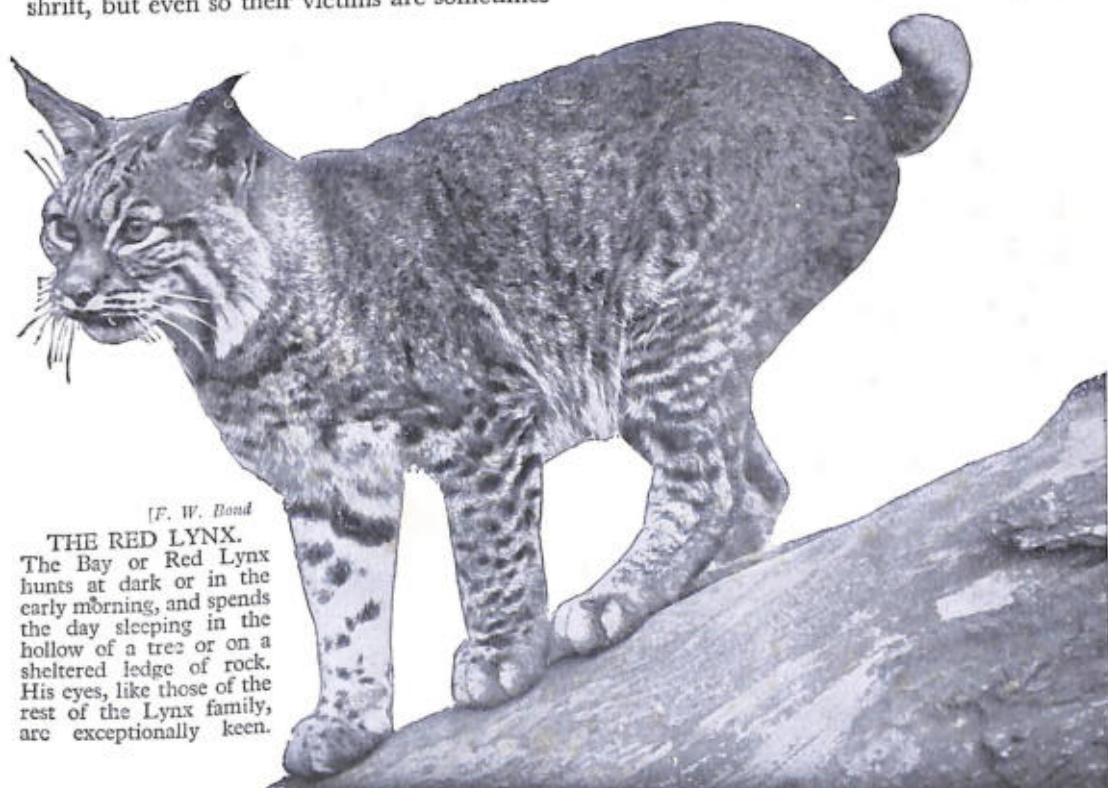
Stalking the Man-eater.

Old tigers also show a partiality for the neighbourhood of villages, where they often prey upon the inhabitants as well as upon the inhabitants' cattle. Tigresses with cubs will likewise become man-eaters if other food fails, and the same applies to animals which have been crippled by wounds, and are unable to kill wild game. Man-eating tigers become very cunning, and soon lose all fear of man; the loss of life such a tiger can cause is truly awful. There is a recorded case of a tiger which not only accounted for over a hundred human beings, but for some weeks made it impossible for any one to use a certain stretch of public road, whilst another particularly fierce and cunning brute created such terror that thirteen villages were abandoned by their inhabitants, and over 200 square miles of land left uncultivated.

Nowadays man-eating tigers get shorter shrift, but even so their victims are sometimes

numbered by the score, and rewards are offered for their destruction. Such rewards are usually well earned, and earned often at great risk to the hunters themselves. There are several ways of hunting tigers. The princely way is to hunt them with elephants, or the hunter may employ beaters to drive the animal towards some spot where he is waiting to shoot it. Another way is to sit up over the tiger's latest kill, in which case a *machan* is built in a tree, and the hunter spends the night thereon hoping that the tiger will return to feed, and give him the chance of a shot; or the hunter can adopt a more sporting but infinitely more dangerous method known as "walking up the water." Should he decide on this last method he must spend the day tramping through the jungle on foot until he finds the stream or pool by which the tiger is sleeping off the meal of the previous night. If he is lucky the hunter may shoot the sleeping monster, but should he disturb the animal, or should he miss or merely wound, he may find himself in a desperate situation, for there may be no tree near into which he can climb for safety.

Tigers are poor climbers, and a man in a tree is usually safe so long as he keeps quiet.



[F. W. Bond

THE RED LYNX.

The Bay or Red Lynx hunts at dark or in the early morning, and spends the day sleeping in the hollow of a tree or on a sheltered ledge of rock. His eyes, like those of the rest of the Lynx family, are exceptionally keen.

THE BIG CATS



[F. W. Bond]

A HERMIT OF THE FOREST.

The Canadian or Northern Lynx has a coat of dark grey tinged with chestnut. He is a very shy recluse.

They are good swimmers, however, and will take readily to the water; in the delta of the river Ganges they often swim from one island to another in search of their prey.

The agile Puma leaps and climbs.

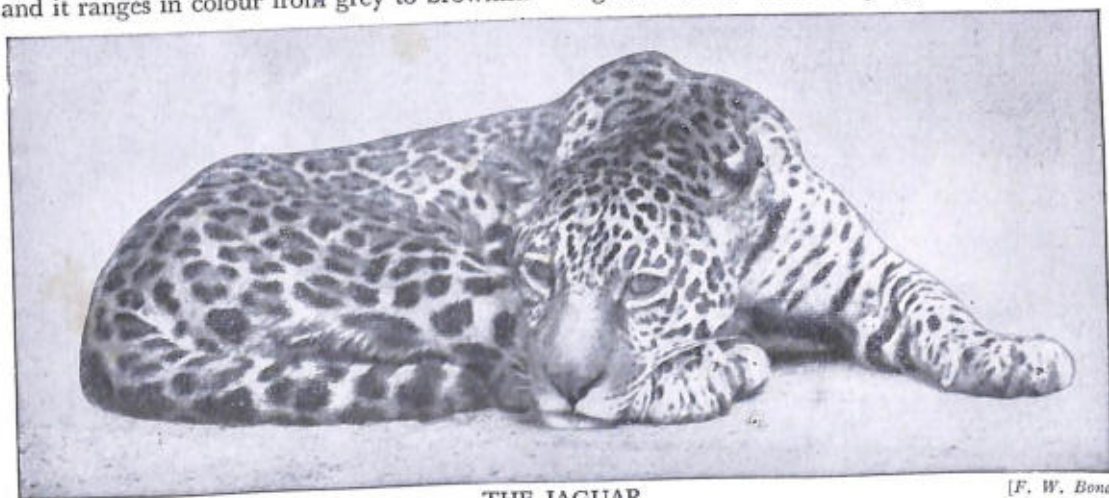
In the New World the great cats are represented by the Puma and the Jaguar. The former is found all over the American continent from Alaska to Patagonia. In form the puma is a long, slender animal, the average length of its body being about forty inches. Its legs are short in comparison to its length, and it ranges in colour from grey to brownish

grey, tawny, and dark brown on the back and sides, with white underparts. Black pumas are also sometimes seen in tropical forests.

The puma is at home in every kind of climate and country; it is found high up on the mountain-sides where the winters are long and severe, as well as in the steaming, tropical jungles of the Amazon and the Orinoco. The animals also abound on the treeless pampas of South America, and in some districts of Patagonia the puma is such a scourge that the natives cannot breed horses because of the great cat's preference for horse-flesh.

Pumas are arboreal. They have marvellous climbing and leaping powers, and will spring from tree to tree in pursuit of the monkeys upon which they live in some regions. It is asserted that a puma can actually reach a branch twenty feet above the ground with a single bound. Even the agile monkeys have little chance against such raiders.

Pumas are nocturnal hunters. They approach their prey by stealth until they are near enough to reach it in a few tremendous bounds, or drop on to their victims' backs from the branch of a tree or some other elevation. They often kill for the sake of killing, and sheep, deer, peccaries, cows, guanaco, and many other wild animals fall prey to the voracious marauder. It is said that they will even attack jaguars and grizzly bears by leaping on to their backs from a height. Yet, though so courageous in attacking its fellow beasts-of-prey, the puma is



[F. W. Bond]

THE JAGUAR.

An American carnivorous beast, the majestic Jaguar hunts alone or with his mate. Horses or cattle form its prey—or, failing them, the smaller animals of the New World. Though heavier than the leopard, it is none the less remarkably agile, and on occasion, when opportunity offers, is not averse to a meal of human flesh.



A PUMA CUB.

[W. S. Berridge]

This lovely little cat is a Puma cub, three weeks old. It is very agile and fearless and as playful as a domestic kitten. It has to learn early to seek its own food.

the greatest coward when faced with man, and at his approach will usually slink hurriedly away into the undergrowth, or seek to evade pursuit amidst the branches of a tree.

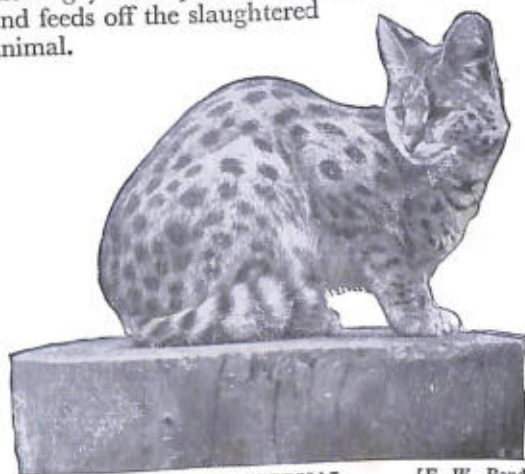
Killing the Wild Pig.

The Jaguar is slightly larger than the puma. Its coloration varies, but the usual ground-tint is a deep tan upon the upper parts, head, and the outside of the legs, with white hair on the throat and under parts, and inside the legs, and the animal is marked all over with black spots and rosettes, which give it a very leopard-like appearance.

The range of the jaguar extends from Texas in the north to as far south as Patagonia, and the animal is as much at home on the grassy pampas as in the great American forests. In the latter it lives almost entirely amongst the trees, and feeds chiefly on monkeys; it will most often be found in the neighbourhood of water of which it is very fond.

Jaguars hunt singly or in pairs, and their usual food consists of cattle, horses, and tapirs, with an occasional alligator. They are very fond of fresh water turtles, which they kill by thrusting a paw between the shells and pulling out the body with their claws. Wild pigs are another favourite food. These pigs live together in herds, and when attacked

make common cause against the enemy, so that even a jaguar cannot attack them openly. The jaguar, however, overcomes this difficulty by stalking the pigs through the branches of the forest trees until it has reached a position over the herd. It then leaps down, kills a pig by breaking its neck, and springs back into the tree before its victim's companions can gather for the attack. After this all that the jaguar has to do is to wait until the angry herd passes on, before it descends and feeds off the slaughtered animal.



THE SERVAL.

[F. W. Bond]

This large spotted cat, found in Africa, is the terror of the small mammals and birds on which it feeds.

THE BIG CATS

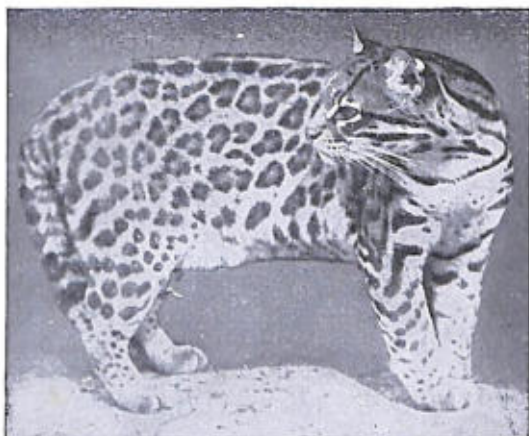
Jaguars appear to be less afraid of human beings than the puma, and cases have been known where the former beast has become a confirmed man-eater.

Besides these large cats there are several smaller members of the felidæ which deserve mention. Chief of these is the African Serval which frequents grassy and forest country in the neighbourhood of rivers, and preys upon small antelopes and other lesser game.

The serval has long legs which give it a lanky appearance, and its body is about forty inches in length with a tail sixteen inches long. In colour its coat is a light fawn marked with black spots, and the skin is in great demand amongst furriers, whilst in its native wilds to wear a mantle made from the skin of a serval is a distinction reserved for the chiefs and headmen of the native tribes. The serval, also known as the bush-cat or tiger-cat, is easily tamed and made a domesticated pet.

The long-limbed Lynx.

The Lynx is widely distributed over many parts of the globe. It is found in North America, in Spain, Greece, and Turkey, and all over Asia north of the Himalayas, as well as in Norway, Sweden, and Russia. It is a long limbed animal with a body averaging



THE DECORATIVE OCELOT. [Berridge]

This handsome wild cat spends its time among the trees, preying on birds and monkeys.

about thirty-two inches in length and a short, stumpy tail. The coloration varies. The European lynx has a yellowish grey or greyish red coat, usually marked with spots of a darker shade. More handsome is the southern lynx of Spain, Greece, and Turkey, with a coat of rich reddish yellow marked all over with round, black spots. In the United States a plain reddish brown lynx is found, whilst farther north the Canadian lynx ranges from almost white to a warm, dark grey.

Lynxes are agile climbers, and in forest country they spend a great part of their lives amidst the branches of the trees, from which they pounce down upon any animal which may come within reach, and which is not too powerful for them to attack. They are also found in mountainous country, living in caves and amongst rocks, from which they issue forth to prey upon deer, rabbits, hares, marmots, and birds, or, if the opportunity offers, upon domestic animals such as sheep, goats, and pigs. Under such circumstances a lynx may cause terrible loss, for lynxes kill and kill simply for the love of killing, and without any regard for the amount of food they can eat.

How the Caracal captures birds in flight.

Related to the lynx is the Caracal, an animal slightly larger than a fox, and native to Africa, India, and wide areas of south-western Asia. The caracal makes its home amongst grass and bushes, and preys upon small deer, antelopes, hares, and birds. It is very swift in its movements, and will often catch a low-flying bird by leaping into the air, and striking the bird to the ground with a single blow from



PALLAS'S CAT. [F. W. Bond]

The silver-grey Pallas's Cat, a fiery, flesh-eating creature native to Central Asia, is now very rare.

one of its paws. In captivity it soon becomes tame, and in India the caracal is often trained to hunt the smaller kinds of deer, gazelles, and birds like the crane and pelican. The colour of its coat is reddish brown above with white underparts, and in South Africa the skin is greatly prized by the natives, being made into the karosses or mantles worn by the Zulus.

Less well-known than these cats is the Indian Leopard-cat which lives in hollow trees, and preys upon birds, small mammals, and domestic fowls. The Desert-cat is also a native of India, and is found in the dry districts of the north-west, whilst the Rusty-spotted cat lives in the ditches close to the Indian villages or in the dried-up, deserted tanks of southern India and Ceylon.

The Fishing-cat can carry off a baby.

Possibly the most interesting of all these smaller Indian cats is the Fishing-cat which inhabits the swampy shores of rivers and creeks, and lives chiefly upon fish and snakes. This cat is brownish grey in colour, marked all over with darker spots, and has a body about thirty inches in length. Sometimes, as a change from its fish and reptile diet, it will kill a sheep or a calf, and when famished it has even been known to creep into a native village and carry off a baby from one of the unguarded huts.

In Malaya there are the Marbled-cat, the Golden-cat, and the Flat-headed cat, whilst ranging over central Asia is Pallas's cat,



[W. S. Berridge

SCOTTISH WILD CAT.

North of the line formed by the Caledonian Canal the Scottish Wild Cat is increasing in numbers.



TWO BABY LEOPARDS.

[Pathe

Young Leopard cubs are playful and beautiful animals and, as can be seen in the above photograph, may be handled with impunity.

silvery grey in colour, and now very rare.

America also has several smaller "cats," chief of which is the Ocelot with its coat of tawny yellow, marked with black spots. Ocelots range between three and four feet in length, of which measurements the tail occupies about one third, and they are found all over Central America, from Paraguay in the south to Arkansas in the north.

Ocelots are forest animals; they are good climbers, and though savage and blood-thirsty in their native environment they are easily tamed, and become playful and friendly in confinement. Wild Ocelots have often been found to raid poultry farms and return, night by night, to feed on the plump fowls, until killed or prevented from entry by wire fencing and other obstacles.

The smaller Wild Cats.

More beautiful than the ocelot is the Colocollo of South America. It is about the same size as a domestic cat, and in colour is pale grey marked with dark spots and bars. The Margay or Tiger-cat is also a native of America, whilst roaming over the plains of Argentina and Patagonia is the Pampas cat, its coat of

yellowish grey marked with brown bands making it very difficult to see amidst its native surroundings.

Up to about a hundred years ago the native Wild Cat, untamed and untamable, was to be found in almost every country in Europe, in the rocky forests of England and Scotland, on the Spanish plains, in the forests of France, in the Netherlands, Switzerland, Germany, Czechoslovakia, Hungary, Poland, Rumania, Serbia and South Russia. It is now, however, very rare. Apart from the possibility of a few specimens still surviving in the wilder parts of the Carpathians, the only place where it is known to exist is in the wilder parts of the extreme north of Scotland.

The Scottish Wild Cat.

The colour of its fur is brownish grey above marked with black stripes, and white on the underparts. Many of its habits resemble those of the domestic cat to which it is related.

When pleased it purrs. At sight of an enemy it arches its back, and it hisses and spits when angry. The wild cat makes its home in forests where it lives in holes in the ground, hollow trees and small caves. It is an expert climber, and has been known to keep its kittens in a sort of nest up a tree, presumably to have them out of harm's way. It feeds upon small deer, hares, rabbits, birds, and all kinds of small game, but it never attacks man except under extreme provocation. In spring the female gives birth to several blind kittens which she guards with fierce care, and should danger threaten them she will carry them to some more secure hiding place, just as the domestic cat will do if any one interferes with her family.

The wild cat has many foes—among them the irate gamekeeper who shoots him at sight. Still he holds out, with the courage and cunning of the wild, and in some of his more inaccessible haunts is believed to be growing.



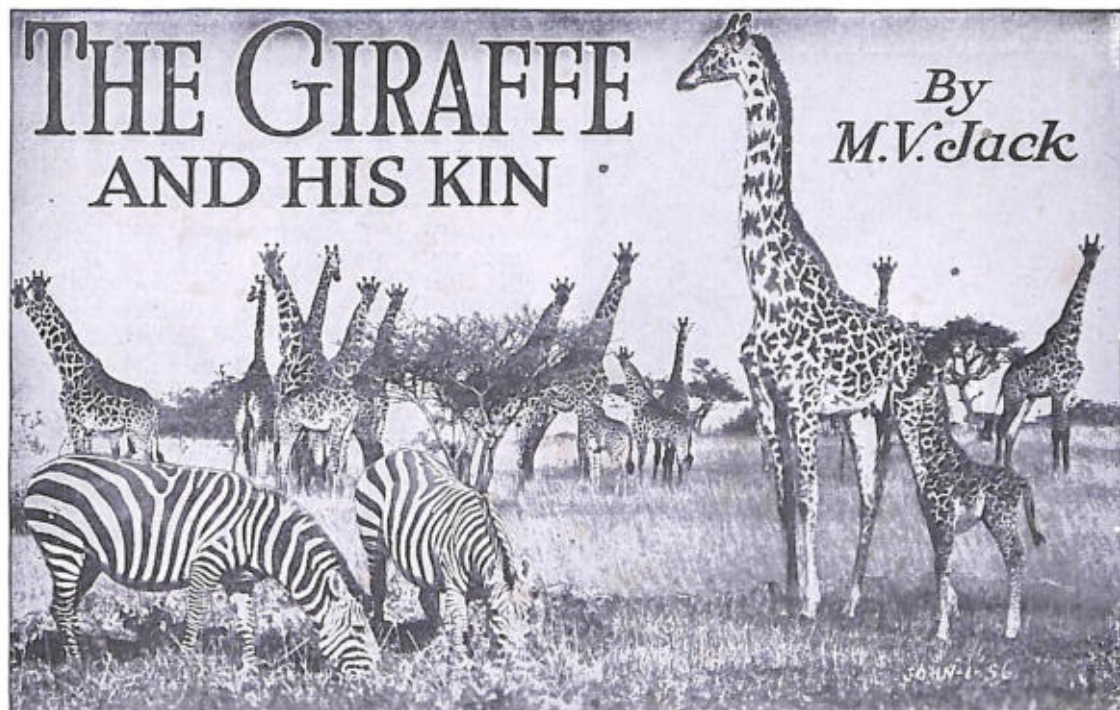
THE POWERFUL PANTHER.

[Paramount]

The Black Panther is a powerful creature, very dangerous and liable to become a man-eater. As this animal does not turn even from putrid flesh, the wounds it inflicts on human beings are liable to blood-poisoning.

THE GIRAFFE AND HIS KIN

By
M.V. Jack



Fox Films

[H. J. Shepstone]

Here is a symphony in spots and stripes, showing a gathering of long-necked Giraffes feeding contentedly in the company of Zebras. Note the giant Giraffe in the foreground rearing its neck in such a haughty, yet graceful, manner, and the dainty fawn by its side.

THERE are two ways in which we can look at the Giraffe. If we see in him merely a wonder, a freak of nature, we may quite well study him at the Zoo. If, on the other hand, we regard him as a lovely and remote and delicate creature of the wilds, let us follow him to where, beneath the heat-hazy African skies, he roams in graceful freedom among the yellow-blossomed mimosa trees and over the yellow sandy plains. The giraffe in his native haunts is too perfectly in harmony with his surroundings to be in any sense a curiosity or a freak.

The ancients, looking at his beautiful leopard-like coat and his camel-like gait and habits, named him Camelopard, a romantic and high-sounding name which is no longer used, though it is preserved in the scientific name of the common species, *Giraffa camelopardalis*. Here is a picture of a "Camelopardal," as presented by a writer of the mid-eighteenth century :

"The Camelopardal is bred in Ethiopia, India, Georgia, etc. The Head of it is like a Camel's ; its colour, for the most part, red and white beautifully mix'd together, and the Skin full of Spots. It has two little Horns upon its Head, of the colour of Iron ;

has a small Mouth, like an Hart's ; a Tongue near three feet long, and a Neck of divers colours, of a very great length, which he holds higher than a Camel's, and is far above the proportion of his other Parts. His fore Feet are much longer than his hinder. His Pace is different from all other Beasts, for he moves right and left Feet together. This creature is like both a Camel and a Panther. The Skin of this Beast is very valuable. It is a solitary Beast, and keepeth in the woods, if it be not taken when it is young. It is very tractable and easy to be govern'd, so that a Child may lead it with a small Line or Cord about its Head. The Flesh of this Creature is good meat." In spite of some small inaccuracies it is quite a convincing picture !

The most striking characteristic of the giraffe is his great size. He is much the tallest animal in the world, up to eighteen or (in one specimen at least) nineteen feet high, the females only a foot or two less. Long legs and neck account for most of his inches. The body is short and broad and deep-chested, with large and prominent shoulder-blades ; and as the fore legs are much longer than the hind legs the back slopes at a steep angle from the withers to the tail. The neck carries



[W. S. Berridge]

THE GIRAFFE STRETCHES HIS NECK.

The tallest animal looks very peculiar ambling along as he does, swinging his long neck from side to side.

a short, upstanding mane. The head is delicate and fine, with dark limpid eyes fringed with silken lashes, and a mild and engaging expression of countenance.

Important to the naturalist are the thick, short horns which spring from the high forehead just over the eyes—unique in that they are covered with skin and tufted at the tips with dark hair. They are not true horns, but bony prominences which at first are distinct from the skull but later become a part of it. They are present from birth in both sexes, and in one species a rudimentary third horn, no more than a small knob, is situated between and in front of the other two. In character these horns are regarded as being midway between the hollow horns of the cattle and sheep and the antlers of the deer, and thus they play an important part in the classification of the giraffe.

The creature's high forehead (due to air-cells in the bones) gives him literally a high-brow appearance, and emphasises the air of intelligence which his fine eyes impart. His

ears are large and pointed; his wide nostrils have the distinct advantage to an animal living among the blinding and irritating sandstorms of the desert that they can be closed at will.

Fitted also for his trek through the desert are the ox-like, broad, cloven hoofs; and as he often has to force a passage through the aptly-named wait-a-bit thorn he has need of a tough hide as well. His very long, sensitive tongue is another odd feature, and though it is not "near three feet long," as our old writer says, it is fully half that length. With this and his long prehensile upper lip he reaches to the tree-tops and with a delicate motion gathers in the leaves on which he feeds.

The Giraffe's coat of many colours.

Though he is often found among dense woody scrub, from a few feet to twelve or even fifteen feet high, he also ranges through open and often very beautiful undulating country, thinly wooded with camel-thorn and other acacias, with perhaps a distant background of faint blue hills.

Giraffes are roughly divided into two main species, the Northern and the Southern, of which the latter may be regarded as the typical species. Ranging through the Transvaal and Bechuanaland to the Sudan and Kenya, this species is distinguished by the pattern of his short-haired coat, which shows large, irregular, tawny or chestnut blotches on a creamy fawn ground. The face is much darker, also the flowing tail-tuft; the mane is tinted like the colour-splashes of the pattern, while the underparts and the legs below the knee are light or whitish. In the old bulls and sometimes in the cows the coat grows darker with age until it is almost black. This Southern species, too, generally lacks the third or central horn which is a characteristic feature of the other main species.

The Giraffe that wears an overcoat.

The Northern or Somali giraffe is also distinguished by the colour of his coat. In this case it is the darker colour which is the ground colour, a deep reddish brown, broken up or reticulated in polygonal figures by fine white lines—lines so fine that at a little distance they are quite invisible. From these markings the Somali giraffe takes his scientific name of *Giraffa reticulata*. His terrain is Abyssinia and Somaliland. A variant, shorter

THE GIRAFFE AND HIS KIN

of neck than the typical giraffe, has been found on the banks of the Niger in West Africa, and it is possible that other rare forms exist. All known forms have been found south of the Sahara Desert.

How the Giraffe goes waterless for weeks.

The giraffe, like the camel, has the immense advantage of being able to travel through waterless tracts without discomfort; the open, sparsely wooded country in which he roams may be without water for as much as seven or eight months in the year. Whether the giraffe can go so long without a drink is a question on which naturalists differ. Some hold that he finds sufficient moisture in the succulent water-melons which grow at certain seasons in the desert; others that as he traverses the sandy plains he is always on his way from one great river to another. The fact remains that he can go waterless for weeks at a time, though, of course, when water is available he comes to drink like the other wild animals, generally quenching his thirst in the cool of the day.

Then he shows us another of his peculiari-

ties: he is so tall that even his very long neck does not quite reach to the water, so he splays his forelegs widely apart, either outwards or obliquely, one forward and one back, in a queer ungainly movement. When he chooses to graze, which he does quite rarely, perhaps because of this physical disability of his great height, the same performance must be gone through before he can crop the grass. Ordinarily he finds his food comfortably in the tree-tops, making a meal of luscious acacia leaves, which he gathers delicately with his prehensile tongue.

In his gait also the giraffe is a trifle awkward. His walk has a nautical roll imparted by the fact that, as the old naturalist puts it neatly, he "moves right and left Feet together." Then when he gallops he goes with a rocking motion which is no less peculiar, his long neck stretching from side to side, his tail twisting over his back, his hind legs overtaking his fore legs, leapfrog fashion, at every step. Yet he covers the ground most effectively, and when his hunters are on horseback, as they usually are, he can generally outpace all but the swiftest horses. He



GIRAFFE HERD.

[S.A. Railways

Giraffes amid their native surroundings. Among the acacias and wait-a-bit thorns their tall, lank outline and bizarre livery loses much of its queer effect, while their movements become the perfection of animal grace.

THE GIRAFFE AND HIS KIN

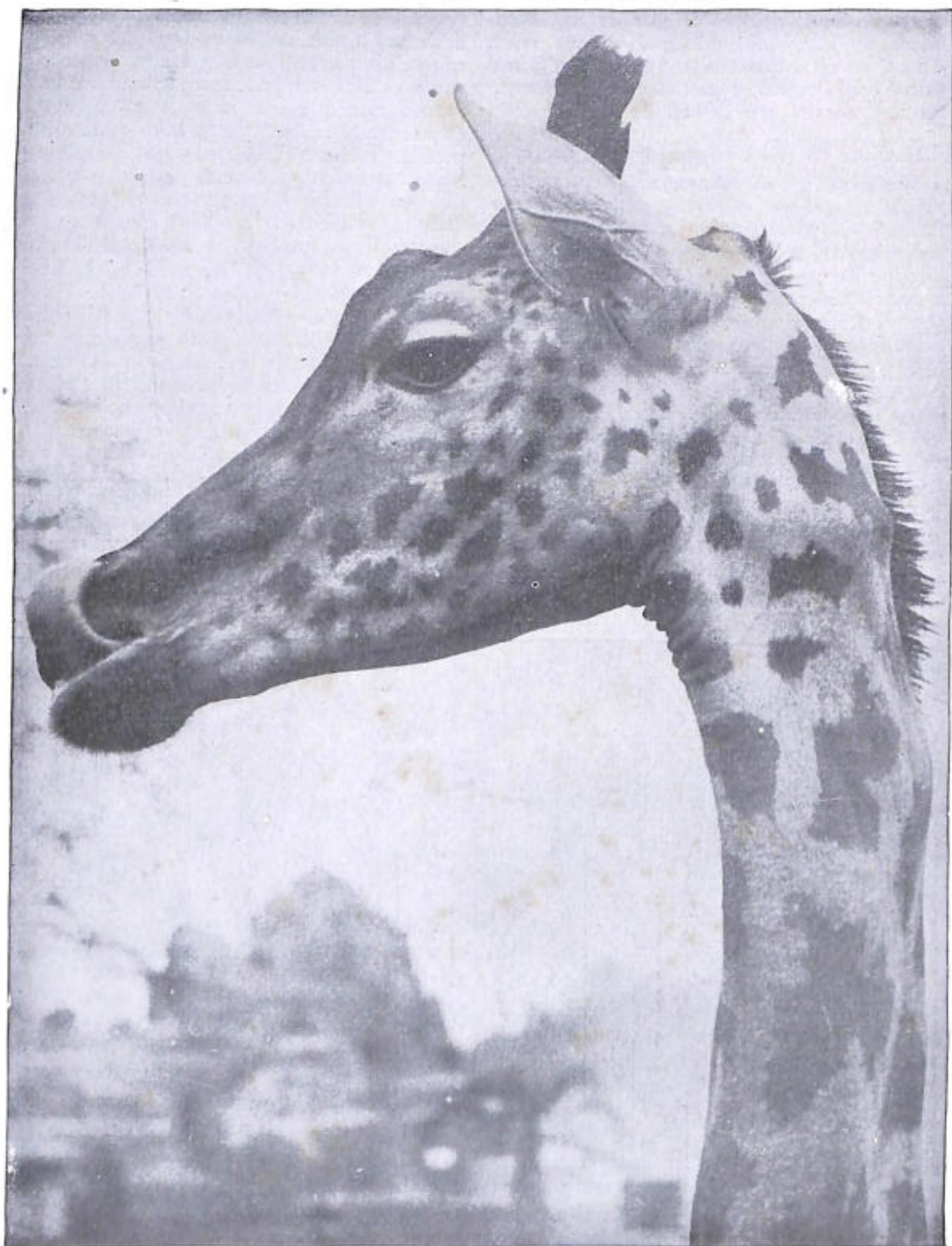
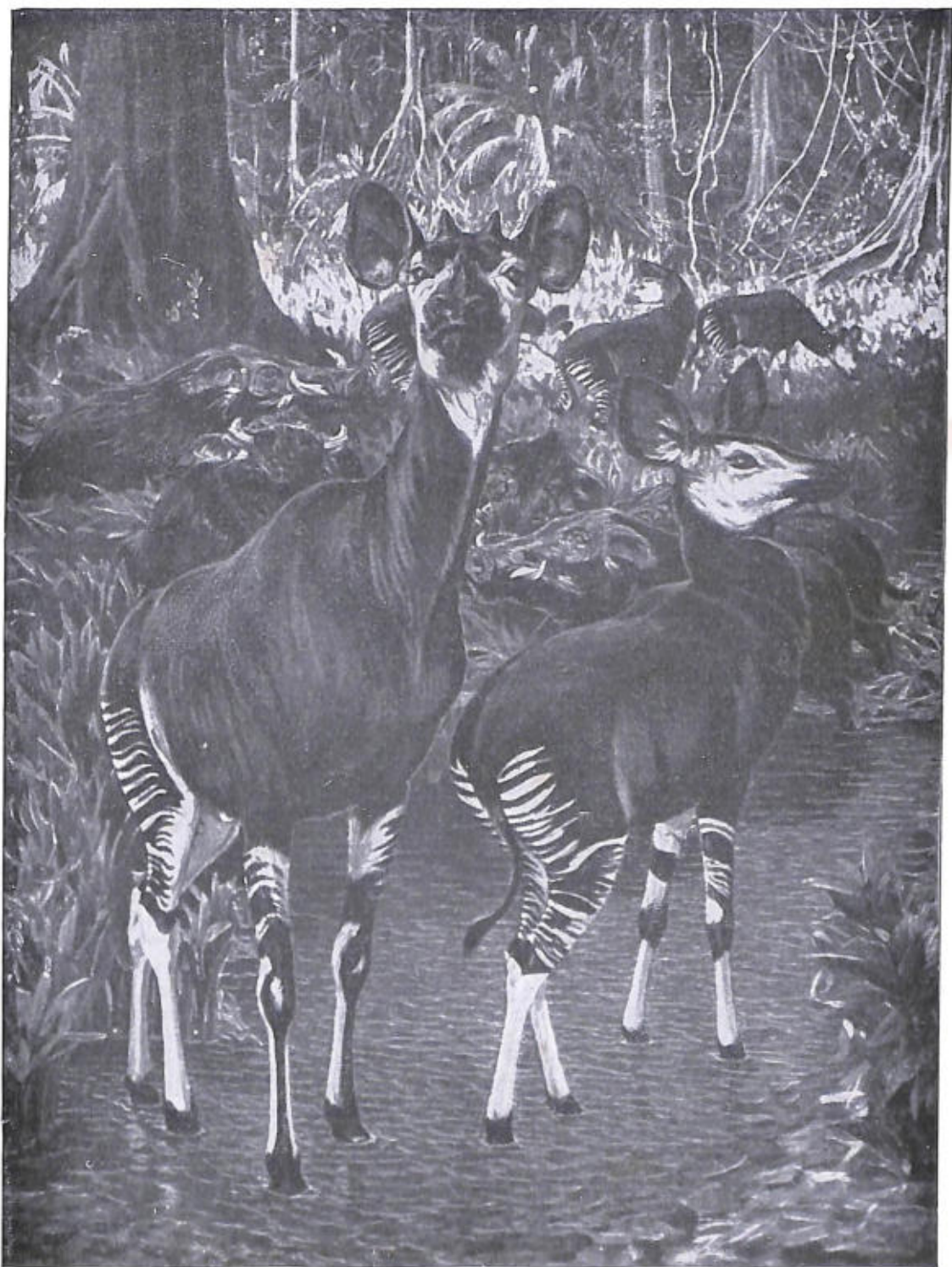


Photo: Studio Ylla]

A GRACEFUL HEAD.

[Mondiale

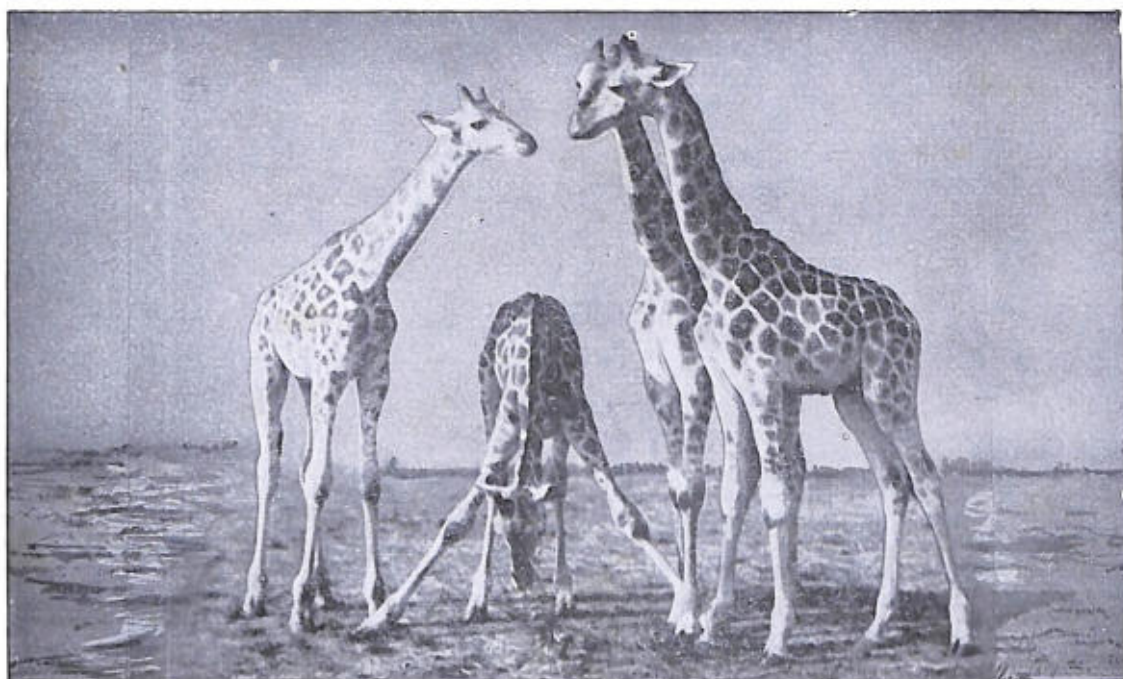
The Giraffe wears an air of delicate aloofness as he surveys the world below. His long neck is a little stiff, for the bones in it are no more numerous than in that of a pig or a donkey, though of course they are larger.



OKAPIS IN THE JUNGLE.

[From the painting by Sir H. H. Johnston]

Above is a picture of the Okapi as he appears in his native jungle. This queer, shy animal, discovered by the famous traveller, Sir Harry Johnston, at the beginning of the present century, is a relative of the Giraffes.



A GRACEFUL GROUP.

[H. J. Shepstone

Though their camouflage is adapted to the light and shade of the mimosa woods, on the open, sandy plains, outlined against cloudless African skies, the Giraffes make a striking picture. When drinking or grazing they splay their forelegs widely apart, in order to reach the ground.

provides breathless and exhilarating though not dangerous sport, and besides is hunted for his tender, well-flavoured flesh and for his hide, which is used for various purposes and fetches quite a good price in the market.

Camouflage among the mimosas.

Defenceless as he is, the giraffe is extraordinarily wary, keen of eye and ear, ever on the alert for the merest hint of danger. He is, besides, one of the finest examples of natural camouflage that one can find, his dappled coat so accurately reproducing the dappled light and shade of the mimosa woods that, huge and tall as he is, at a little distance he may be almost invisible.

He has a mild and pleasant temper and is one of the most harmless of the creatures, yet when he is forced to fight he is by no means without a weapon, and knows well enough how to defend himself. He will lash out with his powerful hoofs as a horse does; or he may use his head after the fashion of a croquet mallet, and with the swing of his long neck behind it, it is capable of delivering a smashing blow. In the pairing season fights between the old males are frequent. These old bulls, by the way, exhale a strong and pungent

odour which has been picturesquely compared to "a hive of heather honey in September."

Giraffes usually travel in herds of fifteen or twenty, though sometimes a hundred or more may form a herd. The little fawn, born about the beginning of the rainy season, is, like most young animals, a charming feature of the company, ranging with its mother through the desert scrub when only a few days old, and early learning to fend for itself. When the whole herd is in motion the sight is an unforgettable one. "Gigantic and exquisitely beautiful," one African traveller called them, "admirably formed by nature to adorn the fair forests that clothe the boundless plains of the interior."

Though for long the giraffe was classified as the only member of his family, yet at the beginning of the present century the late Sir Harry Johnston found in the Congo forest region of Central Africa a creature who is at least a cousin to the giraffe—the Okapi.

The story of the discovery of the okapi is an interesting one. While he was in the neighbourhood of the Semliki River, the great explorer heard rumour after rumour of a strange beast that was being hunted by the pygmy Africans. It was as large as a mule and

striped like a zebra, and was evidently very shy and elusive. Presently, strips of its skin were brought to the explorer, and duly sent to England to be identified. The scientists, poring over these fragments, decided that the mysterious creature was some unknown kind of horse, but Sir Harry Johnston, convinced that the ground was utterly unsuited to any equine species, persisted in his quest after the unknown.

At last his search was rewarded. Two complete skins and then the creature itself were shown to him. The okapi was revealed as an unmistakable relative of the giraffe—just sufficiently different to be placed in a separate genus. Professor Ray Lankester, to whom the skins had been sent, named the newly discovered beast *Ocapia johnstonia*, in honour of the discoverer.

The okapi, though fairly large (about five feet high at the shoulder), has a much shorter neck and shorter legs than the giraffe. The bony protuberances which are his horns are not quite covered with skin but have the tips

protruding. Also his colouring is different, a rich purple brown with white zebra-like markings on the legs, more in accord with the character of the country he inhabits—the dense, steamy forests of Central Africa. On the whole he is not nearly so handsome as his bigger relative, and making his home in the tropical jungle naturally lacks many of the characteristic features of the giraffe. Like the latter, however, he is a shy and in-offensive beast, whose only defence lies in flight or concealment. Unfortunately, he is exceedingly rare, and is in danger of extinction.

More than one traveller has mentioned the spell of the giraffe and okapi—the primitive atmosphere which seems to surround these creatures, the queer elusive quality which makes them a race apart, as distinct from the other animals as nymphs and mermaids are distinct from the race of men. Hunting the former, Mr. R. Gordon Cumming was “inclined to disbelieve that he was hunting living things of this world.” Another hunter, Mr. F. C. Selous, felt that his “rude companions were palaeolithic men,” and that they were “hunting strange beasts in the hot dry atmosphere of a long past geological era.”

The Giraffe's giant ancestors.

One cannot but believe that they belong to the past rather than to the present, and indeed we know from the record of the rocks that such creatures were far more plentiful at an earlier period of the earth's history; and not only these, but other allied forms which have long passed out of existence. Such was the hornless *Helladotherium* found in Greece in the Pliocene period, a giant among the animals even of those ancient times. The *Libytherium* of North Africa; the *Samotherium*, more nearly allied to the okapi than to the giraffe; the *Hydaspitherium*; the *Bramatherium*; and the giant *Sivatherium* of the Himalaya region of India are other ancient forms. The last-named seems to have worn a great pair of antlers in addition to the small giraffe-like horns above the eyes.

Perhaps the ancestors of the giraffe and the okapi also bore antlers at one time, but if so they must have been very different from their descendants of the present day. Antlers on the head of the gentle and graceful Giraffe would not look nearly so effective, or prove so useful, as his own queer skin-covered horns.



[F. W. Bond

A LINK WITH THE PAST.

The Okapi displays his striking colours. He links the Giraffe with the giant creatures of the past.



These Zebras, with numerous narrow stripes decorating their bodies, present a beautiful picture out in the open. They congregate in small herds, and are very fleet and enduring in flight. (Tropical)

ANIMALS VERGING ON EXTINCTION

By W. S. BERRIDGE, F.Z.S.

DO you realise that some of the most beautiful and wonderful of living creatures are fast disappearing from the earth? Nature is very leisurely. Left to themselves, her dynasties rise and fall over immense periods of time. Then comes Man with the ruthless thing he calls civilisation. Unless by a miracle they can fit themselves to the new conditions the wild creatures must perish. So it is that the Snow Leopard, the Wisent, the Scottish Wild Cat—to name but a few—are vanishing almost under our eyes.

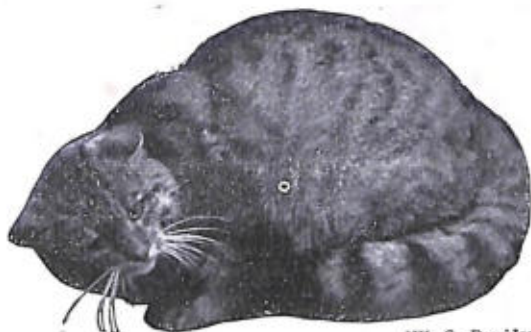
WE all know that many of the mammals, birds, and reptiles that once populated the earth no longer exist, and it is a distressing fact to have to state that others, though still to be numbered among the living, are likely to become extinct at no remote date. The advance of civilisation and the consequent rising up of villages and towns in districts that were scarcely inhabited except by the creatures of the wild; the spread of the use of firearms by the natives; the slaughter of beasts for the sake of their tusks, fur, horns, or antlers, are causes that have contributed, and are still contributing, to the destruction and disappearance of wild life. In justice to big-game hunters, however, it must be said that the trophies they seek are only those carried by old animals that have passed the prime of life; younger beasts with medium-sized horns and antlers are not molested by them.

During the lifetime of our grandparents, the Quagga existed, but in 1864 what was

believed to be the last of its kind died at the London Zoological Gardens. The quagga was somewhat like a zebra in appearance, though only its head, shoulders, and the fore part of its body were striped.

The True, or Mountain, Zebra was once so plentiful in the mountainous districts of Cape Colony that it was called the common zebra. It was generally to be seen in zoological gardens, but now it is so rare that it is more than doubtful whether another living specimen will ever again be shown in this country.

The imposing-looking Grevy's Zebra of Southern Abyssinia and Somaliland, the largest of its kind, brought to the notice of zoologists in 1882, is so rapidly diminishing in numbers that, according to Major R. W. G. Hingston, "it is doubtful whether it can last more than a few years longer." Fortunately, however, the animal thrives well in captivity and will breed in that state, so that, though it may cease to live in a wild state, it may yet be



[W. S. Berridge

THE SCOTTISH WILD CAT.

This beautiful member of the Cat tribe is found only among the rocks and forests of the Scottish Highlands. He is a fierce hunter and a fearless fighter. preserved from extinction for some time to come.

Many Antelopes are fast disappearing. The Bontebok, for instance, no longer exists in a wild state, the few herds that are left being privately owned and protected. In 1933 it was reported that probably no more than seventy remained alive, twenty of which were then dwelling in the bontebok reserve (1600 acres in extent) near Cape Agulhas, South Africa.

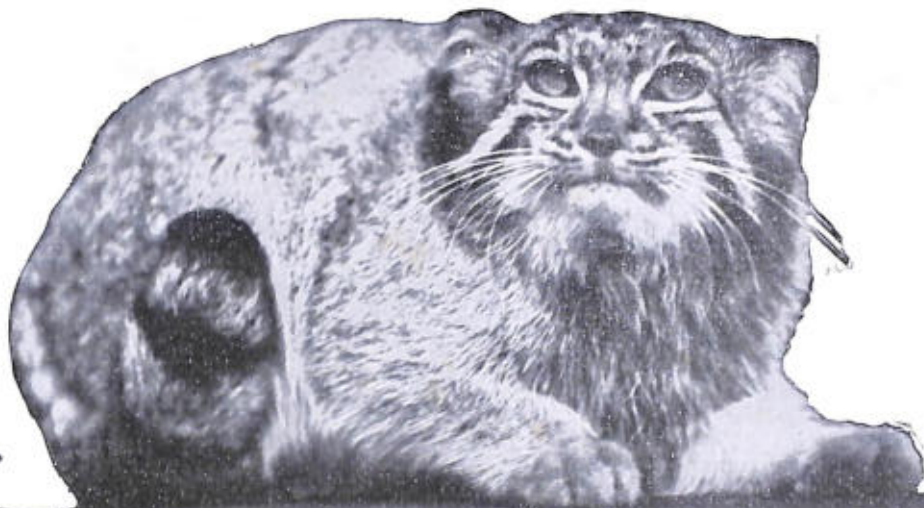
Then there is the White-tailed Gnu, which once roamed over the African plains in large numbers, but is now very rare; while the Sable Antelope, the Greater Kudu, the Bongo, and the Nyala are but a few among the many other species that are quickly vanishing.

The White, or Square-lipped, Rhinoceros is now represented by only two small herds, one, in Zululand, comprising thirty individuals, and the other, in the neighbourhood of the Upper Nile, numbering about two hundred head. The Indian and the Javan rhinoceroses are also very rare; indeed, there is a doubt if any of the latter still exist.

Every one is familiar with the story of the American Bison, which formerly roamed the prairies in their millions. It is said that the last truly wild specimen was killed in the 'eighties of last century, but prior to that event several small herds were collected and liberated in various National Parks and sanctuaries where, owing to the protection afforded them, they have since increased in numbers so rapidly that there is little danger, if any, of the species being exterminated.

But what a different fate has befallen the European Bison, or Wisent, as it is also called. It once roamed over a large part of Europe, but now the only ones that remain are a few specimens kept in captivity. It is to be feared that nothing can save this animal from extinction in the near future. The Okapi, described in the chapter on "The Giraffe and his Kin," is another rare animal that will probably cease to exist at no remote date.

The Cat family is a very extensive one, but some kinds are becoming scarce. It seems strange to speak of the Lion as being on the verge of extinction, but although plentiful



PALLAS'S CAT.

[W. S. Berridge

Here is another rare feline species—Pallas's Cat—a native of the high plateau of Tibet. He is not at all the gentle creature one might imagine from this picture, but on the contrary is exceedingly wild and fierce.



THE PACA-RANA.

[W. S. Berridge

This very rare rodent is a native of the South American wilds. "Terrible mouse" is the significance of its Latin name, and it is fairly descriptive: though somewhat mouse-like the Paca-Rana is two feet long!

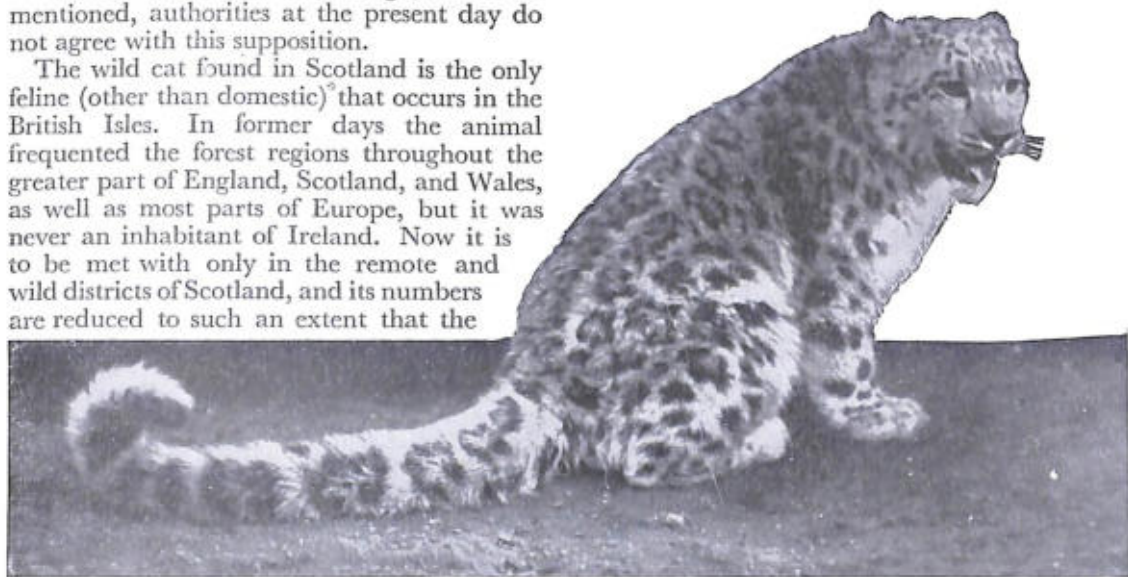
enough in Africa, it is extremely rare, if not extinct, in India. The beautiful Snow-Leopard, or Ounce, is another feline fast disappearing, largely because of the numbers that are killed for the sake of their fur.

Among the smaller cats that are becoming rare may be mentioned Pallas's Cat and the Scottish Wild Cat. The former, which comes from Tibet, is of special interest as Pallas, who first brought the species to the notice of zoologists, considered it to be the ancestral stock from which the long-haired Angoran and Persian domestic cats arose, though, it must be mentioned, authorities at the present day do not agree with this supposition.

The wild cat found in Scotland is the only feline (other than domestic) that occurs in the British Isles. In former days the animal frequented the forest regions throughout the greater part of England, Scotland, and Wales, as well as most parts of Europe, but it was never an inhabitant of Ireland. Now it is to be met with only in the remote and wild districts of Scotland, and its numbers are reduced to such an extent that the

creature will in all probability soon cease to be numbered among British animals.

Of the different kinds of wild dogs that are verging on extinction, even if not already extinct, one of the most interesting is the Red, or Maned, Wolf. For a number of years it was thought that this animal was actually extinct, but this belief was proved to be erroneous by the arrival of a specimen at the London Zoological Gardens, in 1920. This was a gift from a Brazilian mine manager. Not since 1880 had one of those animals been seen in this country,



THE SNOW LEOPARD

[W. S. Berridge

One of the loveliest of the wild cats is the rare Snow Leopard or Ounce, a dweller among the snows of the Central Asian mountains. It has a beautifully rosetted white coat and has been largely hunted for its fur.

and there is little, if any, chance of another being procured. Nocturnal and solitary in habits, the maned wolf is remarkable for the great length of its legs. Deer, sheep, birds, reptiles, insects, and fruit constitute (or constituted) its food, and it has (or had) the reputation of never attacking man.

Another wild dog that was thought to be extinct, but turned up in a most unexpected manner, is the Bush-Dog, a curious, short-legged and long-bodied creature found in South America. On May 23, 1922, one of these animals arrived at the London Zoo in Regent's Park; but prior to that event the species had not been heard of for at least fifty years, and few, if any, can now exist.

Is the Brown Hyena extinct?

Of the three kinds of Hyenas that are known, the Brown Hyena is now to be numbered among the disappearing animals, if it is not already extinct. Also known as the "Strand-Wolf," because of its habit of roaming along the shore in search of crabs, dead fish, etc., its home is (or was) in Africa, though it was never found north of the Zambesi. As it is fairly certain that the brown hyena will never again be seen in Zoological Gardens, it is fortunate that photographs have been secured of this interesting beast, so that our children, and

future generations, will be able to know exactly what it looked like, even if they are unable to gaze upon it in the flesh.

South America is the home of a curious rodent variously known as the Paca-Rana, Branick's Cavy, or the False Cavy; its Latin name is *Dinomys*, which means "terrible mouse." It is a heavily built animal, and measures about two feet in length. Its rarity may be judged from the fact that for a long time its existence was known only by a single specimen which was captured in 1873 by the Polish naturalist, Jelsky, while it was strolling about the courtyard of a building in a Peruvian town. The wanderer was eventually captured, and its stuffed skin was set up in the Warsaw Natural History Museum. Thirty-one years passed without anything further being heard of the species, and it was presumed to be extinct. In 1904, however, two living specimens were caught and exhibited at the Para Zoological Gardens, Peru, and in June, 1925, both the London Zoological Society and the New York Zoological Society obtained one of the animals. It will be interesting to see whether the paca-rana will ever turn up again, though at present there is little doubt that it is almost, if not quite, extinct.

Two kinds of deer, namely, the Milou, or Père David's Deer, and Wallich's Deer, call for



THE EUROPEAN BISON.

(W. S. Berridge)

The European Bison, or Wisent, once widely distributed in Europe, is now nearly extinct. With his massive forequarters and lowering air he resembles his American cousin the Buffalo, but is somewhat less shaggy.



STRAND-WOLVES.

[W. S. Berridge

Here are two Brown Hyenas—or Strand-Wolves—an African species with long, coarse hair. They are often seen wandering along the seashore picking up dead fish, and also include sheep and calves in their diet. They are, however, exceedingly rare, and it is very doubtful if another living specimen will ever be seen.



AN EGG-LAYING MAMMAL.

[W. S. Berridge

This long-nosed primitive creature is the New Guinea Proechidna, an egg-laying mammal that wears both hair and spines, and preys on insects with its long sticky tongue. The male has a sharp hollow spur on his heel.

special comment under the heading of this chapter. The former is especially interesting as its original home is unknown, and there are no records of its existence in a wild state. The only ones now living are a small herd owned by the Duke of Bedford, and kept in Woburn Park, Bedfordshire. In former days a number of these deer dwelt in the Imperial Hunting Park, at Pekin (Peiping), but, during the Boxer Rebellion, when the walls of the park were broken, the animals escaped and were all killed by the populace. The existence of the animals in the Imperial Park was discovered, in 1865, by a French missionary, the Abbé Armand David, after whom the species was named. The curious fact that the antlers are often shed more than once during the course of a year is mentioned elsewhere in these pages.

Wallich's Deer, or the Tibetan Shou, is even rarer than Père David's deer, for only two of them have ever been known. The species was originally described by Cuvier from a drawing of the first known specimen, which Dr. Wallich sent from Nepal to the menagerie at Barrackpore. From that time nothing more was heard of this deer, and it was completely lost sight of until 1912, when a specimen, presented to King George, was exhibited at the London Zoological Gardens. This animal lived until 1926, and its stuffed skin, as well as its skeleton, can now be seen at the Natural History Museum, South Kensington, London.

The diminution in the numbers of the wild life of Australasia has of late years been very marked. That charming little animal from

Eastern Australia, known as the Koala, or Native Bear, is now nearly extinct; yet we read in the *Victorian Naturalist*, of December, 1911, that at one time these marsupials used to be sold as pets at local railway stations for half-a-crown each. Kangaroos are fast disappearing, as well as the various species of Opossums. The remarkable Tasmanian Wolf, or Thylacine, is nearly extinct, and the Tasmanian Devil is also very rare. Unfortunately, both of these animals are addicted to killing sheep, with the result that they are slaughtered at sight.

Wild life that is doomed.

But even more regrettable is the fact that those strange mammals which lay eggs, namely, the Platypus or Duck-Bill, and the Echidnas, are probably doomed to extinction, though it is pleasing to be able to state that, according to the latest report, the few that are left of the former are "holding their own," to make use of a familiar expression. The home of the platypus is in Eastern and Southern Australia, and also in Tasmania.

The Echidnas, or Spiny-Anteaters, as they are often called, are found in Tasmania, Australia, and New Guinea. Two distinct species are recognised, and several local races. The most remarkable, and also the largest, is the New Guinea echidna, or proechidna. Although this animal was discovered in 1876, the species has been represented at the Zoo only on one occasion, when a pair arrived at the gardens. One of them is still living.

Many other animals verging on extinction could be mentioned, but other subjects await attention. Birds and reptiles have not even been alluded to in our survey, but many of these are becoming scarce. The larger kinds of lizards and snakes especially are victims of fashion; immense numbers have been slaughtered within recent years for the sake of their skins, which are employed in the manufacture of ladies' shoes, handbags, etc. Some, such as the Dragon of Komodo and the giant Iguana of the Galapagos Islands, are enigmas of the animal world. Unlike the Buffaloes, Bontebok and Gnus, whose very numbers have brought about their end, these have survived only in small numbers on remote and unfrequented islands. With the Platypus and Echidna they are relics of an older order. The marvel is not that they are rare to the verge of extinction but that in a world of changing conditions they have survived so long.



[F. W. Bond

THE RED OR MANED WOLF.

This long-limbed shaggy Wolf is one of the wild creatures which seem doomed to early extinction. Though a notorious hunter of deer and lesser game, he is said never to attack man.



CAPPED LANGURS. [F. W. Bond

The baby scarcely seems to merit his name, so far!

ALTHOUGH the relationship between man and monkeys is a question that can hardly be dealt with in these pages, it may briefly be said that there is no truth in the statement one hears so often, that we are descended from those animals. What scientists who have studied the subject assert is that man and monkeys arose in the remote past from a common ancestor, and that both are branches from the same stem. Man, of course, belongs to the Animal Kingdom, and also to that important class called mammals. Mammals, however, show such a diversity in structure that it is necessary to divide them into a number of different groups to avoid confusion. The first of these groups is that known as the Primates, and under that name are included man, apes, monkeys, baboons, marmosets, as well as lemurs and their kindred. Strictly speaking the name "monkey" should be applied only to the long-tailed members of the order, but it is often used in a much wider sense.

Of the monkeys proper, the Langurs are a group of long-tailed and slender-bodied animals found in Asia. Of the thirty or more different species that are known one of the most interesting is the Hanuman langur. It receives its name from the monkey-god,

The FASCINATING MONKEY TRIBE

By

W. S. BERRIDGE, F.Z.S.

NEXT to the Apes in importance are the Monkey races. No other animal family shows such a wonderful range of character and appearance. From the fierce-tempered Mandrill, resplendent in scarlet and blue, to the delicate little Lemur and Loris there are Monkeys of every degree, and here you may read their story.

"Hanuman," who was supposed to have constructed a bridge or causeway between Ceylon and India, so as to help Rama (a Hindu god) to recover his wife Seta.

As the Hindus considered these animals sacred, it is not surprising that the creatures soon discover that they are allowed to go about unmolested. Troops of them will visit the corn-fields and orchards to feed upon the crops; even the edibles displayed in the bazaars are not safe from their pilfering hands.

Sportsmen state that these langurs recognise man as their ally against the tiger. When they discover one of the great cats prowling about the jungle, they follow it from place to place, and, from a point of vantage amid the branches, indicate the presence of their enemy by uttering cries which, in monkey language, are in all probability not of a very complimentary nature.

Eastern Tibet and China are the homes of the remarkable Snub-nosed langur. It is a grotesque-looking creature with a small, projecting, upturned nose; while the bluish-grey skin of its face is encircled by a band of bright orange hair, which extends to the neck and chest. It is one of the few monkeys that occur in cold regions; the district where it dwells

THE FASCINATING MONKEY TRIBE



BLACK-FACED SPIDER MONKEY.



DIANA MONKEY.



GREAT GALAGO.



BOSMAN'S POTTO.



ALBINO SOOTY MANGABEY.



IBEAN BABOONS.



BONNET MONKEYS.



RHESUS MONKEYS.

[Photos by W. S. Herridge]



[W. S. Berridge]

A SIMIAN ADORNMENT.

The Moustache Monkey makes an excellent pet. He takes his name from a bluish mark, or "moustache," which decorates his upper lip.

is covered with snow for more than six months of the year.

Closely allied to the langurs is the Bornean Proboscis-monkey. Its enormous, drooping nose, which is flattened upon the under-surface and has the nostrils situated beneath, projects for several inches beyond the face. It is only in the males, however, that this feature is pronounced; in the females it is considerably smaller, while in the young it is short and upturned. The natives believe that these animals are degraded men who, having objected to pay taxes, forsook human habitations and went to dwell in the woods. They also say that when one of the monkeys takes a leap, it holds its nose with its hands.

The Guenons have good manners.

The largest group of monkeys are those known as Guenons, a French word that means "one who grimaces." In scientific language they are called *Cercopithecus*, a name that signifies "tail-monkeys." Found only in Africa, they dwell in troops under the leadership of an old male. All possess cheek-pouches which serve as temporary storing places for food. Of all monkeys they are the most suitable for keeping as pets, not merely because of their appearance, but because of their good manners. It is true that, like other monkeys, they engage in that curious occupation of searching among one another's fur, but, in spite of popular belief, when thus engaged they are not hunting for fleas. What they are so diligently looking for are minute particles of salty scurf that adhere to the skin.

Of the many different kinds of guenons that exist, most possess a coat of a grizzled or pepper-and-salt tint. This effect is pro-

duced by each hair being marked with alternate rings of different colour. The guenon which is known as the Green monkey, for instance, has hairs ringed with black and yellow alternately; these tints merge together till they produce a somewhat greenish effect.

Monkeys with beards and moustaches.

Some of the guenons are adorned with decorative cheek-frills; others have a white band across the forehead, and one kind has a light-coloured patch upon its nose, for which reason it is sometimes called the "Putty-nosed monkey." But the most remarkable of all is the Moustache monkey, a species adorned with a pale, bluish mark upon its upper lip, suggesting a moustache.

Then there is the Diana monkey, a very attractive animal with a white beard. It is said that the creature is very proud of this appendage, and that it carefully holds it to one side when drinking.

The only member of the group found in South Africa is the Vervet guenon. It is similar in appearance to the green monkey, from which it may be distinguished, however, by its white whiskers, black-tipped tail, and reddish patch of hairs beneath the root of the tail. In a wild state this animal feeds to a



MOOR MACAQUE. [F. W. Bond]

This wistful-looking creature, known also as the Barbary Ape, is really one of the most mischievous of the monkeys. He is found in numbers on the Rock of Gibraltar as well as on the Barbary coast.

THE FASCINATING MONKEY TRIBE

great extent upon the gum that exudes from the camel-thorn, a species of acacia tree to be found in South Africa.

Passing to the Mangabeys we come to some varieties known as White-eyelid monkeys because of the pale tint of their upper eyelids. Found in West Africa, they are somewhat larger than the guenons. Like the latter, they possess a very long tail, often carried in an elevated position with the tip curved back and poised almost above the head. Mangabey

monkeys appear to be specially liable to albinism. Several semi-albinos have been exhibited at the Zoo, and a total albino (with pink eyes) is to be seen there at the present time. The pink colour of the eyes in an albino is due to the absence of pigment upon the surface. This lack of colouring matter allows too much light to pass to the back of the eyes, with the result that an abnormal strain is placed upon them. As it was noticed that this albino monkey at the Zoo was continually shading its eyes with its hands, and was obviously in discomfort, the authorities at the Gardens endeavoured to ease matters by supplying the creature with a specially made pair of spectacles. The patient, however, could not be induced to wear them on any account; no matter how firmly they were fixed on it always managed to get them off somehow.

The Colobus or Guereza monkeys are of special interest because of the structure of their hands. As a rule the thumb is absent, though it may be represented by a small, knob-like growth which may, or may not, be provided with a nail. The name "colobus" means "maimed" or "mutilated." Although few monkeys can truthfully be described as beautiful, the guerezas are cer-

tainly very imposing-looking creatures. Their black-and-white coats are sometimes adorned with long, white flounces that hang down on either side of the body, or the face may be surrounded with a white frill. The tail, moreover, terminates in a large, white tuft. It might be imagined that the contrasting, pied colouring would render the animals very conspicuous in their haunts, but such is not the case. The white frills and flounces look exactly like the masses of grey lichen that

grow upon the trees amid which the monkeys dwell, so that when they are at rest they are not easily seen. Guereza monkeys are much persecuted by the natives for the sake of their skins, which are used for decorating shields; large numbers of skins are also exported overseas to satisfy the demands of fashion for the trimming of coats, mantles, etc.

With the Macaque monkeys we have a group comprising about twenty species, most of which come from Asia. They differ from one another in the length of their tails. Sometimes these are of considerable length, sometimes very short, sometimes only represented by a rudimentary growth, while in some macaques



[W. S. Berridge]

THE PIG-TAILED MACAQUE.

Certainly his little curly tail reminds us of a pig's, but his Malayan name of "Bruh"—climber of the palms—is equally descriptive and less cumbersome.

they are absent altogether.

One of the best known of the long-tailed species is the Bonnet monkey. It comes from Southern India, and receives its name from the crest of hair upon the top of its head. It spends most of its time in the forests, but will sometimes visit the towns to steal grain that is exhibited for sale in the bazaars. The range of this monkey does not include Ceylon; in that island the creature is represented by a very similar species called the Toque monkey which possesses a more bushy growth of hair, resembling a toque, upon the top of the head.

THE FASCINATING MONKEY TRIBE

Another familiar species is the Rhesus macaque; it is also known as the Bengal monkey, and the Hindus call it "Bhundur." In some districts the animal is regarded as sacred, and it may often be seen sitting upon the roofs of houses. Rhesus monkeys congregate in large parties, and feed upon grain, leaves, fruit, lizards, insects, etc. They are of a somewhat quarrelsome disposition and the stronger members of a troop are apt to bully their weaker brethren in a most shameless manner. When fighting they make a great noise and grow red in the face, but their combats do not, as a rule, result in serious injury to any of the parties concerned.

The underground route.

The Malay Peninsula is the home of the Pig-tailed macaque, the caudal appendage of which is quite small, slender, and curly. Known by the natives as "Bruh," which means "climber of the palms," the creatures are often kept as pets and trained by their masters to climb coconut palms and shake down the ripe fruit.

Another species that must not be overlooked is the Barbary macaque. Of all monkeys it is the only kind to be found in a wild state in Europe, where it inhabits the rocky prominences of Gibraltar. Whether it is a true native of that part is unknown.

Some people think that the monkeys arrived there as stowaways upon sailing vessels; but the most extraordinary explanation of their presence is that they journeyed from Africa through a subterranean tunnel. The writer has been informed, by a sea-faring man with a very vivid imagination, that this means of communication is still in existence, and is used by the animals when they feel inclined to pay a visit to their companions on the opposite shore. Possibly the real solution of the question is that the monkeys originally established themselves in Europe at a very early date, before Southern Spain was separated by sea from North Africa. The fact that the bones of the elephant, rhinoceros, and hyæna have been found in the caves of Gibraltar certainly leads to that conclusion.

At one time these monkeys were very plentiful on the rocks of Gibraltar, so much so, that their numbers had to be reduced because of the damage they did in the cultivated areas. So drastic was this thinning out, however, that the animals were nearly exterminated and, according to the records that

have been kept regularly since the year 1850, only three were left living on the rock in 1863.

Other monkeys were then imported from Barbary and set free, but their numbers did not increase very rapidly, and in 1875 the troop consisted of only eight adults and some young ones. In 1909 only four were left, and once again fresh stock was brought from oversea. Four of the monkeys were shipped from Morocco, but no sooner had they been liberated in their new home than one was killed by the resident animals. The year 1921 proved to be a fateful one, for an old male suddenly developed a passion for killing the females, with the result that the colony was again reduced to about eight before the animal responsible for the murderous attacks could be discovered. This beast was then caught and most of his teeth were extracted so as to make him harmless. But even this drastic treatment did not prove effective; as soon as he was set free he turned his attention to coaxing the females to the highest points of the rocks and, one by one, pushed them over the edge of the precipice, at the bottom of which their mangled bodies were afterwards found as a witness to his guilt. His days of evil deeds, however, eventually came to an end; the criminal was captured and sent to the London Zoo, where he finished his days behind iron bars.

The Barbary macaque, or Barbary ape as it is often called, has an interesting association with the medical profession. The old Greek physician, Galen, born about A.D. 131, made a study of its anatomy and wrote some books recording his observations thereon. At that time it was not permitted to dissect the human body, and doctors used the lower animals.

Training dog-faced Baboons to work.

The most handsome of the present group is the Lion-tailed macaque, or Wanderoo monkey as it is often called. Its fur is mostly of a black colour, but its face is almost completely encircled by a large, grey beard and ruff. The long tail ends in a bushy tuft, hence the creature's name, "lion-tailed."

The most repulsive looking of the monkeys are the Baboons. The large head, closely-set eyes and bloated appearance of the face (due to the great development of the upper face-bones) give them a very unprepossessing appearance. They are powerful and heavily-built, and possess enormous canine teeth that are almost as large as those of a lion. When

THE FASCINATING MONKEY TRIBE



THE CHACMA BABOON. [F. W. Bond]

Great strength and fierceness make the South African Chacma Baboon a very formidable creature indeed.



THE MANDRILL. [F. W. Bond]

One of the most repulsive of beasts is the Mandrill, and his temper is suited to his facial distortion.



DOG-FACED BABOONS

[Photopress]

Ugly and repulsive as they are—powerful, crafty and cruel—these creatures were venerated by the ancient Egyptians, and their bodies embalmed. Even to-day they are sometimes tamed and trained as pets,



CAPUCHIN MONKEYS. [F. W. Bond]

The way the hair grows on their heads gives them the look of cowled monks—hence their name. They are native to Central and South America.

attacking, they fix their teeth in the flesh of the adversary and, with a strong pull, tear right through the flesh without relaxing their grip. Although so strong and savage, baboons are sometimes kept as pets. One animal, owned by a Cape railwayman who had lost his legs, earned considerable fame by the manner in which it assisted its master to work the shunting-points of the line. It also pushed the trolley which the man used when journeying from place to place on his railway duties.

The Mandrill appears in rainbow tints.

The Sacred or Arabian baboon claims special attention, as it is the animal that was venerated by the ancient Egyptians. It was consecrated to their god "Thoth," and was frequently depicted upon their monuments. Moreover, in Thebes a burial ground was set aside for the interment of the creatures' mummified bodies.

Mention of the Mandrill must not be omitted, for, without doubt, it is the strangest looking of all baboons. Its projecting eyebrows and deeply-set eyes impart to the creature a very unpleasant expression, but the most extraordinary characteristic of the animal is its colouring. On either side of the face,

extending from the eye to the level of the nostrils, is a large, ribbed swelling of a pale blue tint; while the space between the two swellings, which forms a central line down the face, is bright red, as also are the lips and nose. When the animal turns round and presents a stern view another colour scheme is presented which is almost as remarkable as that upon the head, the bright red callosities of the hind-quarters being sparsely covered with pink, heliotrope, azure, and lilac hairs. It is only the adult males, however, that appear in this bright livery, and never the females or "juniors."

The "cowled monks" of the Monkey tribe.

So far we have dealt only with the Old World monkeys, but we now come to the New World or American species. There are several ways by which the latter can be distinguished from the former. None of them, for instance, have the naked callosities upon the hind-quarters, and cheek-pouches are absent in the American monkeys. Moreover, the nostrils of all American monkeys are directed outward (not forward as is the case with the Old World monkeys) and are separated from each other by a broad band of gristle.



[H. J. Shepstone]

HOWLING MONKEY

The South American Howler has a curious natural amplifier, or "loud speaker," in his throat, which gives to his voice its loud and penetrating quality.

THE FASCINATING MONKEY TRIBE

The best known of the American monkeys are the Capuchins, which have an odd likeness to cowed monks. There are a number of species. Their range extends from Central America to Paraguay, where they dwell in the forests, spending their whole time in the trees. Their long tail is prehensile, as it is employed as a grasping organ.

The Woolly monkeys are other American species. Found from Ecuador to Venezuela, they are characterised by their rounded heads; short, woolly and black hair, and large brown eyes. The creatures look exactly like miniature negroes. They are of an affectionate disposition and make good pets. The natives, however, hunt them for their flesh, which they regard as a great delicacy.

Capturing Monkeys with poisoned arrows.

The Spider-monkeys are distinctive-looking beasts. They have a very slender body and very long limbs. As a rule the hands are not provided with a thumb, though sometimes that digit is represented by a small, wart-like growth. The tail is highly prehensile; the animals can hang from a branch by that member alone. The natives, who eat the flesh of these monkeys, capture them by means of poisoned arrows. Before the venom has time to take full effect they rub salt into the wounds as an antidote, so that the creatures quickly recover from the effects of the poison.

Other American monkeys of special interest are the Howlers. Of all kinds they are the noisiest; an individual is able to produce such a volume of sound that one might imagine a troop of the creatures were uttering their cries. The loud and penetrating nature of their voice is due to the presence in their throat of a large, bony swelling which acts as a resonating-box or amplifier. In order to accommodate this sound-producing organ the

monkeys' jaws are very large and of exceptional depth. The tenacity of their prehensile tail is so great that if one of the animals is shot it will often remain suspended from a branch by that member alone for several hours after it has been killed.

A prowler by night.

Before passing to the Marmosets, mention must be made of the *Douroucoulis*, the squirrel-monkeys, the *sakis*, and the *uakaris*. The first of these are also known as Owl-monkeys, because of their nocturnal habits and the large size of their eyes. Found in South and Central America, they grow to a length of about twelve inches, exclusive of their non-prehensile tail, which is a few inches longer. During the daytime the animals hide in the holes of decayed trees.

The Squirrel monkeys are chiefly remarkable for the elongated and bulging nature of the back of their heads. Another peculiarity is that a black patch surrounds the mouth, so that the creatures look as if they have been drinking ink and have forgotten to wipe off the stain. Their tails are not prehensile; when resting, the animals will often curl them around their own necks. Humboldt tells us that the squirrel-monkey is of such a sensitive



THE WHITE-HEADED SAKI.

[W. S. Derridge

This rare member of the Saki tribe—a very distinctive group of South American monkeys—is a native of Brazil. He presents a curious appearance with his bushy, non-prehensile tail and black fur from which his "white" (pale-ochre) face looks out with the startling effect of a mask. He is as shy as he is rare, has a strong love of freedom and seldom lives long in captivity, even in his native country.

THE FASCINATING MONKEY TRIBE

nature that tears will come to its eyes when it is scolded. It also has the curious habit of watching the mouth of a person who is talking, and placing its hands upon the speaker's lips as if to find out where the sound originates.

The Uakaris claim the distinction of being the only American monkeys with a short tail. Of the three different species that are known, two have a bright red face, while that of the other is black. The hair of all is long and silky. Arboreal in habits, the animals dwell

its name its head is not white, but is clothed in short hair of pale-ochre tint. This stands out in such weird and striking contrast against the jet black fur of the body that the animal looks exactly as if it were wearing a mask to cover its head.

Squirrel-like creatures.

The Marmosets are pretty little animals about the size of a squirrel. There are a number of different species, divided into two



THE DOUROUCOULI.

[W. S. Berridge]

This small, woolly Monkey with its humorous face and expressive eyes reminds us of a wise old man! It makes an amusing pet when tame. In the wild state Douroucouis travel in groups, living mainly on fruit and insects. They are more active at night, and like some other American monkeys, utter appalling cries.

in small parties amid the tree-tops; their food consists of fruit.

The Sakis are strange-looking creatures that come from Guiana and the Amazon valley. They possess a long, thick coat, and their non-prehensile tail is very bushy. The best known is Humboldt's saki, a species that has been exhibited at the London Zoological Gardens on several occasions. It does not thrive well in captivity, however, not even in its native country. But the most remarkable of the group is the White-headed saki. In spite of

groups, namely, the Typical or Short-tusked marmosets, and the Tamarins or Long-tusked marmosets, in which the incisor teeth of the lower jaw project beyond the level of the other teeth. Except for the great toes, all the digits are provided with a sharp and pointed claw. The animals possess shrill, high-pitched voices; sometimes they make a noise like the twittering of a bird. They have thick woolly fur, and because of their small size and attractive appearance they are often kept as pets. They are somewhat

THE FASCINATING MONKEY TRIBE



THE DWARF LEMUR.

[W. S. Berridge

The Dwarf Lemur of Madagascar (where it takes the place of the dormouse) is a tiny, large-eyed creature, whose size may be gauged from the grapes shown in the foreground of the picture. Like most of the large-eyed-lemurs and lorises it is nocturnal in habit. Insects and fruit form its principal diet. It gathers a store of fat in its tail, and during the summer sleep eats nothing at all.



RING-TAILED LEMURS.

[W. S. Berridge

This soft, furry bundle is a family of Ring-tailed Lemurs, huddled close together in friendly fashion. These animals are sometimes kept as domestic pets and allowed to run about the house like cats. In their wild state, these Lemurs live among rocks and precipices, jumping from place to place like tiny kangaroos. Their "ring-tails," though very long and handsome, are non-prehensile, and thus of no use for climbing.

THE FASCINATING MONKEY TRIBE

delicate, however, and must be kept warm and free from draught. They have been known to breed in captivity; unlike the higher types of the monkey family they usually have two, and sometimes even three, babies at a time.

A Monkey with a mane.

The best known of the typical marmosets is the White-eared or Common marmoset, while another that is well known is the Black-eared marmoset. With both kinds the ears are decorated with long hair that takes the form of a fan-like tuft.

Of the tamarins the Lion-tamarin (or lion marmoset as it is often called) is the species most frequently seen in captivity. It is the largest of its kind, and measures nearly two feet in length, inclusive of its long tail. It is an attractive-looking animal with a long, silky coat of a golden-yellow colour. Around the face and head this grows in the form of a mane, suggesting that of a lion, hence the creature's name.

Among the group of animals collectively known as Lemuroids the most familiar are the true lemurs, the mouse-lemurs, the galagos, the pottos, and the lorises. Most of them come from Madagascar, though some occur in Africa and in Asia. They rank as the lowest of the Primates, and are mainly arboreal and nocturnal in habits.

By far the best known of the first-mentioned group is the Ring-tailed lemur, a creature that is often kept as a pet. It thrives well in captivity, and not infrequently breeds in that state. When quite young the baby lemur clings to its mother by coiling itself round her slender waist, with its tail twisted round its own neck, thus converting itself into a kind of living girdle; but when it gets older it rides straddled across her back. The fur of

this animal is of a silvery grey tint, but that upon the tail is decorated with alternate transverse black and white rings. Each eye is surrounded with a black, mask-like patch. Unlike most lemurs this species is not arboreal in habits; it dwells in rocky districts where trees do not flourish. It is very fond of basking in the sunshine; when thus engaged it sits up on its haunches like a squirrel and spreads out its arms so as to obtain the full benefit of the warmth.

The Black lemur is a specially interesting species because the two sexes differ the one from the other in colouring. The fur of the male is black, but the female is brown, with whitish whiskers upon the face. At one time the two were thought to be distinct species.

The largest and most handsome of the lemurs is the Ruffed lemur. The typical form possesses fur of a black-and-white colour, the two tints being distributed over the body in irregular patches. Quite white individuals, however, occur, and also a variety that is almost entirely of a reddish-brown tint. The ruffed lemur is reputed to be more noisy than other kinds; its cry resembles a cough.

The Mouse-lemurs are the smallest of their kind; some attain a length of only a few inches. They are nocturnal in habits and dwell in the tree-tops, where they make their homes in holes, or build nests composed of twigs and leaves. During the hot and dry season certain species undergo a period of summer sleep or æstivation, when they abstain from food for several weeks on end.

Before commencing their long slumber they eat as much as they can, thereby storing up a reserve of fat (especially upon the tail) that is gradually absorbed into



Photo - H. Bastin] A PAIR OF LEMURS. [Mondiale

These Ring-tailed Red-fronted Lemurs of Madagascar and Mauritius are much favoured as pets. Unlike other Lemurs they are most active by day.

THE FASCINATING MONKEY TRIBE



THE SLENDER LORIS.

[W. S. Berridge]

A small Oriental lemur, not much bigger than a rat, is the Slender Loris. From its round bright eyes like headlights, which enable it to follow its prey in the dark, we may guess that it is a night rover. It spends its time among the trees, and is very stealthy in its movements. It is tailless and is exceedingly slender.



THE DWARF MOUSE LEMUR.

[F. W. Bond]

The little Mouse Lemurs are the smallest of their kind, some of them no larger than the mouse from which they are named. They are nocturnal in habit and aestivate during the summer, having previously stored up a good supply of fat in their tails. Their homes are built of twigs and leaves high up among the tree-tops.

THE FASCINATING MONKEY TRIBE



THE RUFFED LEMUR. [W. S. Berridge]

A charming portrait study in black and white. The Ruffed Lemur, one of the handsomest members of the whole Monkey tribe, is justly proud of his fine tail.

their system during the time they are fasting.

The Galagos, or African lemurs, are also known as "bush-babies." Like the mouse-lemurs they either build nests, or hide in the cavities of decayed trees. Their ears, which are very large, can be partly folded up, a provision of nature that prevents those delicate organs from being damaged when the creatures are making their way through the dense foliage of the forests. The animals vary very much in size; the largest measures about a foot in length, inclusive of its bushy tail, while the smallest is less than half that size.

The "Wind-monkey" foretells the coming of rain.

The Lorises, of which there are two kinds, namely, the Slow-loris and the Slender-loris, are strange-looking animals found in Asia. In Siam the former is spoken of as the *Ling-lom*, which means "wind-monkey." It receives this name because of the curious whistling sound it produces; this is supposed to be a sign of approaching rain. Many superstitious beliefs are held with regard to this creature. The native sailors believe that

if they carry a live loris on their vessels the ships will never be becalmed. The animal's fur is also used as a remedial agent for applying to wounds, and its dead body is supposed to be endowed with uncanny power. Should a native have a grudge against a neighbour, he does not indulge in a bout of fisticuffs or argue matters out, but secretly buries the body of a dead slow-loris under the threshold of his enemy. This proceeding, so he thinks, will avenge him by causing the offender to commit a crime for which he will be punished. It is not on record whether the "vengeance" is effective.

The Slow-loris is a plump-looking little animal, about twelve inches in length, with no tail; while its greyish fur resembles wool more closely than hair. Nocturnal and arboreal in habits, it feeds upon fruit, insects, small birds, and their eggs. During the daytime it sleeps curled up comfortably with its head tucked beneath its body, for which reason the pretty creature has been appropriately dubbed the "Bashful monkey."



GALAGO AND YOUNG. [F. W. Bond]

Here is the Maholi Galago instructing its baby, which is no larger than a mouse, in the art of tree-climbing. This native of East Africa is a tree dweller, and has very large eyes and silky fur.

THE FASCINATING MONKEY TRIBE

The Slender-loris, of Southern India and Ceylon, is much smaller than the slow-loris; it measures about eight inches in length. It has no tail, and its body and limbs are so slender that it looks as though it were suffering from some wasting complaint. To add to its peculiarities its enormous eyes are set very close together.

West Africa is the home of the Potto, a creature that is remarkable for the fact that its index fingers are nailless and are reduced to mere stumps. It is nocturnal in habits; it spends the night searching for food and sleeps during the daytime, clinging to a bough with its hands and feet held close together and its head tucked between its arms. In this position it looks like some natural projection of the tree and so escapes notice.

The Aye-Aye nests among the trees.

The rarest of the lemuroids is the Tarsier. Nocturnal and arboreal in habits, it dwells amid the thick bamboo jungles. It possesses a long tail, which is quite bare, except at the base and tip. The eyes are enormous, and the extremities of the fingers and toes are provided with long, disc-like expansions that act as suckers. When jumping from one stem of bamboo to another its passage through the air is exceedingly rapid and its progress has been compared to that of a frog.

The last of the present group of animals is the Aye-Aye. It differs from all other lemuroids in so many ways, however, that, in zoological classification, it is placed alone as the sole representative of its genus. Found only in Madagascar, where it dwells in the thick

forests, it passes the daytime asleep in a globular-shaped nest composed of leaves and twigs. Its name is said to be a corruption of the native name, taken from its eerie call, a long-drawn-out "Aye-aye-ee!" which rings through the forest at night as the creature seeks its prey among the branches. Grubs and insects are its favourite food, but it also eats fruit, birds' eggs and sometimes the birds themselves. It is especially fond of the juice of the sugar-cane, and may often be found by night in the sugar plantation, gnawing through the sweet cane with its sharp rodents' teeth.

Its body is covered with dark-brown or almost black hair, as also is its bushy tail. Its ears are of enormous size, while its fingers are very slender, more especially the middle one on either hand, which is no thicker than a stout piece of wire. These attenuated fingers are used by the animal for dislodging grubs from between the crevices of the bark of trees, and also for the purpose of extracting the contents of an egg or nut. When feeding upon one of the latter the animal first of all bites a hole in the side with its teeth, after which it holds the object with one hand against the side of its open mouth. It then places the slender finger of its disengaged hand through its open mouth from the opposite side and, with a rapid and ingenious backward and forward motion, scoops out the contents of the egg or nut.

Aye-Ayes are seldom exhibited in zoological gardens, as, in addition to being very rare, they are held in great dread by the natives, who will not be induced to capture them.



THE AYE-AYE.

[W. S. Berridge

This queer creature is the Aye-Aye, an animal allied to the Lemur family. About the size of a cat, it has rodent-like teeth, is nocturnal in its habits, and is found only in Madagascar. Its hands are like those of a monkey, except for its fingers; the third finger especially is long and slender and used for extracting insects from crevices. Other items of the Aye-Aye's very mixed diet are eggs, grubs, nuts and fruit.

BEARS AND THEIR COUSINS

By C. Bernard Rutley



Very sedate and harmless seems this family of Grizzly Bears, and it is difficult to realise that of all Bears these are to be most dreaded, not only on account of their great strength, but also because of their cunning. [Mondiale]

*T*HERE is a romantic element in the story of the Bears. Cunning and fierce, they roam at large over vast tracts in widely separated regions of the globe, a challenge to the hunter and a peril to the peaceful settler who is trying to raise stock. In this chapter you may study them in their native haunts—catching salmon, hunting the wild deer, sucking the scurrying ants from the ant-hill, or scraping the honey out of a wild bees' nest. From the giant Polar Bear, who brings up her babies in a marvellous snow hut, to the little furry Pandas and Raccoons, they are an engaging family.

THE Ursidae or Bears are one of the most widely distributed of the larger animals, and bears or their relations may be found inhabiting such different regions as the cold lands and frozen seas of the Arctic, or the tropical forests of India and Malaya.

The Brown Bear is perhaps the most cosmopolitan of the family, for it or its allies are found in Europe, Africa, Asia, Japan, India, Siberia and America. The fur is usually brownish in colour, but black, grey and yellowish varieties are known. In size it varies greatly. The European brown bear will sometimes reach a length of 8 feet, whereas its cousin in the Himalayas averages only 5 feet, whilst the giants of the tribe, the massive Kamchatkan and Alaskan brown bears, grow to a length of 9 feet or over, measuring from the tip of the nose to the root of the tail, with a height of 5 feet, and weigh as much as 1,600 pounds or more. These bears are the largest land carnivorous animals in the world. In the ursidae the females are always smaller than the males,

which are clumsy, ponderous, coarse-featured animals when compared with the she-bears.

Brown bears range all over the North American continent from Alaska to Mexico, and the majority of their habits and characteristics are shared by the rest of the ursidae, so that they may be accepted as representative of the family.

Bears, as a rule, are good-natured animals, and are quite willing to mind their own business so long as no one interferes with them. This does not mean that they are cowardly. On the contrary they are courageous animals, but, unlike so many other denizens of the wild, they are neither blood-thirsty nor vindictive. To which qualities may be added prudence, so that unless irritated or forced to fight, a bear will usually regard discretion as the better part of valour. Except when hunted, the usual reason why a bear attacks a human being is probably because it is suddenly surprised, and it attacks on impulse before it has had time to reason the matter out. In such a case the bear will usually

BEARS AND THEIR COUSINS



FEEDING TIME AT THE FARM.

[Topical Press

This delightful photograph of Alaskan bear cubs was taken at a "bear farm" in Wayne, New Jersey. The little cubs are about three months old, and their antics as they drink their milk are very amusing.



THE BROWN BEAR. (F. W. Bond)

An agile tree-climber, the Brown Bear retires in winter to the densest part of the forest to make a burrow in which to hibernate.

make a few savage snaps at its enemy and then, suddenly realising that it is making a lot of bother about nothing, will turn tail and run away, probably quite as much scared as the human being whom it attacked.

The Bear at bay.

But a she-bear with cubs, or a bear wounded or at bay, is a very different proposition to one which has been accidentally disturbed. Such a bear may throw caution to the winds, and charge, regardless of danger and with devastating effect, or it may resort to cunning, and set out to hunt its hunter. When a bear does this it shows sure signs of intelligence. It will deliberately lay false trails in order to confuse the hunter, and will then sometimes return to its back trail by making a wide circle, and there lie in ambush, waiting for its pursuer to pass by. If the hunter is incautious or unversed in the ways of bears the first intimation he will have that he is himself being hunted will probably be the sight of a vast bulk with gaping red jaws hurtling towards him through the undergrowth, and unless he is a good shot he will

add another to the long list of hunters who have been killed by the bears they were hunting.

It is quite a mistake to suppose that bears hug their enemies to death. A Brown or a Grizzly Bear standing 5 feet high at the shoulder has no need to stand on its hind legs to attack a man; indeed in such a position it would be at a disadvantage, for its fore-paws and jaws would be high above its adversary, whilst all its most vulnerable parts would be presented to the aim of the hunter. If attacked by dogs a bear will sometimes seize one of the animals between its fore-paws and crush in its ribs, but this is the nearest approach to hugging ever indulged in by a bear, and in attacking a man it will invariably use its jaws; once a hunter has been seized by a big bear he will be lucky if he escapes with his life.

The powerful Grizzly.

In the North American continent there is no animal which can compare with the grizzly or brown bears, either in strength or in fighting powers, and a big Alaskan Brown Bear could quite probably give a very good account of itself against the animal monarchs of other lands. Yet these mighty animals possess none of the acute senses of sight, hearing and smell which are found in most wild creatures. A bear's eyesight is poor and its hearing far from acute; indeed, of the three senses, their sense of smell seems to be the most developed, and a bear probably relies more upon its nose than upon its eyes or ears to lead it to food, or to warn it of the presence of an enemy.

But, though their senses are so ill-developed, bears appear to possess mental faculties equal to those of any other wild animal. Men who have had long acquaintance with bears will tell you that they have a definite sense of humour and are fond of a joke. In winter, when the snow-covered ground records every trail, bears have been seen walking backwards, with the undoubted reason of misleading any hunter who might light upon their tracks, and it is affirmed that they are able to imitate the calls of some kinds of deer, and that they use their imitative powers to lure the deer within reach of their deadly jaws.

The strength of a big bear is enormous. With a single blow of its mighty fore-limbs it can fell a large deer, and then, picking it up in its powerful jaws, will carry it for quite a

BEARS AND THEIR COUSINS



THE BEAR AT HOME.

[Mondiale]

Roaming in its forest home in the wilds of Canada, the Bear fends for itself, feeding on fruits, roots, ants and honey. Unfortunate woodmen are not exempt from its ferocity when it is roused.

considerable distance, and will even wade through a stream on its hind legs whilst carrying the carcass in its mouth.

Yet, despite their bulk, bears are by no means slow or awkward in their movements, and when the need arises they can thread their way through the forest undergrowth swiftly and without noise. In the usual way, when going about its daily business, a bear walks with its muzzle pointing towards the ground and with its head swinging slowly from side to side, whilst it covers the ground with a curious shuffling gait as though the last thing in the world that is of any consequence is time. But let no one be deceived by this apparent lassitude. Alarmed or in pursuit of its quarry a bear can move with surprising speed. When running it moves both legs of one side at the same time, giving its movements a most ungainly appearance, though in no way detracting from its speed, whilst it will charge an enemy in a series of immense bounds 12 feet or more in length.

Bears are clever acrobats.

The claws of the brown bear and the grizzly average between 4 and 6 inches in length, and they are almost straight, which accounts for the fact that these bears are unable to climb trees. Bears which climb trees find those with rough bark much easier to climb than those with smooth trunks, and old or heavy bears will never climb a tree the boughs of which are not strong enough to support their weight. If the trunk is

large, a climbing bear uses its claws to pull itself upwards, but so long as the tree is not too thick it will embrace the trunk with its fore-limbs, and with its rear paws firmly gripping the bark and its chest pressed against the tree, work its way upwards. All bears have good heads for heights. Brown and grizzly bears can scale mountains, and in



THE FIERY GRIZZLY. [F. W. Bond]

The Grizzly Bears have become very rare animals. Most of them have been trapped or poisoned by ranchers.



A CLEVER DISPLAY. [H. J. Shepstone]

Two Black Bears enjoying a romp with a waste-paper basket, give a display of animal acrobatics. Very frisky and full of high spirits, they are easily trained to perform clever and amusing tricks.

doing so often reach almost inaccessible ledges, whilst tree-climbing bears can walk to and fro upon the branches, or stand upright upon their hind legs without any danger of losing their balance. Bears as a family are fond of water and are good swimmers, and in the summer they may often be seen bathing in the lakes and rivers enjoying the coolness of the water.

How Bears get a living.

In spite of their leisurely movements, bears are very busy animals, and they earn their daily bread by real hard work. They are omnivorous, and live on roots, berries, fish, rodents, insects and fresh flesh, or even carrion if there is nothing better to be had. The curious thing about these great animals is that they will work so hard to get a living out of small things when they possess the strength and power to kill large game and to live a life of comparative ease. A bear may be seen diligently smashing up a rotten log and licking up the mouthful of grubs and beetles which have taken refuge inside, whilst a short distance away bighorn and deer will be browsing, apparently unafraid of their

huge neighbour so long as it does not draw too near or attempt to harm them. Ground squirrels, marmots and many other burrowing rodents are hunted by bears, and a great animal weighing several hundred pounds will spend hours digging out a marmot no bigger than a rabbit, or expend a vast amount of energy overturning a huge boulder for the sake of the ants and insects it will find beneath. Bears are also very fond of green corn, and fields visited by them show broad lanes where the bears have passed through the crop, feasting upon the young growths. Honey, however, is their most favoured delicacy, and woe betide the bees whose home has been discovered by a bear, for the animal will tear great lumps of wood and bark out of the hollow log or tree in which the hive is situated, until there is a hole large enough to admit one of its great paws to scrape out the sweet food of which it is so fond.

How they catch the salmon.

But it is when the salmon begin to swim up the creeks and rivers in their tens and hundreds of thousands that the bears grow fat. In America this happens in July and August, and during those months the bears live close to the water, and eat till they can eat no more. When fishing, bears stand in the stream and snap up the salmon with their jaws, or they hold down the gleaming fish with their paws until they can despatch them with their sharp teeth. When the first salmon appear the whole fish is eaten, but as the salmon increase in numbers the bears grow fastidious, and eat only the choicest portions, and at this time the banks of the rivers may be found littered with the rotting remains of fish which the bears have been too dainty to eat.

It is only when pressed by hunger that a bear deliberately sets out to kill one of the larger animals. This it does by striking its quarry down with its powerful fore-paws and then biting its throat. Sometimes a bear will go after domestic cattle, and should the first attack fail and the intended victim escape, the bear will chase it hither and thither until the animal, exhausted and spent, is at last overcome by its savage pursuer. Like many other animals, bears hide food which they cannot eat under a litter of branches and leaves, and return to it when hungry again.

Bears are not great travellers, and unless driven away will hunt over the same range

BEARS AND THEIR COUSINS

year after year. They have their well-known trails to and from the best hunting grounds, and at intervals beside these trails they have favoured spots amongst the undergrowth and thickets where they can rest, secure from interference, when not engaged upon the absorbing task of finding food.

The home-life of the Bear.

By disposition bears are lonely animals, and males and females go together only during the mating period. During this time either the male or female bear will go to the assistance of the other if it is attacked, and they will make common cause against an enemy, but at the first approach of winter the bears part company, and retire alone to the mountain-sides and other high ground, and there seek out dens where they may spend the long, cold months. Sometimes this den will be a natural cave or hole in the earth; but if there is no hole available the bear will set to and dig one for itself. This it usually does as high up as possible and upon the northern slope of a mountain, for the reason that in such a position its rest is less likely to be broken by melting snow and floods such as might occur in lower, warmer situations. When a bear digs its own den it usually does so under the roots of a tree, and, having finished its winter quarters to its satisfaction, it will block up the entrance with branches and other rubbish, then, curling itself up, fall into the light, drowsy sleep which is known as hibernation. During this time the animal is kept warm and nourished by the fat which has accumulated upon its body during the summer months of plenty, and it is also during this winter seclusion that the female gives birth to her cubs.

Bear cubs are very tiny, helpless little creatures. Blind, toothless and bald, they weigh only a pound or two at birth and measure less than a foot in length. The mother bear is both tender and strict with her children.

Their winter sleep.

On emerging from her den when the cubs are about two months old, she will on no account allow the male bear to come near them, for the male bear is cannibalistic, and would not hesitate to make a meal off its own young; at the same time she does not believe in sparing the rod, and she will spank and cuff her growing cubs if they do not obey her or fail to come when she calls them. No doubt many bears have lived long lives because the



THE BLACK BEAR. [F. W. Bond]

The handsome Canadian Black Bear was an object of veneration among the Redskins, who no doubt admired his courage and his skill in woodcraft.

BEARS AND THEIR COUSINS

spankings they received from their mothers taught them to avoid certain things which are neither good for baby nor grown-up bears.

The hibernation season varies according to the country inhabited by the bear. Sometimes the winters are so warm that the bears do not hibernate at all, but in the colder latitudes it is usually between October at one end and April or May at the other. Sometimes a bear will wake up and have a prow around, but most of the time is certainly spent in sleep, and when, with the advent of spring, the animal emerges from its den, lean and emaciated with its winter fast, it will eat anything it can find to assuage its ravening hunger.

How the Bear proves useful.

Nearly related to the brown bear, if not of the same species, is the North American Grizzly. In disposition it is supposed to exceed all other bears in ferocity, which is all the more terrible when it is remembered that some grizzlies rival the largest brown bears in size. Its fur is coarse and of a yellowish-brown colour, and is without commercial value, whilst its flesh is so tough that not even the wild Indians will eat it. The grizzly bear, indeed, is of little use to anybody, whereas the great brown bear of Kamchatka is a sort of universal provider to the natives of the Kamchatkan Peninsula. The flesh of the bear provides these people with food.



THE SYRIAN BEAR. (W. S. Berridge)

This animal, which is smaller than the ordinary Bear, fortifies itself with food before taking its long winter sleep. The hibernating habit is common to many bears

From the skin they make clothes to cover themselves and blankets for their beds; the intestines, dried and cleaned, provide a substitute for glass, and are also made into masks to protect their faces from the glare of the sun; and even the great shoulder blades of the animal are used for cutting grass.

Begging the Bear's pardon.

America is also the home of the Black Bear, whose soft, shining, black fur is so valuable, for from it bearskins and other military accoutrements are made. These bears are smaller than the larger brown bears, and are found in the unsettled forest districts of Canada and the northern part of the United States. In their habits they are very similar to the brown bear. They eat fruit, berries, roots, and all manner of insects and small animals, but they are especially partial to sheep and pigs. They are good swimmers and expert climbers, and in the days of the wild Redmen these bears were regarded with reverence and superstition by the Indians, who would never kill one without first asking its pardon for being compelled to do so.

Bruin wears spectacles.

Black bears are also found in China, South-Western Asia, the Malay Province and India. This last, called the Himalayan Black Bear, frequents the forest regions of the Himalaya zone, and grows to a length of about 5 feet. It makes its home high up in the mountains, and in the summer is often found at an altitude of 12,000 feet or more, though it descends to warmer regions as winter advances. These bears appear to like the vicinity of villages, and are more ferocious and more given to unprovoked attack than the brown bears. Their senses also appear to be more highly developed, probably because their habit of living in the neighbourhood of human beings has rendered them more open to attack, for which their habit of killing domestic animals, such as cattle, sheep, goats and ponies no doubt gives ample excuse. These bears are solitary animals, living in caves and hollow trees in the depths of the forest, and except during the pairing season they go about alone.

South America possesses only one member of the ursidæ. This is the Spectacled Bear, so called because of the rings of tawny-coloured hair which surround its eyes. The general

BEARS AND THEIR COUSINS



THE THREE BEARS.

[Sport & General

These grizzly friends, basking in the sunshine, are not so peaceful as they seem. When the pangs of hunger attack them or the trappers are on their trail they are the most savage of wild creatures.



THE HIMALAYAN BLACK BEAR.

[W. S. Berridge

This Bear sits up when attacking a victim and deals a terrific blow with its paw, before using its jaws. The force of the impact usually knocks out its victim. Its winter coat is of a lovely, silver-tipped, cinnamon colour.

BEARS AND THEIR COUSINS



THE POLAR BEAR.

[F. W. Bond

Monarch of all he surveys is the great white Polar Bear, but even he may fall a prey to the hunter.



SKINNING THE BEAR.

[Pathe

Trappers in the Arctic have many dangers to undergo before their labours are rewarded, but above they are seen after a successful "kill" removing the cherished skin, which is of great value, from their prey.



A LIVE TEDDY-BEAR.

[Mondiale

The Koala, or Australian Native Bear, is a tailless little fellow with a very plaintive cry. He makes an interesting household pet, but his favourite dwelling seems to be a gum-tree, where he is quite content.

BEARS AND THEIR COUSINS



THE SLOTH-BEAR. [F. W. Bond]

makes its home in forests and jungles where it lives upon fruits, insects, small mammals and honey. For feeding upon this latter delicacy, of which it is very fond, the bruang is well adapted, for nature has provided it with a long, pliable tongue admirably suited for licking the honey out of the holes in which the bees have made their store. This bear is easily tamed, and is often seen in zoos.

The Indian Sloth-Bears.

This Bear's long claws are used to dig up the hard soil, to reach the ants' nests on which it feeds.

colour of the species is black. It makes its home amongst the mountains of Chile, where it grows to a length of $4\frac{1}{2}$ to 5 feet.

Closely related to the spectacled bear is the small Bruang or Malayan Bear. This is a small species, and rarely grows above $4\frac{1}{2}$ feet in length. Its fur is jet-black, and it

One of the most common animals in India is the Sloth-Bear. These animals grow to a length of about 5 feet, and a height of 30 inches, and are covered with long, shaggy, black hair. They are found throughout the length and breadth of India, but they seem to prefer the forest districts to live in, especially those of a hilly nature where there are plenty of caves in which they can shelter from the sun during India's hot season. In any case, whether it is the hot season or not, these bears usually lie up in some sheltered spot, such as a hole in the ground or under bushes during the daytime, and only with the coming of night set out to hunt for food.

Sloth-bears are able to climb trees, and in their search for food they often scale fruit trees, their method being to shake the branches until the fruit falls to the ground, where they are able to eat it at leisure. Honey they also obtain by climbing trees and robbing the



AN ARCTIC DWELLER.

[F. W. Bond]

The ice-white Polar Bear, monarch of the Arctic, is very much at home in the sea. Sometimes it mounts a drifting iceberg and is carried hundreds of miles, feeding on seals during its adventurous journey.

hives, and when the opportunity offers they will steal birds' eggs or, finding a way into fields of maize or plantations of sugar-cane, will work irremediable havoc in a few hours. These bears rarely, if ever, kill large animals, and their chief animal food appears to be beetles and ants. To obtain these they expend a vast amount of labour, overturning great boulders for the sake of the beetles which they may find beneath, and digging huge holes in search of ants. When a bear finds a colony of the latter it does not lick them up with its tongue, but sucks the ants into its wide-open mouth with powerful indrawings of breath against which all the ants' futile scurryings to and fro are of no avail. This process is attended by a great deal of noise, and a hunter several yards away can always tell by the sounds when a sloth-bear is rifling an ants' nest.

A sloth-bear's usual mode of progression is a quick walk, but when pursued or startled by some unusual sound it will curl itself into a ball and roll downhill head over heels. In character they appear to lack the courage of other bears, and though they will sometimes attack human beings the occasions are rare, and when such an attack is made the aggressor is most often a female with cubs.

These cubs are usually two in number, and in their babyhood the mother will carry them about on her back, the cubs clinging to her long, shaggy hair to keep themselves from falling off. Sloth-bears are easily tamed, and it is usually tamed bears of this species which are exhibited by Indian jugglers.

Dwellers in icy lands.

It is a far cry from the hot forests of India to the cold, desolate, northern regions of ice and snow, amidst which the Polar Bear makes its home. Polar bears equal in size the largest brown bears, and individuals grow to as much as 9 feet in length and weigh 1600 pounds or more. They are rarely seen together in large numbers, but family parties, consisting of a male and female and one or two cubs, are a common sight. The polar bear has many marked dissimilarities from other bears. Its coat is entirely white in colour, a piece of camouflage which is of great assistance to it in its hunting amongst the ice and snow-covered lands and seas which are its home. Then its head is smaller and its neck longer than is usual amongst the ursidæ, and whereas the soles of the feet of

ordinary bears are hairless, those of the polar bear are covered with a close growth.

This is a remarkable instance of the provision of nature, for whilst an ordinary bear would slip and slither upon the slippery ice surfaces over which the polar bear roams, the polar bear with its hair-covered feet is able to get a good grip on the ice.

A varied diet.

Polar bears are wonderful swimmers, and an instance is on record of a bear which was seen swimming strongly forty miles from the nearest land. For food they hunt seals, white whales and fish, in pursuit of which their remarkable powers of diving stand them in good stead. Walruses also sometimes fall a prey to the great white bear, though these



LOOKING AROUND. [F. W. Dond

The Polar Bear can swim and dive almost as well as a seal and is equally at home on land. Its feet are covered with hair to keep it from slipping on the ice.



[H. Mortimer Ballen

THE CUNNING RACCOON.

There is always trouble brewing when the Raccoon is about. He is very destructive in the farmyard.

huge, aquatic animals, with their tusks 20 inches long, have to be stalked with care, and are quite capable of putting up a good fight in their own defence. In the summer, when the snow clears away from the sunniest spots of land, the polar bears live largely on grass, lichens and berries; seaweed is another food of which they are fond. Altogether, in spite of its bleak and unkind surroundings, the polar bear has no reason to complain of shortage of food during the summer.

Do Polar Bears hibernate?

But when the long polar night lays its hand upon the barren northlands another tale is told. Some bears migrate southwards, but many old males continue to roam the frozen wastes, growing lean and savage, yet still picking up a bare living amidst surroundings where any other of their tribe would starve.

In spite of contrary opinions, the fact seems to be proved that polar bears do not hibernate. It is true that the female retires inland to a den under the snow, and there gives birth to her cubs, but she does not sink into the drowsy sleep of hibernation. The den has a passage in its roof through which air enters from the world above, and in this cosy retreat the female bear tends her tiny cubs, drawing nourishment both for them and for herself from the thick layer of fat which has collected round her body during the months of the preceding summer and has been stored away.

Polar bears are often carried long distances on floating ice. They have been found on icebergs far south of the Arctic Circle, and it is no uncommon thing for polar bears to reach Iceland upon icefloes.

Inhabiting the bamboo-jungles of Eastern Tibet and the north-western provinces of China, there is found a curious creature called the Parti-coloured Bear or Giant Panda. This animal is bear-like in appearance, with a short tail, and long, thick, white fur which changes to black on the legs, with black ears, and black rings over the shoulders and round the eyes. This peculiar animal is thought to be the connecting link between the ursidae and the true pandas and raccoons.

The furry Panda.

Smaller than the giant panda is the Himalayan or True Panda, which is found in the mountains north of Assam at altitudes ranging from 7,000 to 12,000 feet. This animal has a thick, furry coat of a rich reddish-brown colour on back, head and tail, with darker underparts verging towards black, and has a white face marked with a vertical red stripe reaching from over the eyes to the corners of the mouth. In size it grows to a length of about 3½ feet, of which the long, bushy tail occupies 18 inches, and its stout limbs are armed with sharp, curved claws.

Pandas are more gregarious than bears, usually going about together in pairs or small family parties, and they make their homes in the mountain forests where their shrill twittering cry might be mistaken by the ignorant



THE CAT-BEAR.

[F. W. Bond

The Panda, or Cat-Bear, is red-chestnut above, jet-black on the lower surface, and has a long, ringed tail.

BEARS AND THEIR COUSINS

for that of a bird. They are good climbers, and live in hollow trees or, in rocky districts, in small caves and clefts amongst the rocks, but a great part of their lives is spent on the ground foraging for the fruits, bamboo shoots, roots, eggs, insects, and larvæ upon which they live.

When angry they raise themselves on their hind legs, like a bear, and hiss and blow, but they are nevertheless easily captured, for, besides being slow and clumsy in their movements when on the ground, their senses of sight, hearing and smell, like those of their larger relatives, are far from acute, and do not always give them prompt warning of the presence of an enemy. Pandas appear to be more or less nocturnal in their habits; at any rate they spend most of the day asleep, curled up with their tails over their heads, and only with the approach of night set forth on their search for food.

In the New World the smaller members of the bear family are the Raccoons, the Coon-mistles and the Coatis. Of the first named

there are the Common Raccoon, a very cunning creature, which reaches a length of about 3 feet, inclusive of a tail 10 inches long, and is found in North America; and the Crab-eating Raccoon, a larger, stronger animal than its northern relative, and a native of Brazil, Paraguay, Colombia and Guiana.

The destructive Raccoon.

Raccoons are thick-set, sturdily-built animals covered with long, coarse hair usually a greyish-brown in colour, which on the bushy tail changes to alternate rings of white and black. In habit they are arboreal, and make their homes high up in trees in any convenient hollow, their favourite position being a hole in a dead branch. Here, safe from most of their enemies, they pass the daytime in sleep, and it is only with the approach of night that they descend from their high perches to search for food.

Usually the first place for which a raccoon makes when hungry is the bank of a stream or a shallow pool where it may find the fish



THE RACCOON PEEPS OUT.

[E.N.A.]

The Raccoon, a link between the Bear and the Weasel, is a quick-witted creature, about the size of a common fox. It has a strange diet, varying from poultry to oysters, and a habit of washing its food before eating it.

of which it is so fond. In this it is more or less dependent upon good fortune, for, though fearless swimmers, raccoons cannot dive, and so cannot pursue fish in their native element. They have, therefore, to depend for their favourite food upon the chances of finding a fish stranded on the shore or imprisoned in a shallow pool from which it cannot escape. Luckily, they include other things in their diet, for this precarious method of feeding is rarely satisfying. Failing fish, raccoons eat turtles and turtles' eggs, mice, frogs, birds, crayfish and molluscs, which they also find in the streams, fruit, nuts, maize, and corn, whilst sometimes they will raid a farm and help themselves to the farmer's poultry. So they live through the spring, summer and autumn, but when winter comes most of them curl themselves up in their dens and fall into the drowsy sleep of hibernation, from which they do not awake till the winter is almost past and spring is in the air again.

Cacomistles are less sturdy animals than raccoons; their jaws and noses are more

pointed and they have longer tails. Of this animal there are two species, one of which is found only in Central America, whilst the other extends over Mexico and the southernmost portions of the United States.

Coatis are related to the cacomistles, and through them to the raccoons and bears. They have long, pointed muzzles, powerful claws and long, fluffy tails. There are several species. One, the Red Coati, which ranges southward from Dutch Guiana to Paraguay is a bright-red in colour, whilst a more northern species, inhabiting Mexico and Central America, is the White-nosed Coati. This species has a white nose and upper lip and fur of a reddish-brown colour. These animals live on insects, lizards, birds and their eggs, and fruit.

It is a far cry from the great Polar Bear and the savage Grizzly to these quaint furry creatures that inhabit Central and South America. Yet they, too, are members of the Bear tribe, and, as such, share in the prestige of their larger relatives.



THE SAVAGE BROWN BEAR.

[W. S. Herridge

Although tame Bears are amusing creatures they are always liable to turn savage and should not be trusted too much. In former days Brown Bears were taken round the country and made to perform for money.

Leather-sided GIANTS

By W.S. BERRIDGE, F.Z.S.



Photo: Marcuswell Maxwell

[Mondiale

These Elephants roam freely in their African haunts, docile enough till danger threatens, when they become very ferocious. The trumpeting screams they utter when charging are terrifying in the extreme.

NATURE, in its primeval reptiles and animals, concentrated on bulk. The great saurians have sunk into the ooze and only their bones remain, fossilised, to tell us of their immensity. The mastodon and hairy mammoth have gone, but the Elephants of Asia and Africa live on to remind us of past giants of the wild. The Hippopotamus and the Rhinoceros too, with their leathery hides and ungainly bodies, give us a sense of perspective, and we visualise, through them, their ancestors, lords of the ancient world.

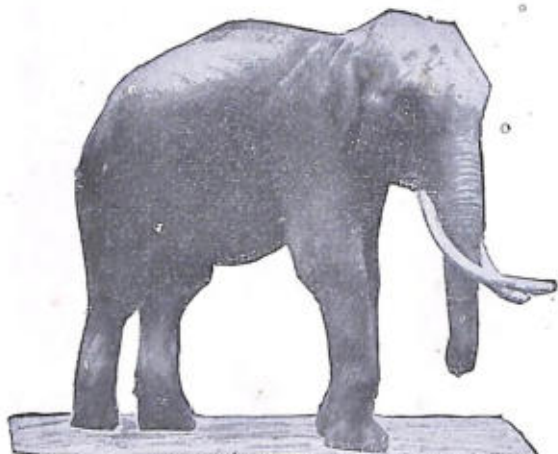
WE shall not find the name "Leather-sided Giants" in Natural History text-books, but, nevertheless, it may well be employed to describe the elephant, the hippopotamus, and the rhinoceros, all of which possess a thick and tough skin that can, without exaggeration, be compared to leather.

Elephants are found in Asia and Africa. Although not the tallest of living animals (the giraffe claiming that distinction), their enormous bulk and weight entitles them to rank as the largest of terrestrial beasts. Attaining a height of between ten and eleven feet, and a weight of several tons, they nevertheless display considerable agility. When pressed, an African elephant can travel for a short time at the rate of fifteen miles an hour, while at ten miles an hour it will continue unchecked for a very long distance. The Asiatic elephant, however, is not quite so active, for it is more heavily built, and possesses somewhat shorter legs. Both species are expert swimmers. They can progress through the water at the rate of a mile an hour, and have been known to continue swimming for six hours on end.

Although the African elephant is a less

trustworthy and more savage beast than the Asiatic, in spite of popular belief it is by no means untamable. Indeed, for more than twenty-five years there has existed in the Belgian Congo an establishment where wild elephants are trained for various purposes. Half-grown animals are caught, and tutored for ten years, when they are considered fit for permanent employment. African elephants, moreover, have often been used in Zoological Gardens for giving rides to children, and we read that, during the Punic Wars, when Hannibal marched from Spain to attack Rome, the elephants that accompanied his troops over the Alps through St. Gothard Pass were of the African species. It is therefore obvious that African elephants are by no means untamable, though it is true that their domestication has been far more neglected than that of the Asiatic animal which, for countless ages, has been employed in the service of man.

African elephants vary considerably in size; being much smaller in some districts than in others. A pygmy race occurs in the dense forests of the Congo. Because of the inaccessible



INDIAN ELEPHANT. [W. S. Berridge]

The Indian Elephant is distinguished from its African brother by its larger head and smaller ears and tusks. This lumbering creature can be taught to do useful work for man, and is very tractable in captivity.

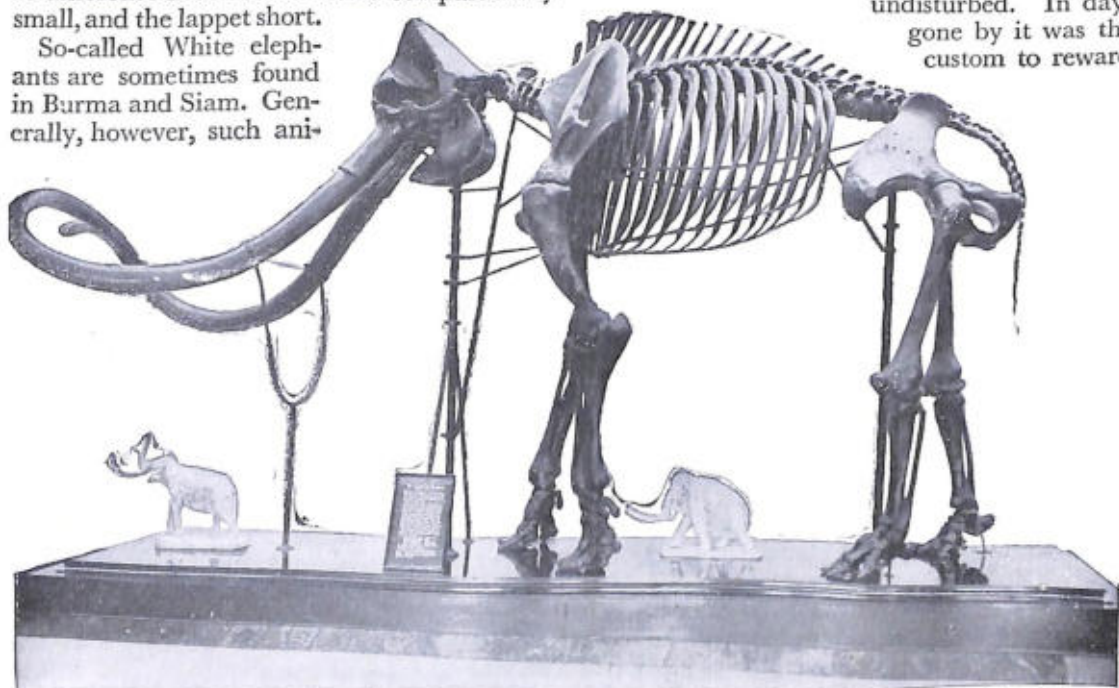
nature of its habitat it is but rarely seen, and only three specimens have ever been exhibited in this country. It is also known as the water elephant. An adult attains height of about six feet at the shoulder. Apart from its diminutive proportions the pygmy animal is similar in appearance to its larger relative; the chief point of difference is that its ears are comparatively small, and the lappet short.

So-called White elephants are sometimes found in Burma and Siam. Generally, however, such ani-

mals are merely mottled with pale markings over various parts of the body, especially upon the trunk and ears. Occasionally they are of a pale flesh-tint all over, and one of these, the first genuine *white* elephant ever seen in Europe, was exhibited at the London Zoological Gardens in the year 1926. This animal, valued at several thousand pounds, was captured in the jungle where it was seen among a herd of typically-coloured elephants. It was brought over to England by Dr. Saw Durmay Po Min, president of the Nat. Karen Association of Burma, an organisation of native Christians. Although it was quite tractable, visitors to the Zoo were not allowed to ride upon its back, for the semi-sacred character of white elephants precludes their being employed as beasts of burden.

Worshipping the Elephant.

In Burma white elephants are kept in the royal stables and treated with great respect. Princes and mandarins wait in attendance upon them; the ropes by which they are tethered are made of scarlet silk, and their food is offered to them in gold and silver vessels. Large feather-fans with golden handles are used to keep flies from annoying their sacred persons during the day-time, and beautifully embroidered mosquito nets surround them at night so that they may slumber undisturbed. In days gone by it was the custom to reward



THE MASTODON.

[H. J. Shepstone]

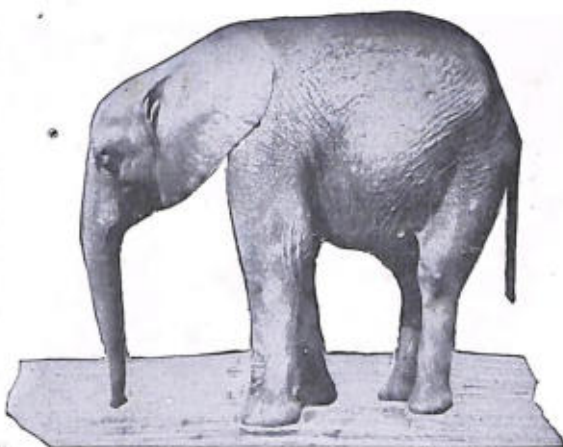
At Hollywood, where the film-stars of our modern world disport themselves, the Mastodon was to be found in ancient days. It somewhat resembled the existing species of Elephants in size and in shape of tusks. The above assembled skeleton, found during excavations, gives the reader a general idea of its appearance.

LEATHER-SIDED GIANTS

the finder of a white elephant with high rank and a large sum of money. The finder was also relieved from taxation for the rest of his life.

A few years back a white elephant was captured in the northern jungle of Siam, and it is interesting to record the ceremonies that attended his journey to the royal stables. As there are no roads in the jungle, the first thing that had to be done to facilitate his transportation was to cut a wide pathway through the forest, so that the elephant could walk to the nearest river, where a floating home, thatched with flowers and decorated with scarlet curtains, awaited his arrival. Whenever the elephant rested during his slow and somewhat tedious journey, he was entertained by acrobats, musicians, and dancers who accompanied him for that purpose. When once aboard his temporary floating residence, the animal received the attention due to his exalted position. A gold matting covered the floor upon which he stood; jasmine-scented water was employed for giving him a bath, and a plentiful supply of rice-cakes and sugar-cane was offered as food.

THE King of Siam and his court, as well as a number of Brahmin priests, journeyed in state barges up-river to welcome him. The animal and its conveyance was then towed by silken cords to Bangkok and, on arriving there, the elephant was placed in an elaborately coloured pavilion. The ceremony of anointing him with consecrated oil followed, then, with gold chains around his neck and gold bands encircling his tusks, for nine days he received the homage and admiration of the populace. Having thus made his *début*, he was afterwards transferred with great ceremony to his permanent stable.



AFRICAN ELEPHANT. [W. S. Burridge]

Here is the African Elephant with its large ears and very rough, dark skin. Unlike the Indian species, it is very difficult to tame, and is valued more for its ivory than for its usefulness.

In comparing the African with the Asiatic elephant, there are several interesting features by which they may be distinguished. The ears of the African animal, for instance, are so large that, when in repose, they almost cover the shoulders, and when erected when the creature is angry and about to charge look very formidable, but those of the Asiatic beast are comparatively small. Moreover, the highest point of the African elephant is the top of the shoulder, but that of the Asiatic species is the centre of the back.

A difference is also to be noted in the formation of the trunk, for whereas the African elephant possesses two finger-like processes upon the extremity (one on either margin), the Asiatic elephant has only a single one, which is situated on the front edge. A further distinguishing feature is that the Asiatic elephant has four nails on each hind foot, and the African but three.

The African elephant usually grows to a greater height than its Asiatic relative. The former has been known to measure eleven feet eight and a half inches at the shoulder, but the record height of an Asiatic elephant is ten feet six inches.

A simple way to ascertain the approximate height of an elephant is



A TRAPPED ELEPHANT.

[H. J. Shepherson]

Here is a giant of the jungle laid low by the cunning of the natives. They have lured it to destruction by digging a pit and camouflaging the top with branches and leaves. The imprisoned beast is then bound and later tamed.



THREE MONSTERS.

[Central News

Here are three giant Elephants whose massive trunks and legs form what looks like part of an impenetrable forest. Immensely strong yet docile, these animals serve man with unswerving loyalty, if they are fairly treated.

to measure the circumference of one of its forefeet. Double the figure arrived at, and this will represent rather less than the creature's stature. It is true that some elephants have much smaller feet than others, but as a rule this method of computation works out fairly accurately, strange as it may seem!

Tusks of amazing size.

Adult elephants of both sexes possess tusks, some being of gigantic size, but they attain their greatest development in the males of the African species. The finest tusks of an African elephant ever known are a pair exhibited at the American Museum of Natural History. One of them measures eleven and a half feet, the other eleven feet, while their combined weight is 293 pounds. The record pair from an Asiatic elephant measure, respectively, eight feet nine inches and eight feet two inches.

With the females, the tusks are often so small that they do not protrude beyond the mouth, a condition that is also sometimes to be noted in the males. Indeed, "tuskless" males, or "mucknas," as they are called, appear to be fairly common in Ceylon. Except for the tusks there are no other front teeth, while the molars are so large, and the jawbones so short, that there is only room for a single one (above and below on either side) to be in use at a time. As these become worn away they are replaced by others that gradually push their way forward from the back of the jaw.

It has often been stated that elephants will live to be 150 or 200 years old. But such is not the case; a period of from seventy to seventy-five years may be regarded as the average. Of course, there are exceptions to every rule, and, as in the case of human beings, some individuals far exceed their normal span of life. Indeed, the records of the Bettiah State show that one elephant, named Iman Pyari, attained an age of ninety-nine years.

People in ancient days believed that elephants had no joints and, consequently, were unable to lie down, while Shakespeare writes:

"The elephant hath joints, but none for courtesy,
His legs are legs for necessity; not for flexure."

The curious misconception that elephants cannot lie down probably arose from the fact that the creatures rarely assume a recumbent position when going to sleep, but remain standing even in repose. Louis XIV. possessed a remarkable elephant that never lay down for five years. When it went to sleep it used to support its head by thrusting the tips of its tusks into two holes it had worn away in the stonework of its enclosure.



A JUNGLE BATH-TUB.

[E.N.A.]

Here is an interesting picture showing a group of wild Elephants undisturbed by man at a water-hole in the Ceylon jungle. They enjoy a cooling plunge in the water where they can also satiate their great thirst.



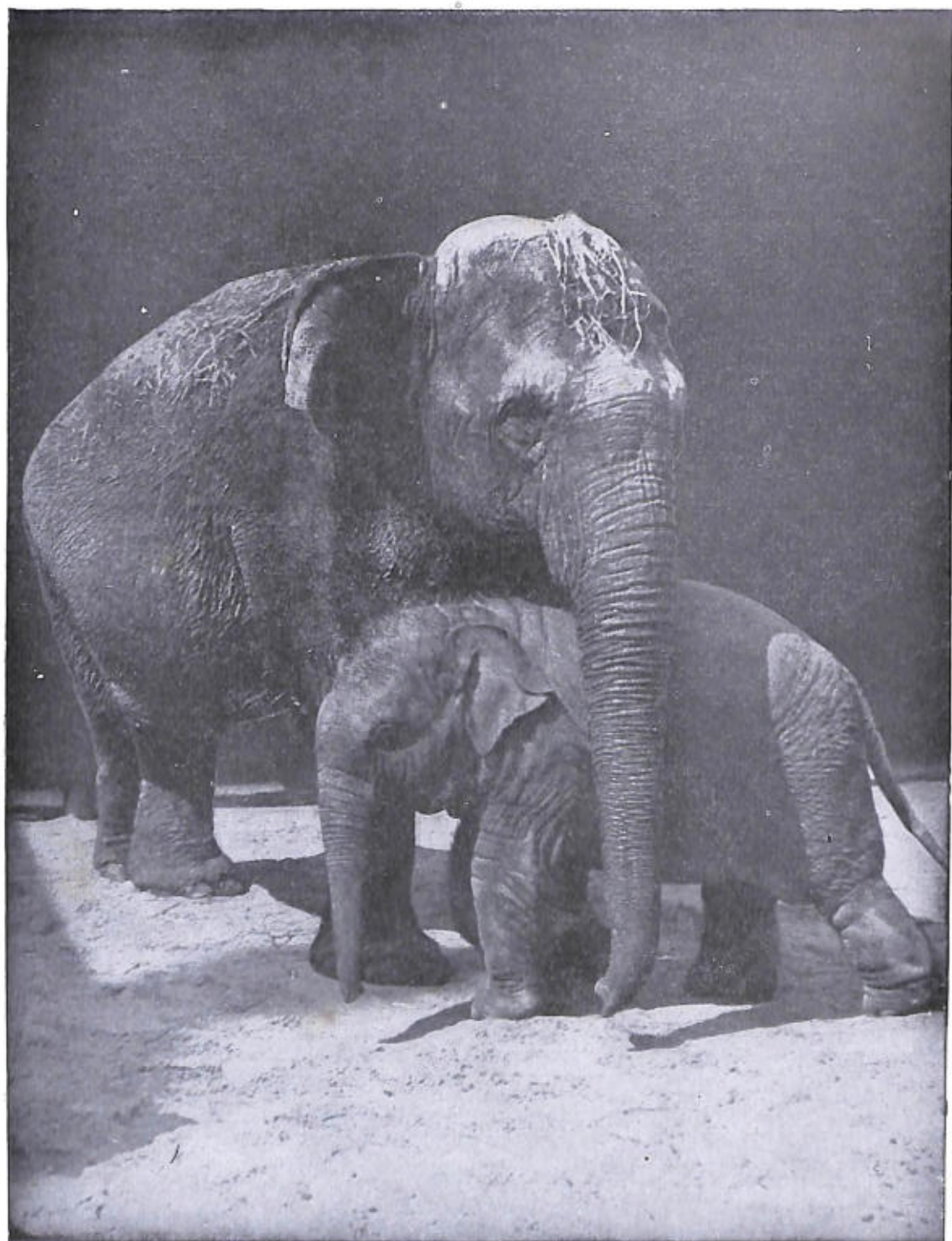
Photo : Marcuswell Maxwell]

A FINE AFRICAN FAMILY.

[Mondiale

When quenching their thirst, African Elephants drink as much as fourteen gallons of water at a time.

B.W.L.,



INDIAN MOTHER AND CHILD.

[Mondiale

Little Jumbo, in spite of his bulky appearance, is only a baby after all; when he is shy he runs to hide behind Mother Elephant's protecting trunk, just as a human baby clings to its mother's skirts. This photograph and the one on the next page show the differences of head and ears between the Indian and the African Elephants.

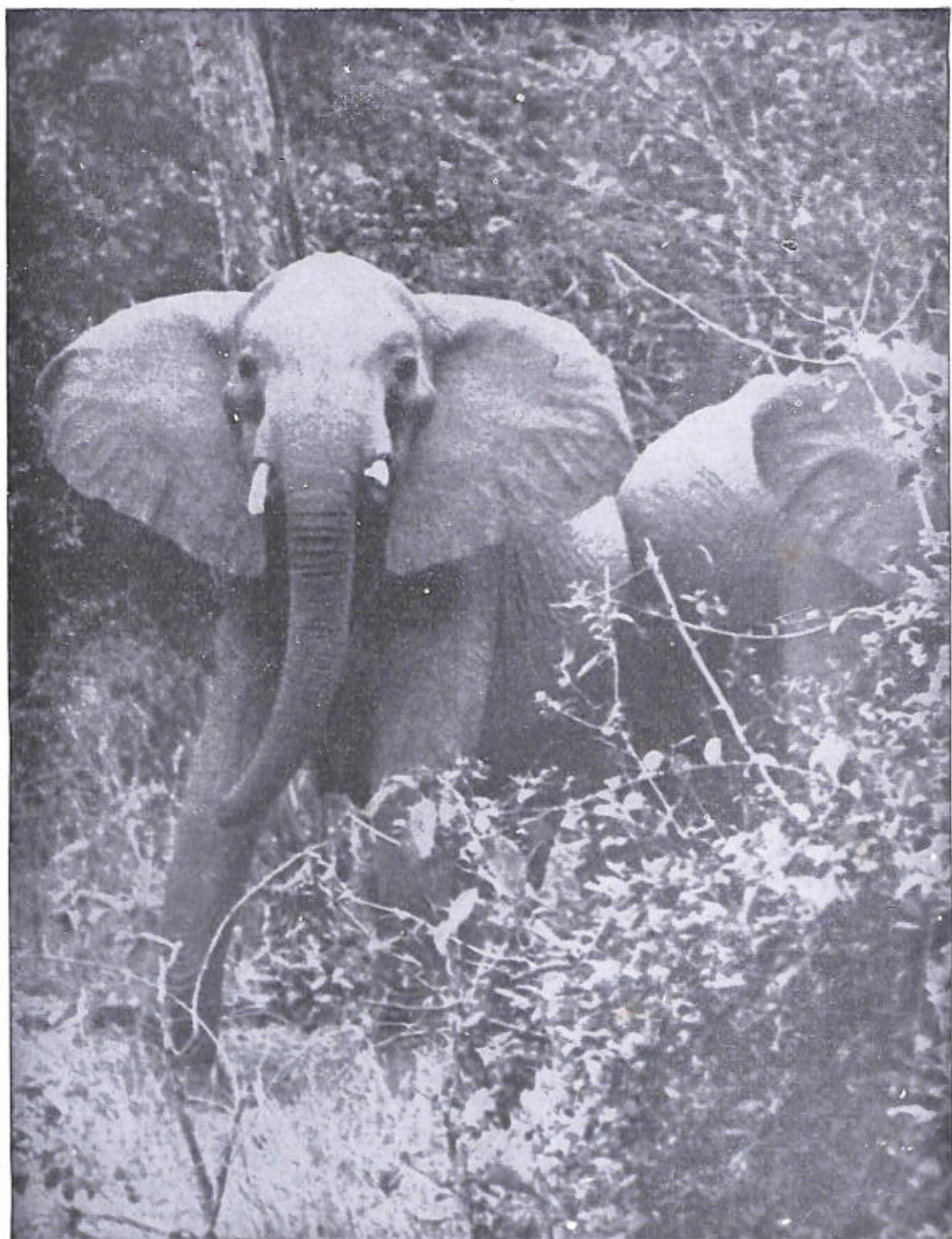


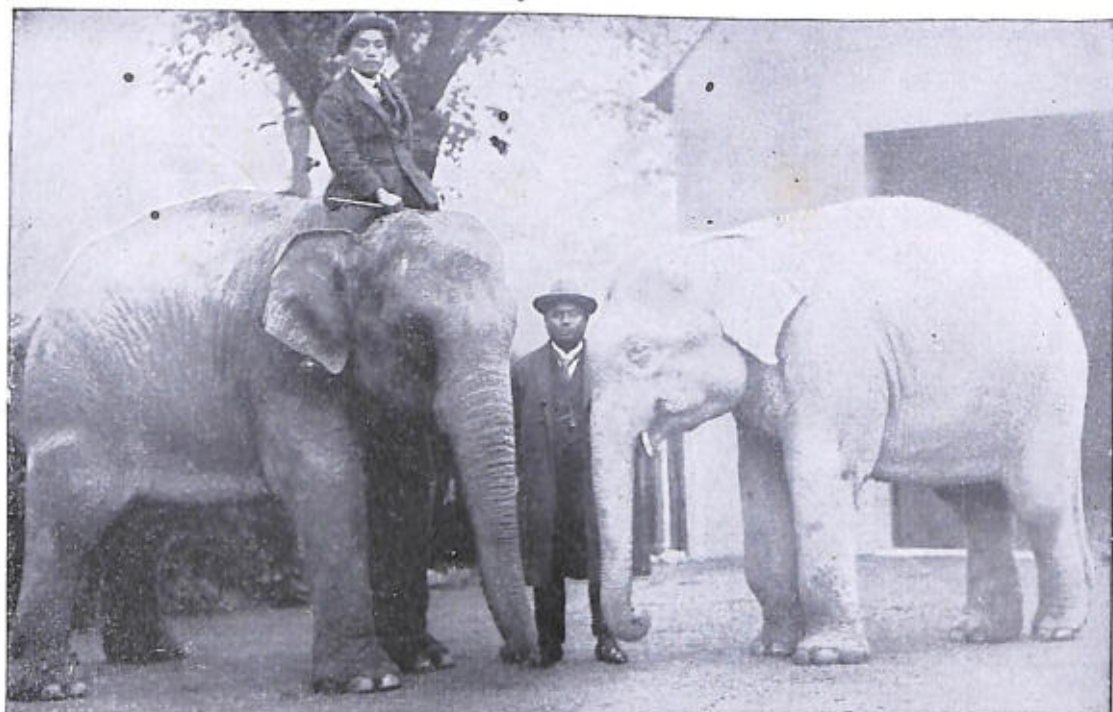
Photo: Marcuswell Maxwell]

AFRICAN ELEPHANTS AT HOME.

[Mondiale

Elephants are fearsome creatures to meet with in their native jungle—crashing through trees and undergrowth, ready to trample to death whatever may come in their way. The impression of size and weight is increased by the great spreading ears that are erected when the animal is on the warpath.

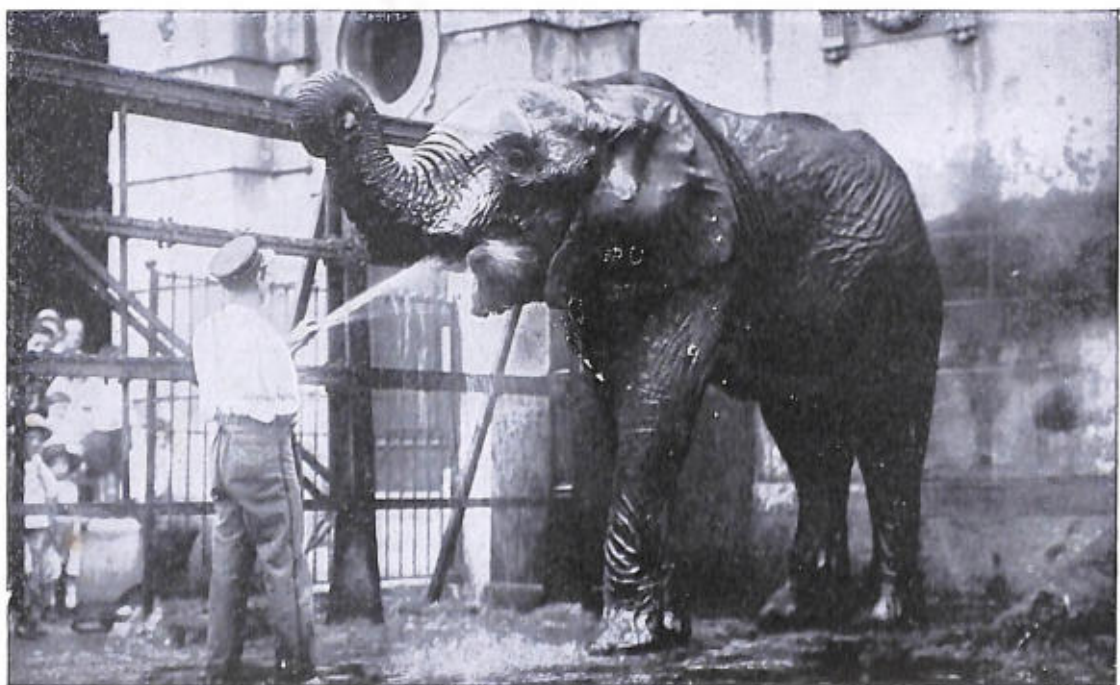
LEATHER-SIDED GIANTS



IN CAPTIVITY.

[W. S. Berridge]

Above two Asiatic Elephants are seen with their keepers, in a very docile mood. The beautiful white Elephant on the right is held by the Indians as a sacred animal and never allowed by them to do any work.



LIQUID REFRESHMENT.

[W. S. Berridge]

No dainty little glass of water can quench this captive African Elephant's great thirst on a burning July day at the London Zoo. Instead, the obliging keeper vigorously applies a hose, while spectators look on in amusement.

LEATHER-SIDED GIANTS

Although large numbers of elephants are domesticated and employed in India and Burma, curiously enough young ones are rarely born in captivity. No African elephant has ever been born in that state in Europe, and only three instances of the birth of an Asiatic species there have been recorded. The first of these interesting events occurred at the London Zoological Gardens in 1903; the mother was an animal that belonged to the late L. G. Sanger, the well-known circus proprietor. Unfortunately, the baby lived only for a few weeks; its stuffed skin can now be seen at the London Natural History Museum at South Kensington. In 1907 the birth of the second young elephant occurred in the Jardin d'Acclimation at Copenhagen, and in April, 1912, the same parents brought into the world another calf at that institution.

A female elephant has but a single offspring at a time; when born this is covered with woolly hair. During the first few months of its existence the baby is unable to use its trunk; when feeding it suckles with its mouth.

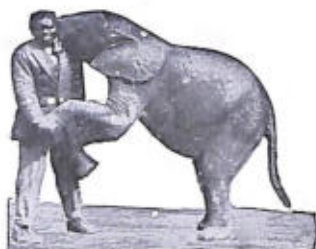
The ancient writer, Edward Topsell, in his book, *Historie of Four-footed Beastes*, gives a very quaint description of the elephant and its habits, from which we quote the following:

"They live upon fruits of plants and roots; and with their trunks and heads overthrow the top of trees and eat the bows and bodies of them, and many times upon the leaves of trees he devoureth chame-

leons, whereby he is poisoned and dieth, if he eat not immediately a wild olive. . . . There are certain noble melons in Ethiopia which the elephant, being sharp-smelling beasts, do wind a great way off, and by the conduct of their noses come to the gardens and there eat and devour them. When they are tamed they will eat barley . . . and of drink either wine or water, thirty Macedonian pints at a time, that is, fourteen gallons; but this is observed, that they drink not wine except in war, when they are to fight, but water at all times, whereof they will not drink except it be muddy and not clear, for they avoid clear water, loathing to see their own shadow thereon. . . . If they perceive a mouse run over their meat they will not eat thereof, for there is in them a great hatred of this creature."

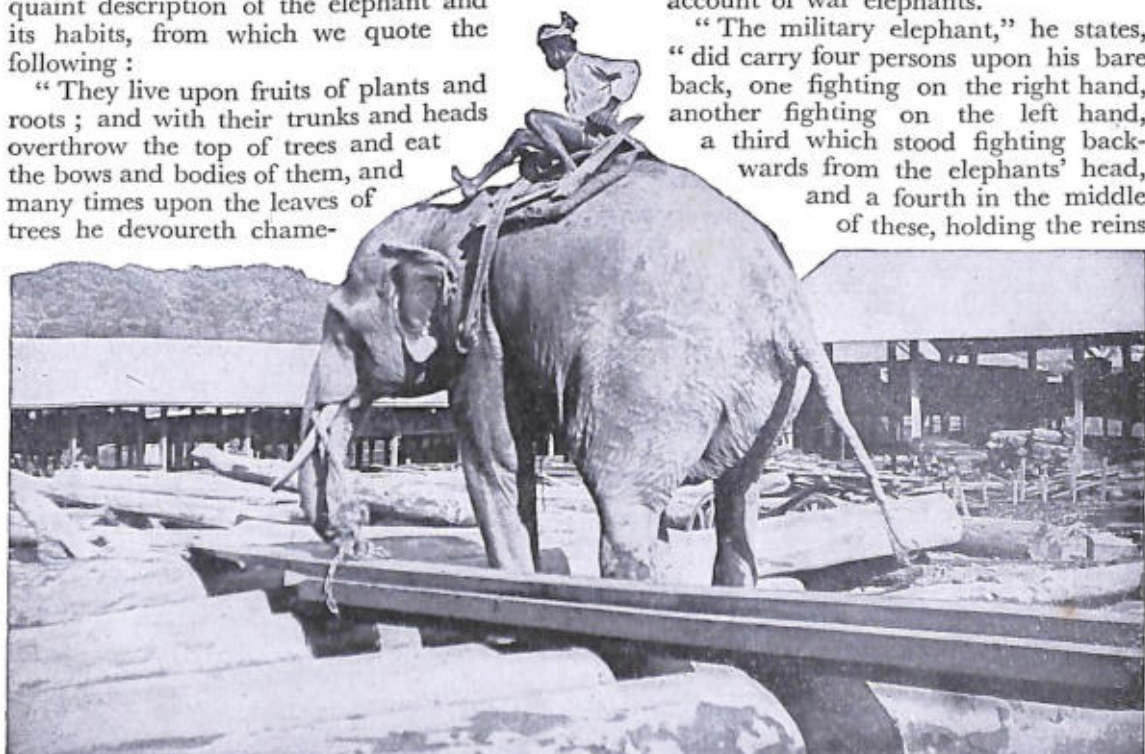
The same writer also gives a very interesting account of war elephants.

"The military elephant," he states, "did carry four persons upon his bare back, one fighting on the right hand, another fighting on the left hand, a third which stood fighting backwards from the elephants' head, and a fourth in the middle of these, holding the reins



[F. W. Bond

Pigmy African Elephant.



INDIAN ELEPHANT AT WORK.

[F. W. Bond

The Indian Elephant's great strength is utilised for the benefit of the native workmen. Here he is seen busy at work transporting the newly sawn planks in the timber-yards, where he is a useful beast of burden.



Photo. : Hedda Walther]

"LISTENING-IN."

[Mondiale

Here is a remarkable view of the African Elephant, showing its great stretch of ears. About to lower its great bulk to the ground, this leather-sided monster is always alert for every sound that may disturb its rest.

and guiding the beast to the discretion of the soldiers, even as the pilot in a ship guideth the stem."

When employed in warfare the elephants wore elaborate trappings, and armour of iron plates connected to one another by chains. Hanging beneath the throat, and also over the breast, were chains to which iron spikes and knobs were attached. Spikes were also

fastened to the trunk, but these, we read, were for ornament and to frighten horses.

The ungainly Hippo.

Next to the elephant, the common Hippopotamus is the bulkiest of land-dwelling animals, an adult sometimes attaining a weight of four tons. It has been known to grow to a length of nearly sixteen feet (inclusive of the

LEATHER-SIDED GIANTS

short tail), and to reach a height of about five feet.

The common hippopotamus is an ungainly-looking animal with a large, barrel-like body supported by stumpy legs. Its large head is provided with an enormous mouth, as well as with a formidable array of teeth. The tusks or canines are exceptionally long, especially those of the lower jaw. During the life of the animal they are continually growing, but as the tips are constantly rubbing against one another during use, they keep a uniform length. The incisor teeth in the upper jaw curve outwards and downwards, but the lower pair are curious in the fact that they project straight forwards in a parallel plane to the floor of the mouth. The ears are small, the nostrils are situated upon the highest point of the muzzle, and the eyes project above the level of the forehead. When floating in the water the animal is able to see, hear, and breathe with but the minimum of its person exposed above the surface. The ears and nostrils can be closed, so as to prevent the entry of water when the animal is submerged.

The normal colour of the common hippopotamus is of a coppery-brown tint, though this varies according to whether the beast be

wet or dry. In East Africa, however, white-spotted and white-footed hippopotami have been recorded. A peculiarity that renders the animal unlike any other creature is that its sweat is red, and looks very much like blood. Upon some parts of the body the skin is quite two inches in thickness. This is made into sjamboks or whips, and occasionally into walking-sticks. In the manufacture of the latter a long strip of the skin is cut to the desired thickness, and hung up to dry with a heavy weight attached to one end, so as to keep it straight. When hardened it is trimmed, rounded, and polished; the finished article then looks very much like amber.

At home in the water.

Although the hippopotamus appears to be so clumsy, it is able to get about on land much faster than one would expect. Indeed, it can gallop along at a rate quicker than a man can run. It is in the water, however, that the beast is most at home; not only does it swim and dive with facility, but it is able to sink to the bottom of a stream and walk along the bed. It can remain submerged for ten minutes on end without coming to the surface to breathe.

Often some one gazing at an animal in the

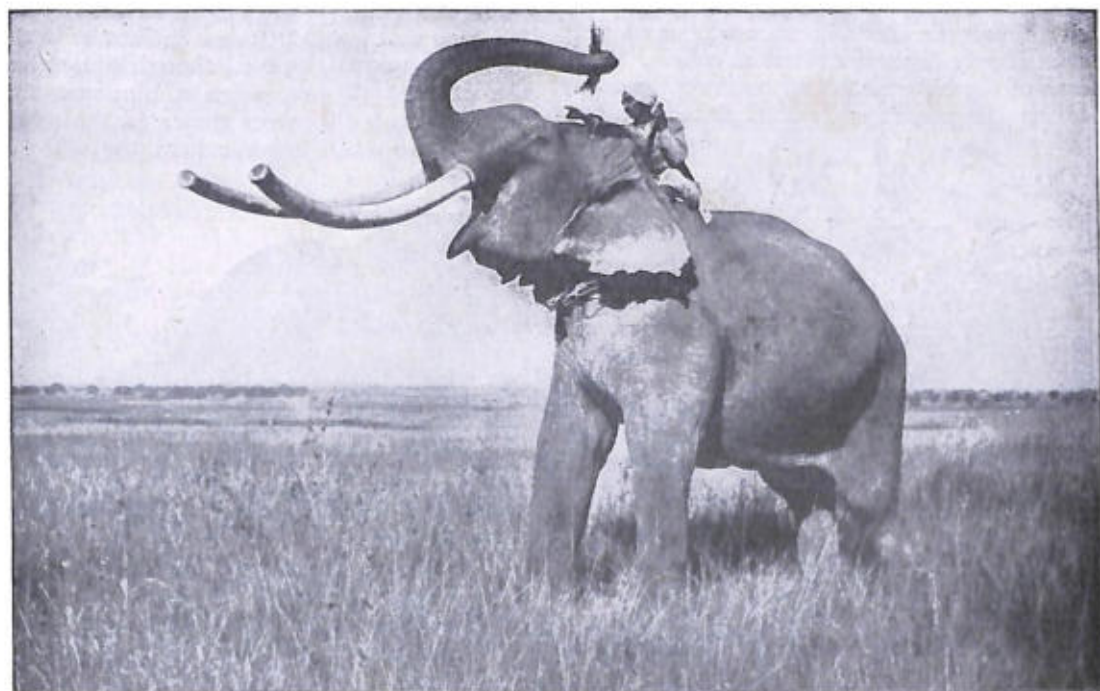


Photo: Col. F. D. Fayer

THE GREATEST TUSKS.

[Mondiale]

This Giant Tusker, the largest tusked Elephant alive, looks as if he would prove a very formidable enemy. Luckily, however, he has been tamed and is, as we can see above, completely under his master's control

**BULL CHARGING.**

[E.N.A.]

When the African Elephant scents danger and realises that a hunter is on his track, he does not turn tail. Instead, his great ears are erected in a forbidding manner, and he charges with a wild, trumpeting sound which terrorises his adversary.

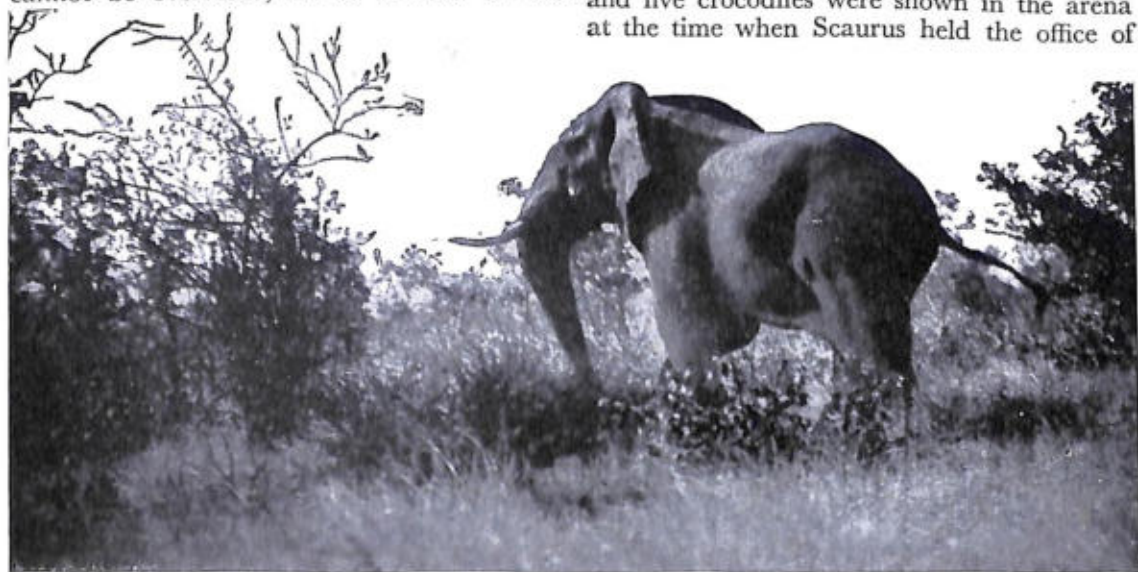
Zoo will ask a companion "What is the good of it?" more especially if the beast in question be ugly or not to the onlooker's liking. But all animals are useful in some way or another, even if only to serve as food to others. In the case of the hippopotamus, however, its utility cannot be overrated, for as it feeds almost

entirely upon various kinds of water-plants, of which it eats enormous quantities, it helps to keep such vegetation from spreading and blocking up the waterways, and in this way is invaluable. Some idea of the capacity of the hippopotamus can be gained by stating that its stomach measures about eleven feet in length, and can contain six bushels of food.

Unfortunately, the animal does not always confine its diet to weeds and other aquatic vegetation. It sometimes pays a visit to native plantations and feeds heartily upon the crops; while to add to its misdeeds in this respect it will trample underfoot and thus destroy much that it does not consume. But, apart from its utility for keeping streams clear of weeds, the hippopotamus serves mankind in many other useful ways. Its flesh, for instance, is highly esteemed by the natives as food, and the animal's tusks yield ivory that is very little inferior to that obtained from the elephant.

An ancient legend.

At one time the common hippopotamus inhabited the river districts of Africa, south of the Sahara desert, but nowadays it no longer occurs in Lower Egypt, and its range elsewhere is becoming more and more restricted. In the days of the ancient Romans the animals used to be imported for exhibition in the arenas. We read that it was first seen in Europe in the days of Augustus, 29 B.C., though Pliny gives the date as 58 B.C., when a hippopotamus and five crocodiles were shown in the arena at the time when Scaurus held the office of

**IN HIS NATIVE HAUNTS.**

[South African Rlys.]

Here is a very fine specimen of African Elephant, showing its great tusks and ears. Note how its profile differs from that of its Indian brother. Its ears are erected ready to catch the slightest strange sound.

ædileship. Pliny tells us that in those days hippopotamus skin was manufactured into helmets and bucklers. He also says that when one of the beasts became excessively fat, it cured its obesity by pressing its leg against something sharp, so that a vein in the leg was pierced and the blood poured out. When a sufficient amount had thus been liberated, the animal stopped the flow by plastering up the wound with mud. Needless to say this fanciful story is not based upon fact, so the practice described should not be followed by those human beings who regard slimming courses as vital necessities!

Capturing the elusive Hippo.

After the fall of the Roman Empire many centuries elapsed before the hippopotamus was again seen in Europe. The first living example ever brought to England was one that was shown at the London Zoological Gardens in 1850. The following is a quotation from Mr. Mitchell's interesting account of this animal:

"Since the Imperial Exhibitions in the Circus of Rome, no living hippopotamus has been imported into Europe, except the young male the Society possesses. The difficulty of obtaining such an animal may be conjectured from the fact that after the Viceroy of Egypt had determined to present one to the Society, it became necessary for his Highness to despatch an expedition to the Upper Nile for the purpose of making the capture, and that success was achieved only after two thousand miles of the river had been ascended. In the month of July, 1849, the chief huntsman of the party, in searching the reedy margin of an island in the White Nile, called Obaysch, at last discovered a little hippopotamus which . . . had been born about two days."

After its capture, "Obaysch," as the baby was named, was conveyed to Cairo, where he spent the winter; in the spring of 1850 he made a journey overseas, and on May 25 of that year, he was safely landed at Southampton. From there he was taken to the London Zoological Gardens, arriving ten hours later.

"For the first year," to continue Mr. Mitchell's account, "Obaysch was fed almost entirely on cow's milk and finely-ground Indian



THE HIPPOPOTAMUS. [E.N.A.]

The ponderous "River-Horse" seen at such close quarters has very little claim to beauty. These clumsy, lumbering creatures are sometimes found to weigh as much as three or four tons.

corn, and as he grew older he consumed about one hundred pounds' weight of hay, chaff, corn, roots, and green food every day. He grew rapidly until he reached the enormous weight of about four tons, and he was one of the chief attractions of the Gardens at the time of his death in March, 1878."

In 1853, a female hippopotamus was obtained by the London Zoological Society, and in the spring of 1871 the first young one ever born in Europe saw the light of day. This was followed by another in January, 1872, but both of these died. November 5, 1872, heralded the birth of a hippopotamus that was named "Guy Fawkes," in spite of the fact that it was a female. She lived for very many years, and was an object of great interest to the onlookers at the Zoo. Many of us of the present generation will remember the days of our youth when we gazed upon her open countenance and threw buns into her cavernous mouth.

In Tropical Western Africa there occurs a species of hippopotamus that attains a length of only six feet, and a height of thirty inches. Known as the pygmy or Liberian hippopotamus, it differs from the common species in several respects, including its smaller size. Its legs, for instance, are much more slender than those of its giant relative, while the toes of the feet are more spreading, and the eyes less bulging. Moreover, in its habits the pygmy hippopotamus is of a more active and roaming disposition, and also less aquatic, than the common species; while the latter congregate in herds, the former are to be met with singly or in pairs.

It was not until February, 1917, that a living pygmy hippopotamus was seen at the London Zoological Gardens, but since that date several others had been obtained, and a number have been born there. A pair of these interesting animals have an annual holiday during the summer months, at the Whipsnade Zoological Park, in Bedfordshire, where they are liberated in a large paddock which they share with zebras and ostriches. In the autumn they return to the Zoo to spend the winter, for a heated house and a warm bath cannot be provided for them at Whipsnade.

The ponderous Rhino.

Like the elephants and the hippopotamus, Rhinoceroses (of which there are a number of different species) are large, heavily-built animals. Their legs are short and massive, and each foot is provided with three toes, furnished with broad nails. The animal's skin is very thick, but, contrary to general belief, it is not bullet-proof. This fact was revealed in an amusing manner, as the following story shows.



OPEN, SESAME!

[H. J. Shepstone]

"All contributions gratefully received," says the Hippo, opening his cavernous mouth in readiness for a food supply. The ivory of his tusks is very valuable.

An Irish soldier, who was present at the sack of Delhi, thought he would test the much-debated question. Taking up his position before a captive specimen, he aimed carefully with his rifle, and pulled the trigger. To his astonishment the beast immediately dropped down dead and, to add further to his discomfiture, he found that, later on, the regiment to which he belonged had to forfeit £1000 of prize-money to make amends for his misdeeds. A characteristic feature of rhinoceroses is the upstanding horn (or horns) that arise from the snout, though with the female of one species this is usually absent. It is not generally known that the horns have no connection with the bones of the skull, and that they are composed of closely-packed, horny fibres. When subjected to pressure they can be moved slightly from side to side, a fact that was evidently known to the ancients. James Greenwood, in *Wild Sports of the World*,

published in 1862, says: "Concerning the horns of rhinoceroses, there exists many curious superstitions, one being that when the animal is undisturbed by man and at rest with his fellows, its foremost horn is plastic as the trunk of an elephant; and put to the same purpose; but that when enraged the accommodating implement stiffens to a weapon of war, and relaxes not until the ire of the terrible beast cools. This doctrine, however, may not be without foundation, for, as has already been stated, the horn is merely seated on the top of the nose, having for its base a peculiar knob of bone. . . . The root of the horn may be planted in a bed of muscle, which, when the animal is at rest, may so far relax as to admit of the weapon swaying slightly, giving it, to the eyes of the furtively watching savage, an elastic appearance."



THE PYGMY HIPPO.

[W. S. Berridge]

The Pygmy or Liberian Hippopotamus of Tropical West Africa is a small and rare animal, about whose habits very little is known. Unlike its larger relative, it inhabits marshes or shady forests. It is a solitary and harmless animal,

Burchell, in his *Travels in the Interior of South Africa*, also refers to the mobility of the rhinoceroses' horns in the following passage:

"It grows from the skin only, in the same manner as the hair—a circumstance which entirely divests of improbability the assertion of its sometimes being seen alone, although by no means so loose as some writers have sup-



RIVER HORSES.

[South African Rlys.]

The Hippos play a game of follow-my-leader on their way to the river, where they spend most of their time.



INDIAN RHINOCEROS.

[W. S. Berridge]

The unwieldy Indian Rhinoceros has only one horn and a smoother hide than that of his African brother. He is a survival of the distant past when giant creatures of peculiar forms used to inhabit the world.

posed. Nor is it at all extraordinary that the rhinoceros should possess the power of moving it to a certain degree, since the hog, which, in the natural arrangement, it so closely resembles, has a much greater power of moving its bristles, which, if concreted, would form a horn of the same nature."

Rhino's horn acts as charm.

Many strange beliefs are held in regard to the horn of a rhinoceros. Some tribes of Arabs, for instance, are convinced that they run no risk of being poisoned should they drink with a stranger, provided they do so from a vessel made from a rhinoceros's horn, which, so they believe, nullifies any poison that may be present in the liquid. In the East the natives consider that the animal's horn contains a substance that can be converted into the elixir of life; while its supposed curative power is perpetuated in the crest of the Apothecaries' Society, upon which the Indian species is represented.

The rhinoceros was first seen in Europe (in Rome) during the displays given by Pompey. The beast was evidently a one-horned or

Asiatic species, for Pliny describes it as possessing one horn on its nose, which it rubs and sharpens on a stone before entering into combat with elephants.

It is recorded that the African or two-horned rhinoceros first made its appearance in Europe as early as 39 B.C., when, together with the hippopotamus, it was brought over to take part in the displays arranged by Augustus to celebrate his victory over Cleopatra.

The great Indian Rhino.

Passing to more modern days, we read that an Indian rhinoceros was presented to the King of Portugal in 1531. Topsell, the sixteenth-century author, gives an illustration of this animal in one of his books; it is shown wearing a highly decorative suit of armour, and with a second horn sprouting from out of its shoulders—altogether an extraordinary stretch of imagination on the part of the artist who was responsible for the engraving.

The first living rhinoceros to be seen in Europe since the days of the Romans arrived in England in the year 1685.

The Indian or great one-horned rhinoceros is the largest of the Asiatic species; it measures about six feet at the shoulder. General Kinloch records having shot a specimen that was ten feet six inches in length, inclusive of the tail, which accounted for two feet five inches of the total measurement.

The horn of the Indian rhinoceros rarely exceeds a foot in length, but there is record of one that measured as much as twenty-four and a half inches.

The thick skin of the animal is naked, except the ears and tail. The greater part is studded with large, round, and raised tubercles. The skin upon the body is broken up into distinct sections by prominent and deep folds. One portion takes the form of a shield-like mass that envelops the shoulders, the hindmost fold of which extends right across the back from one elbow to the other. Another large fold, which also reaches across the back, is present in front of the hindquarters, and from the upper part of this arises a transverse fold forming a saddle-shaped mass above the tail.

£100 for a horn.

As is the case with many other wild animals, the range of the Indian rhinoceros is now much more restricted than it used to be. In the days of the Mogul Emperor Akbar, it was to be found even in the neighbourhood of Delhi, but

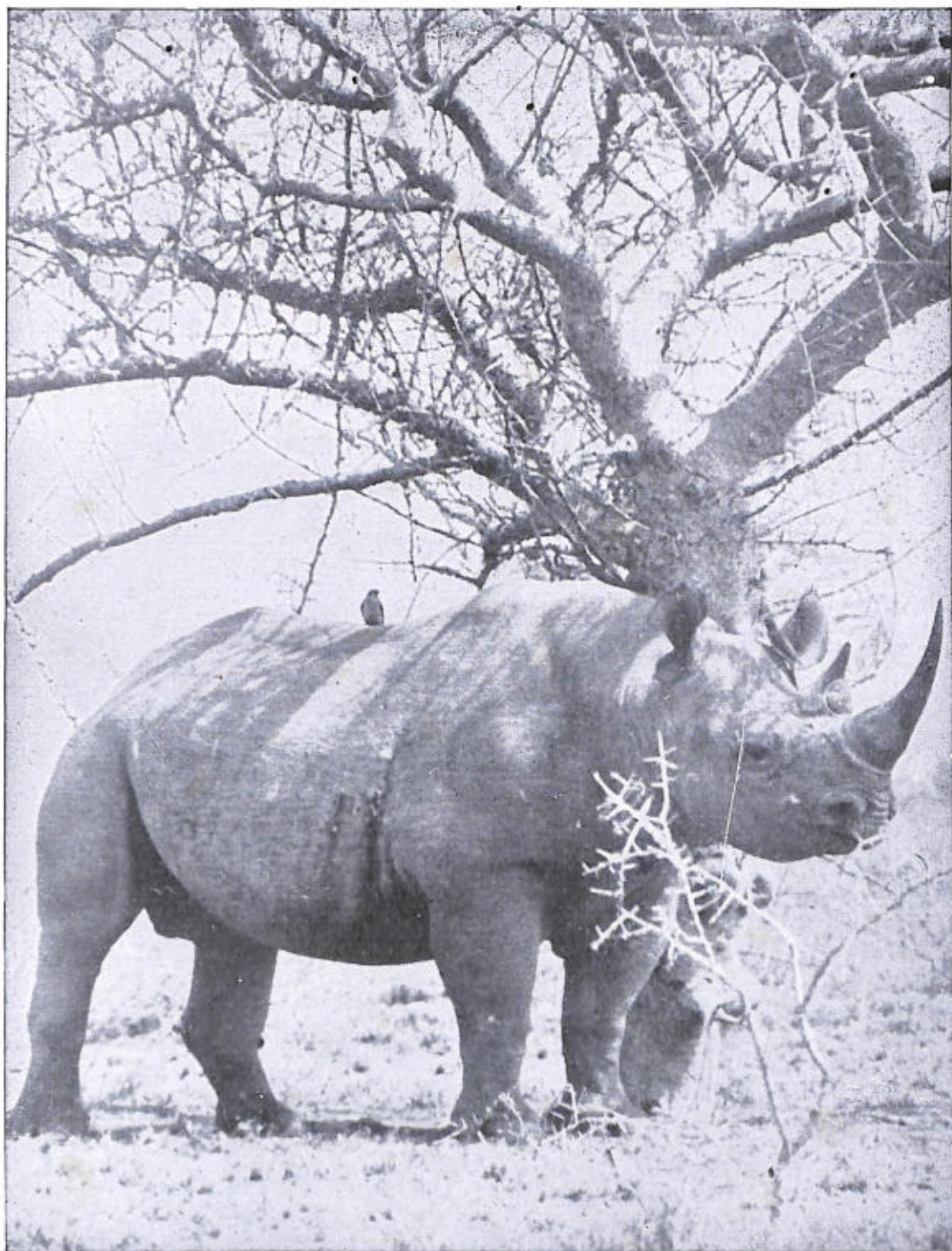


Photo: Marcuswell Maxwell]

GUARDING HIS MASTER.

[Mondiale

The Rhinoceros carries about with it a little bird which acts as a kind of valet, or scavenger, feeding on the ticks that infest the animal's back. When danger threatens, this useful little bird draws the animal's attention to it by fluttering round its head. The Rhinoceros is uneasy and on the alert when the bird is absent.

LEATHER-SIDED GIANTS

at the present time it is almost extinct, except in its last strongholds in Nepal, Assam and Siam, where special care is taken to protect it. The reason why its numbers have become so greatly reduced is because of the demand for its horns, which, as already mentioned, are regarded as possessing curative and other properties. A single horn may sell for as much as £100, and we read that, in 1929, more than one thousand rhinoceroses were killed to supply the demands of the Chinese.

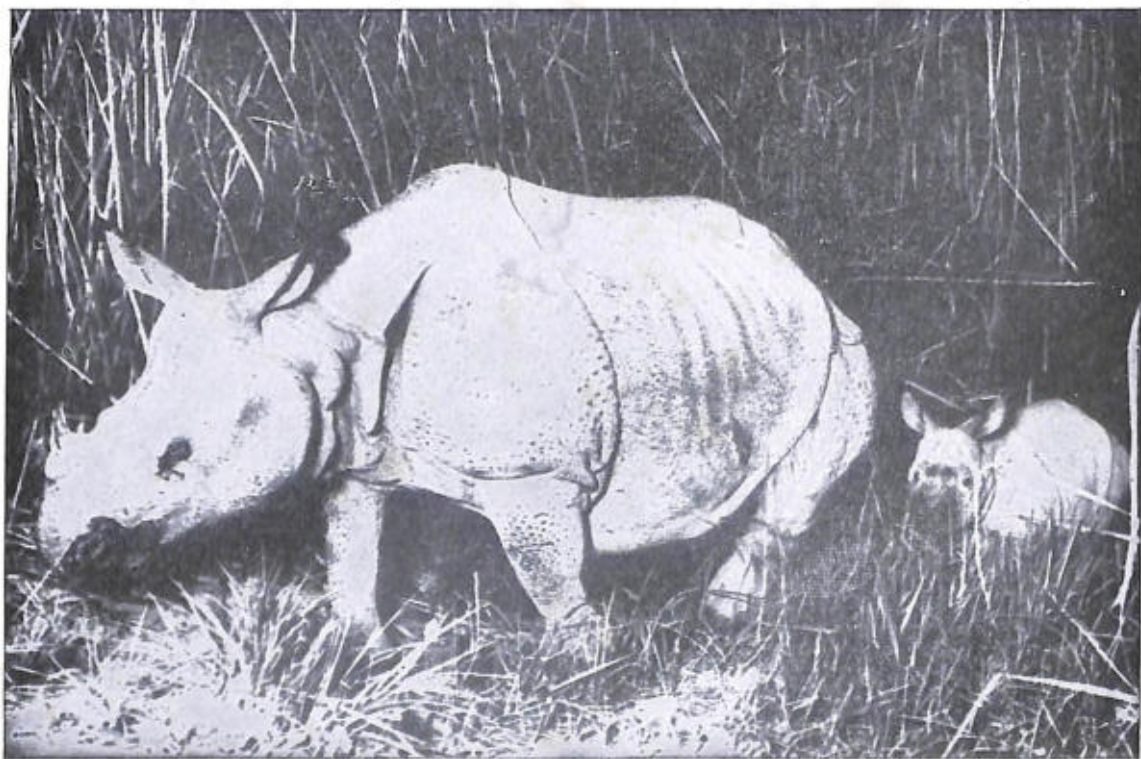
In spite of its great weight and size, the Indian rhinoceros can cover the ground at a considerable speed. Unless pressed, it progresses with a rapid but heavy trot, but, when in a hurry, it breaks into a lumbering gallop. The animal is of a nervous disposition, and not endowed with very good sight. It rarely molests man, but should it decide to do so it proves a formidable enemy. When shot, it invariably falls to the ground with its legs tucked beneath it as if it were sitting down, and remains in this position even after death.

With the Javan rhinoceros we come to a species that is also called the lesser one-horned rhinoceros. It is not so heavily built as the

Indian species, although it stands about the same height at the shoulder. Its head, moreover, is comparatively small; the skin is not studded with knobs but is broken up into numerous disc-like segments by a network of cracks; and the fold of skin in front of the shoulder runs right across from one side of the neck to the other, instead of, as in the case of the Indian rhinoceros, sloping backwards and ending near the margin of the posterior shoulder-crease. As a rule, only the male is possessed of a horn. This is not usually very large, though one at the London Natural History Museum measures more than ten and a half inches in length, and has a girth of almost twenty inches at the base.

Capturing the Rhino.

The smallest of the rhinoceroses is the Sumatran species. It attains a height of from four to four and a half feet at the shoulder, and measures eight feet from the end of its snout to the root of its tail. It possesses two horns, the maximum length of the front one being given as two feet, eight and a half inches, and that of the back one as one foot, five and



RHINOCEROS AND YOUNG

[E.N.A.]

The thick-skinned White Rhinoceros shows its baby round its jungle home in Central Africa, pointing out the pitfalls and warning it against the dangers of the wild. This photograph was taken by flashlight in the wilds.



Photo: H. Bastin]

YOUNG AFRICAN RHINOCEROS.

[Mondiale

Not a very pleasant companion is this ugly creature—the young African Rhino, with its wrinkled hide and forbidding countenance. It learns early to fend for itself and its natural instinct teaches it the dangers of the jungle.

three-eighths inches. The body of this animal is covered with rather long and dark-brown hair, and the ears are also fringed with hair.

An interesting species is the Hairy-eared rhinoceros. At one time it was regarded as a variety of the Sumatran rhinoceros, but is now recognised as a distinct species. It was originally described by Dr. Sclater (late Secretary of the London Zoological Society) from a specimen that was captured in January, 1868. This animal was eventually sent to London, and purchased by the Zoological Society for a sum of £1250.

The beast had a hairy fringe upon its ears, its body was covered with long, fine, reddish-brown hair; while its skin was smoother and of a more finely granulated nature than that of the Sumatran species; moreover its tail was shorter.

According to reports that appeared in a Calcutta newspaper at the time of its capture, the animal was found by some natives in a

quicksand in an exhausted condition, owing to its long and unavailing efforts to free itself. It was eventually dragged out with the assistance of about two hundred men, who hauled upon some ropes placed around the animal's neck, after which it was tethered to a tree. Arrangements were then made to march the captured beast to Chittagong, where it could be properly cared for. A rope was fixed round one of its legs, the free end being fastened to one of a number of tame elephants that were in attendance. The rhinoceros, however, objected to being led in this manner, and uttered a loud roar of protest, frightening the elephants to such an extent that they bolted. Eventually, however, the animal was induced to follow its escort, and after many difficulties had been surmounted, including the crossing of two rivers, it arrived at its destination.

Two species of rhinoceros are found in Africa. The best known of these is the so-

called Black rhinoceros, an animal that is quite plentiful in tropical regions, but is only found in a few places in the south. The normal number of its horns is two, but individuals with three have been recorded. The horns vary very much in size in different beasts, though, as a rule, the front one is the longer. An animal of this type is spoken of by the natives as "boreli," but one with horns of about equal length, or in which the posterior horn is the longer, they call "keitola."

THE black rhinoceros dwells in the bush, through which it makes regular runs.

Mr. Blandford tells us that, in Abyssinia, "where roots and stems render the jungle almost impervious, there are places known by the inhabitants as rhinoceros-houses." These are cleared spaces, about fifteen feet across, that have been cleared by the animals breaking away the branches; while the surface of the ground is hollowed out by the constant trampling and rolling of the ponderous beasts.

Although it is commonly stated that the black rhinoceros is of a fierce and dangerous disposition, the late F. C. Selous, the famed big-game hunter, considered it to be rather cowardly than otherwise. Gordon Cumming, however, states that "the black rhinoceros is subject to paroxysms of unprovoked fury, often ploughing up the ground for several yards with its horn, and assaulting large bushes in the most violent manner. On these bushes they work for hours with their horns, at the same time blow-

ing and snorting loudly, nor do they leave them in general until they have broken them to pieces."

The last and rarest of the rhinoceroses is that variously known as Burchell's, the Square-mouthed, or White rhinoceros. It is the largest of its kind, an adult sometimes attaining a height of six and a half feet at the shoulder, and a length of twelve feet. Unlike other rhinoceroses, in which the upper lip terminates in a point, this animal is characterised by its blunt-ended muzzle. Its front horn is usually much longer than that of the black rhinoceros, and has been known to measure as much as five feet two and a half inches; the posterior horn sometimes grows to a length of two feet, but often is little more than a stump. As a rule, the foremost horn takes a backward sweep, but at times it is almost straight, with a slight forward tilt.

The habits of Burchell's rhinoceros differ from those of the black species, for, whereas the former walks with its snout held high in the air, the latter carries it close to the ground. Moreover, in the case of a mother accompanied by her young one, with the common or black species the infant follows its parents, but the baby Burchell's rhinoceros always walks in advance.

This animal was never very extensive in range; at the present day, however, it is almost extinct. No living example has ever been seen in captivity, and very few specimens are to be found even in museums.

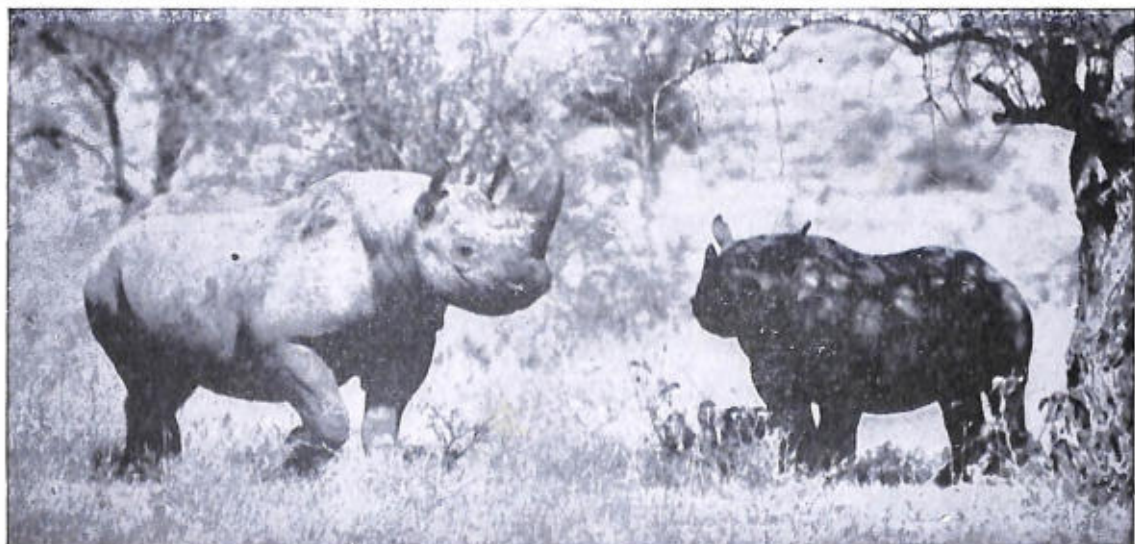


Photo: Marcuswell Maxwell

EAST AFRICAN RHINOCEROSES.

Creatures one would not care to face unarmed as they range the East African bush! They are not at all good-natured, and the well-grown horn, with the weight of the Rhino behind it, makes a truly formidable weapon.

[Mondiale

MAMMALS OF THE SEA

C. BERNARD RUTLEY



These Seals are enjoying a sun and ice-bath at the same time in their Antarctic home, where they are most abundant. Though they seem to be relaxing, they always keep a weather-eye open for the seal-hunters who are eager to catch them, and whose look-out is hardly less vigilant than their own. *[Mondiale]*

CAN warm-blooded mammals live in the sea—"animals" as distinct from fish? They can, and do! They not only live but flourish, and reach a size and strength far beyond that of the cold-blooded, gill-breathing fish. The largest of living creatures—the Whale—as well as the Seals, the Walrus and the curious order of Sirenia, are Mammals of the Sea. Their structure and habits, and the marvellous way in which they have adapted themselves to their submarine life, are described in the following chapter.

IN thinking of the sea we are apt to regard it as a place wherein breathing animals similar to ourselves cannot live; yet, curiously enough, the largest inhabitants of the oceans are not fish at all but warm-blooded mammals which need air to live, and which bring forth and suckle their young just as land animals do. The truth is that they too were once land animals, though at some remote stage of their history they left land for the sea.

The largest of these sea animals belong to the *cetacea*, an order which includes whales, dolphins, and porpoises. They are absolutely helpless on land, and might easily be mistaken for fishes, but their fish-like form is merely an adaptation to that shape of body most fitted for the life they lead. A pair of paddles has superseded the forelimbs; yet, though these paddles can move only from the shoulder, they possess muscles, bones, and joints similar to those found in the human arm and hand, whilst hidden in the animal's body the undeveloped beginnings of hind legs still exist,

useless, but one proof amongst many that the cetaceans derive their descent from some form of primitive land carnivora.

The eyes of the cetacea are small, but their hearing is very acute, and they probably depend upon their ears far more than upon their eyes to find their way about in the semi-darkness of the submarine world. To animals so endowed the sound of the sea beating against rocks would give warning of the nearness of land, and the cetaceans may even be able to distinguish the vibrations set up by a shoal of fish, and so receive information of the presence of food.

Though living a purely aquatic life cetaceans must breathe or die, and for this purpose they rise to the surface at frequent intervals to expel the old air from their lungs, and to inhale a fresh supply. When whales spout they are merely expelling the air which they inhaled the last time they rose to the surface, and the idea that they spout water is wrong. True, a certain amount of water may be blown into

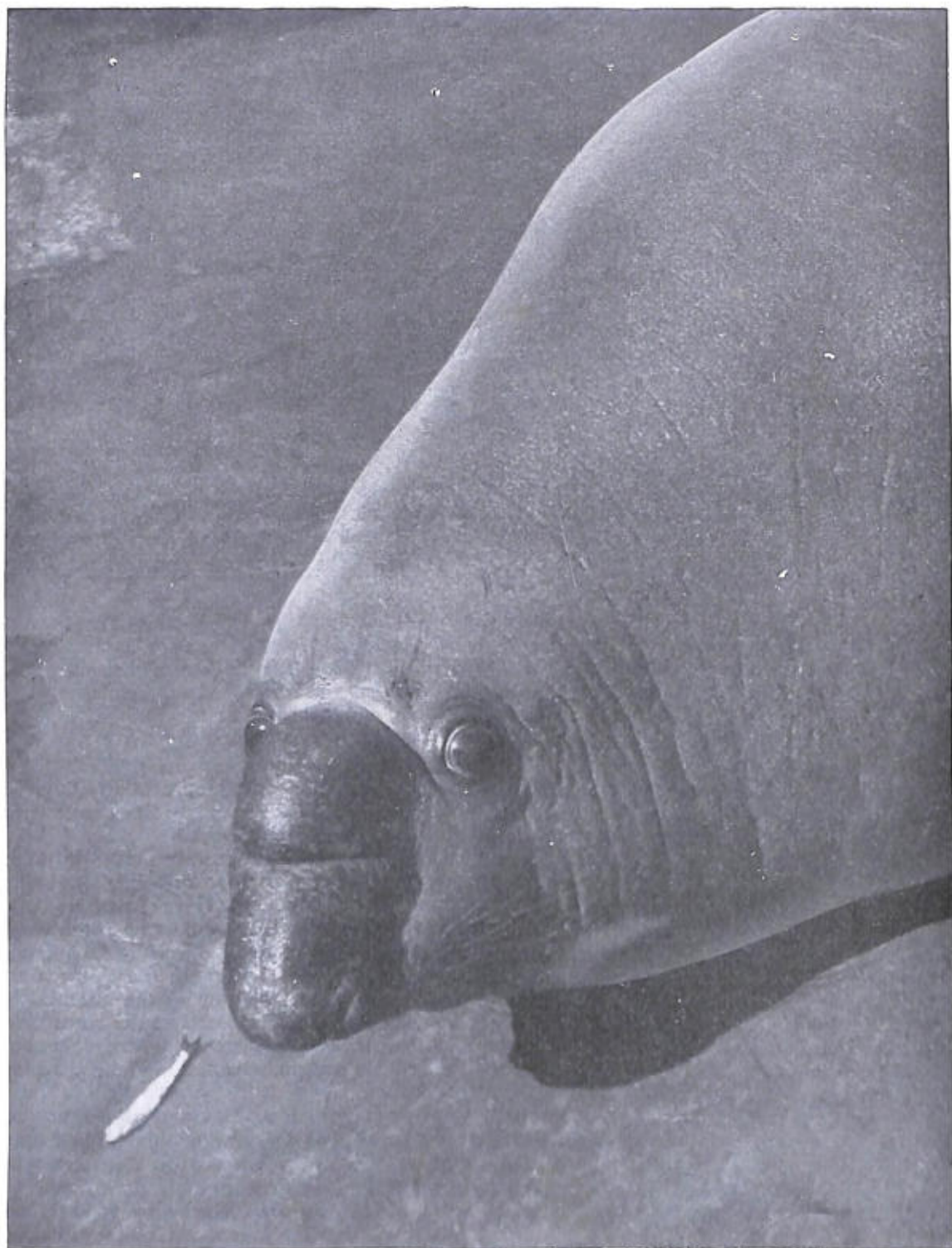
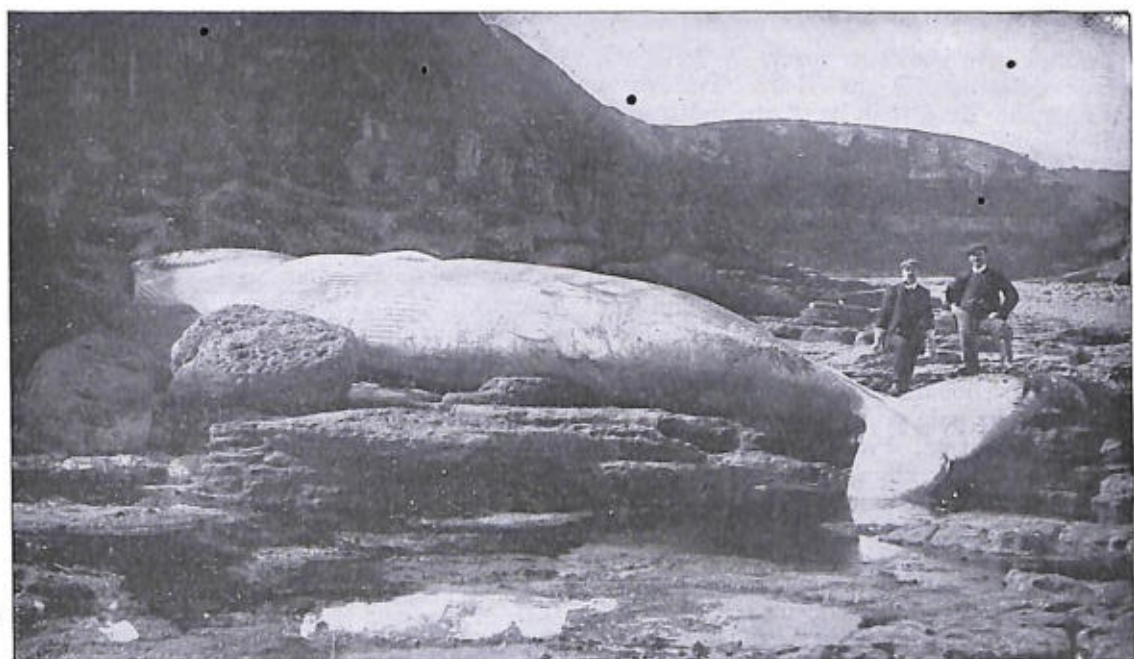


Photo: Pitt's Press]

A MEAGRE BREAKFAST.

[Mondiale

Not a very satisfying meal for a Sea-Elephant, but perhaps it is better than nothing! These creatures are the largest of the Seal family, and take their name from the huge proboscis of the male—a foot or more in length.



THE LARGEST LIVING ANIMAL.

[W. S. Berridge]

The Rorqual, or Fin-Whale, is said to be the largest living animal known. This gigantic creature, which attains a size of eighty-five feet, is avoided because of its ferocity.

the air by the expulsion of their breath, but breath alone is ejected from the nostril of the animal, and this breath, condensing in the colder atmosphere often found in the latitudes frequented by whales, becomes a column of spray which in the distance looks like water. The spout of whales has been much exaggerated for it rarely exceeds fourteen feet in height.

Whalebone versus teeth.

Whales are not deep water animals. Probably they never go to a greater depth than fifty fathoms, and when they dive it is usually in search of food. With certain exceptions they are timid, unoffending creatures. They are fond of each other's company, and go about in pairs or small shoals. The females are affectionate mothers, and show great fondness for their young. As a commercial proposition whales are killed for their blubber, which forms a protective covering against cold immediately under the skin, and from which oil is obtained, whilst different species yield whalebone; spermaceti, a wax which is used in the manufacture of cosmetics, and in medicine and surgery; and ambergris, a fatty substance invaluable in the making of perfumes.

Whales are divided into two suborders known

as whalebone whales and toothed whales, the latter of which include the dolphins and porpoises. From the first class whalebone and oil are obtained, whilst the second order yields oil, and in certain cases spermaceti and ambergris.

Foremost amongst the denizens of the Arctic Ocean is the Greenland Right-Whale. It belongs to the whalebone order, and is a huge creature almost entirely black in colour, and varying between fifty and sixty feet in length. Of this length the enormous head occupies fully one-third, and seems out of all proportion until it is remembered that this great animal lives entirely upon minute crustaceans and pteropods, and that a mouth able to take in vast quantities of these tiny creatures at one time is necessary if the whale is to sustain its immense bulk. It is at this stage of the feeding process that the whalebone of this order plays an important part. The whalebone is divided into blades which are situated inside the mouth, and these blades act as a strainer by which the water, which is taken in with each mouthful of food, can be drained off whilst retaining the minute creatures upon which the whale depends for nourishment. The Greenland right-whale is essentially an Arctic whale, and

never wanders far from the southern limit of the icefields.

Belonging to the same group is the Black Whale or Southern Right-Whale. This whale has a smaller head than its Greenland cousin. It frequents the Pacific and southern seas, and was once abundant in the North Atlantic. This was the whale which supplied mediæval Europe with oil and whalebone. So extensively was it hunted that, in spite of its former abundance, it was dying out by the end of the sixteenth century, and the North Atlantic species of this whale is now almost extinct.

The Narwhal or Corpse-Whale, so called because of its pale grey colour, is found only in the Arctic seas. Properly it is a dolphin, belonging to the family *delphinidæ*. It feeds upon fishes, squids, and crustaceans, and usually goes about in schools numbering from a dozen to twenty individuals. Narwhals may often be seen playing together, the males appearing to engage in mock battles with their long, spear-like tusks which are the outstanding feature of their kind. These tusks are of ivory, and stick straight out from the upper jaws. They are

cylindrical and tapering in form and are marked by spiral grooves; a narwhal twelve feet long may possess a tusk eight feet in length. It is not known to what use this dangerous weapon is turned, but it may be used by the males in combat with each other, or for breaking a hole in the ice. The females of the species, however, have no tusks.

The terror of the waters.

Another Arctic cetacean is the Beluga or White Whale. This is also a dolphin. It is nearly white in colour, and ranges as far south as the river St. Lawrence. In length the beluga averages about twelve feet, and is killed for its skin, which is made into leather. These white whales are hunted by the dreaded grampus or "killer," and in their terror have been known to throw themselves on shore rather than face the jaws of their terrible enemies.

The Grampus, "Killer," or *orca gladiator*, as it is scientifically called, grows to a length of twenty feet. It belongs to the *delphinidæ*. In colour it is black above, with white underparts, and, unlike the majority of cetaceans, is

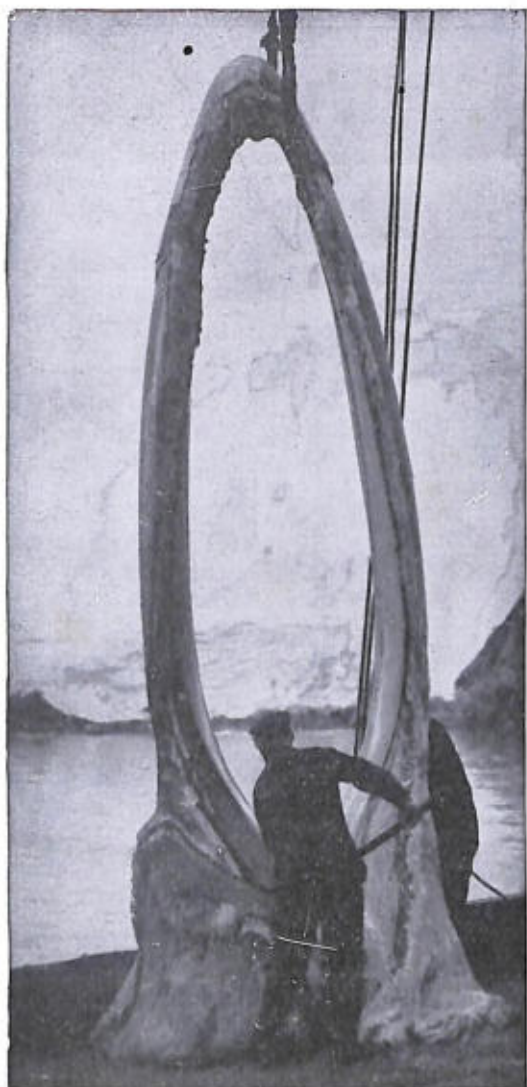


E. Mills Joyce

THE "KILLER."

[Mondiale

From the icy waters of Ross Sea, in the Antarctic, comes this picture of the "Killer" Whale—who is really a species of Grampus. He is very savage and voracious, and does not hesitate to attack the largest whales.



JAWBONE OF A WHALE. [Mondiale]

A novel outlook! A seaman surveys the world of ice through the jawbone of a monster whale.

characterised by an intensely savage disposition. "Killers" are found in the North Atlantic and North Pacific, and usually go about in small schools. They feed upon seals and porpoises, killing, when opportunity offers, large numbers at a time, nor do they hesitate to attack with their powerful teeth such giants as the Greenland right-whale, pressing home the assault with remorseless tenacity until the great animal, terrified, helpless and wounded, falls an easy prey to its savage and cruel persecutors.

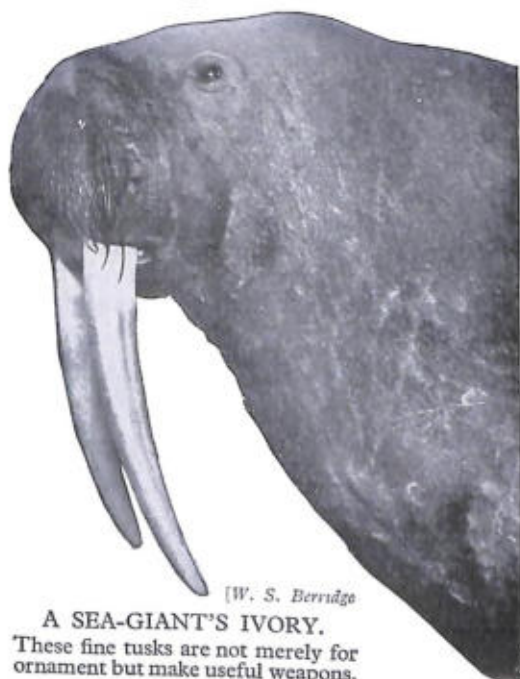
Belonging to the same family as the grampus

is the common Dolphin which reaches a length of about seven and a half feet, and is coloured dark grey above with white under-parts. The head ends in a long, narrow beak, armed with sharp teeth with which the animal catches and devours the fish upon which it feeds. Dolphins are sociable animals; they always go about in parties, and a school of dolphins playing round a ship is a common sight at sea. In their gambols they often leap out of the water, and so high do they leap that they will sometimes actually fall upon the deck of the ship round which they are playing. The female gives birth to a fully developed "calf," to which she is a kind and careful mother.

A game of "Follow-my-leader."

Risso's Dolphin is larger than the common dolphin, and attains a length of about thirteen feet. It is greyish in colour, and frequents the Atlantic Ocean, North Sea, Mediterranean, and Northern Pacific. It feeds chiefly upon squids, and these dolphins may often be seen with their bodies covered with the scars of wounds obtained in conflict with their victims.

Another interesting member of the *delphinidae* is the Blackfish or Pilot Whale, as it is more commonly called. This dolphin is black all over except for a white patch on its breast, and its maximum length is about twenty feet. It is an inoffensive animal, and goes about in schools numbering several score. These schools



[W. S. Berridge]

A SEA-GIANT'S IVORY.

These fine tusks are not merely for ornament but make useful weapons.



THE WALRUS.

[Pathe

Two youthful dwellers in the Arctic act as showmen to the giant Walrus, and help him to display his ivory tusks. Inoffensive as he seems in this picture, he can be a terrible foe when he is roused.

are always led by a leader or pilot fish swimming in advance, and wherever the leader goes the rest of the school will follow. Hunters of the blackfish make use of this peculiarity, for sooner than forsake their leader these whales will follow it to destruction. This species is widely distributed, and is found in the Atlantic, Indian, and Pacific Oceans.

The Bottle-Nosed dolphin and the Short-Beaked dolphin are also native to the North Atlantic, and the more temperate seas. Their habits are similar to those of the rest of the family, and there are no outstanding characteristics to detail.

The North Atlantic is also the home of the Porpoise, a name often given by mistake to the smaller dolphins. The porpoise is the smallest of the cetaceans, and averages about five feet in length. The head is rounded and does not protrude in a beak as with the *delphinidae*; the coloration is dark grey above with white under-parts. Porpoises feed on fish, and follow the shoals of herrings and mackerel

round the coast. They go about in small schools, and may often be seen in estuaries and creeks; they will sometimes ascend rivers, and porpoises have been seen as far up the Thames as Richmond. At one time porpoises were killed for food, but now they are hunted only for their blubber and their hides, which are made into leather. Porpoises are also found in the South Atlantic Ocean, the Black Sea, and in both the Indian and Pacific Oceans.

Whales with beaks and bottle-noses.

In the North Atlantic there are several whales belonging to the toothed and whalebone varieties. Of the former there are the beaked whales, of which Sowerby's Whale is the commonest. It grows to a length of fifteen feet. Cuvier's Beaked Whale has a wider distribution, and is also found in the North Pacific, but it is less common than Sowerby's whale. Bottle-nosed whales also frequent the North Atlantic. They are generally met with in schools, and range from the Arctic Circle southward to



Dr. G. W. Morey]

A RIDE ON A SEA-COW.

[Mondiale

This sunny photograph comes from the coast of Northern Australia. The creature on which the children are riding is a Dugong, or Sea-Cow, a gentle, harmless beast which unfortunately is now very nearly extinct. It frequents shallow estuaries and river-mouths, and "grazes" on successful water plants and seaweeds.

the English Channel. The males average thirty feet in length, but the females are smaller. These whales are frequently found stranded upon the shores of the British Isles.

The Rorqual that is built for racing.

The most important of the North Atlantic cetaceans, however, are the Fin-Whales or Rorquals. These whales belong to the whalebone variety, and are more widely distributed than any other cetacean, being found in all seas of the world except in the higher latitudes of the Arctic and Antarctic regions. Rorquals have long, slender bodies, and are very fast swimmers. Before the invention of the harpoon-gun they were very difficult to catch; nowadays, however, they are killed in thousands, and almost every particle of the whale is utilised, for, after the whalebone has been removed and the oil extracted, the rest of the body is dried and pulverised, in which form it is given the name of whale-guano, and put on the market as a fertiliser.

There are four species of rorquals. First

there is the gigantic Sibbald's Rorqual or Blue Whale which attains a length of eighty-five feet, and is the largest of living animals. Its body is dark bluish grey in colour with white spots on the breast, and despite its size it is the fastest swimmer of its tribe. Sometimes as it swims the whole of its great body comes into view above the water, and on rare occasions this vast animal will leap out of the sea into the air. Yet this, the greatest of all animals, lives on minute crustaceans and small fish, such as sprats and pilchards.

Next in size is the Common Rorqual with a maximum length of seventy feet. This huge creature is often seen in small schools of a dozen or more whales. It is the most common of the larger cetaceans in British waters, and rarely does a winter pass without one of these great grey and white animals being thrown ashore upon our coast. This whale feeds upon fish, and creates terrible havoc amongst the herring shoals, of which fish it eats enormous quantities.

Smaller still is Rudolphi's Rorqual. This

whale is coloured bluish-black above, with whitish under-parts. It feeds exclusively upon minute crustaceans, and reaches a length of about fifty feet.

Last and smallest of the group is the Lesser Rorqual with a maximum length of thirty feet. In colour it is greyish black above and white below, and in summer is a common visitor to British and Norwegian waters.

Related to the rorquals, but of shorter and less slender build, is the Humpback Whale. Its greatest length is about fifty feet, but it possesses very long flippers which send it through the water almost as fast as its more slender relations. The humpback is black in colour with occasional white markings, and it frequents nearly all seas, where it is most often found in the vicinity of land. Humpbacks are usually met with in schools, and it is a rare sight to see these great creatures playing together, and throwing themselves out of the water like a school of porpoises.

Coming now to warmer seas, such as the Mediterranean Sea, and the Pacific and Indian

Oceans, we find the huge Cachalot or Sperm Whale. This is the largest of the toothed whales, and the bulls sometimes attain a length of sixty feet, though the cows are considerably smaller. The outstanding feature of these great animals is the enormous head which occupies one-third of the total length, and is very massive with a high, square front. The cachalot's lower jaw is furnished with strong teeth with which it seizes and devours the large fish and huge squids which form its usual food, and which it hunts at quite considerable depths.

How the Whale comes ashore.

In colour the cachalot is black above with grey under-parts, and the whole huge body is thickly protected with blubber, from which sperm oil is obtained. Besides oil sperm whales yield ambergris and spermaceti, the uses of which have been already explained. The Indian and Pacific Oceans are also the home of the Lesser Sperm Whale. This is a relatively small animal, and rarely grows beyond twelve feet or so in its total length.



THE SERGEANT-MAJOR!

[Mondiale]

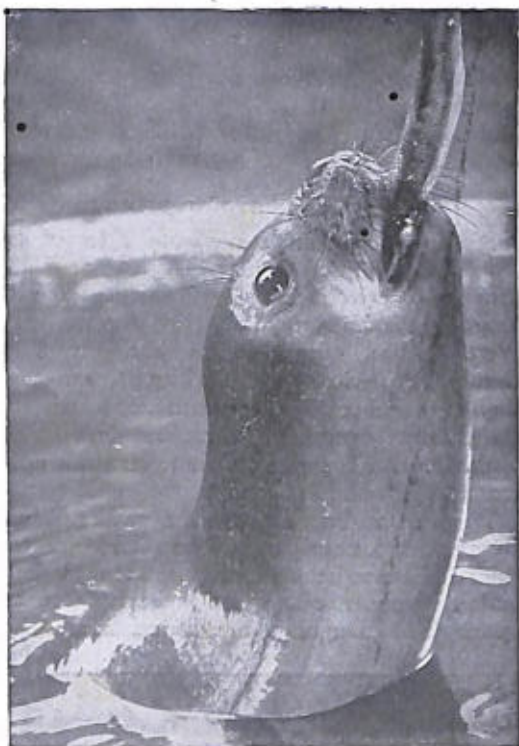
This exceptional picture of a Bull Seal shows him wearing an almost human expression. Very useful are these Seals to the Eskimo, who depends on them for food, clothes, rugs, and oil for light and warmth. A favourite method of hunting them is to spear them when they rise at an ice-hole.

A whale which has been practically exterminated is the Grey Whale of the Pacific. It belongs to the whalebone species, and grows to a length of forty to fifty feet. This whale is usually found close inshore, and it not infrequently runs aground, where it will stay, unable to escape, until by good fortune the next high tide allows it to swim away.

A "dwarf" that measures twenty feet.

Southward, in the Antarctic Ocean, there are several cetaceans which must be mentioned. One of these is the Pygmy Whale, twenty feet in length, and one of the smallest of the whalebone species. Then there are three beaked whales which appear to be native to the southern sea. Of these the largest is Arnux's Whale which attains a length of thirty feet, and is coloured black above and grey below. Another is Gray's Whale, sixteen feet long and black all over, but the most interesting of the trio is Layard's Beaked Whale. This whale is dark brown above with whitish under-parts, and it attains a length of about twenty feet. It has only two teeth, both in the lower jaw. These teeth grow all through the whale's life until they become tusks twelve inches or more in length, and are used by the animal to dismember the squids and other creatures upon which it feeds.

In tropical waters there live two purely aquatic mammals belonging to the order *sirenia*, or sea-cows. The Atlantic member of this family is the Manati. It is a coastal animal frequenting rivers and shallow waters, but never venturing out into the deep sea. In form manatis are fish-like and bear some resemblance to whales, but this resemblance



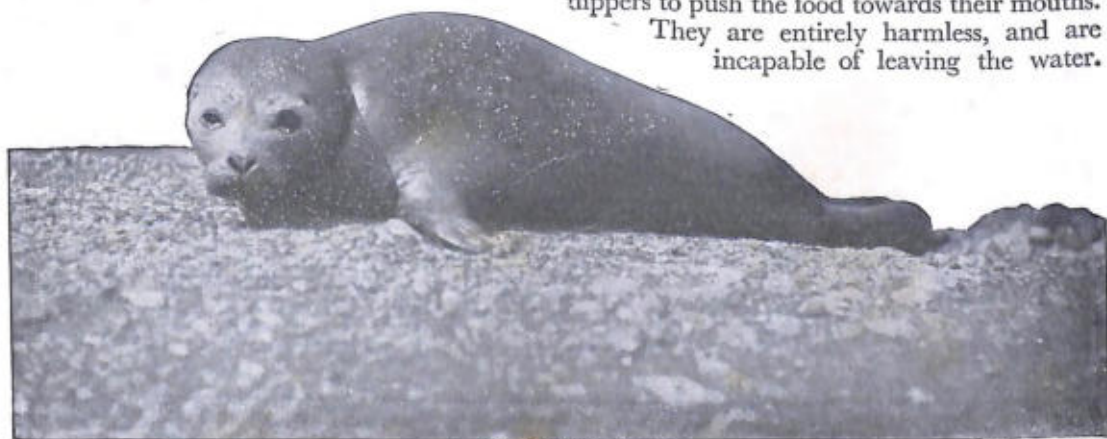
THE ELEPHANT SEAL. [F. W. Bond]

The Elephant Seal enjoys a tasty bite of fish. So scarce are these seals at the present day that their skin is regarded as something of a curiosity.

is merely superficial, for whereas whales are descended from a primitive form of carnivora, the sea-cows owe their origin to some remote member of the elephant tribe.

Manatis are slow, sluggish animals, and exist solely on submarine vegetation upon which they browse beneath the water, using their fore flippers to push the food towards their mouths.

They are entirely harmless, and are incapable of leaving the water.



A FINE SWIMMER.

[W. S. Berridge]

The Common Seal found on British coasts is a clumsy creature when on land, but agile enough in the water, where its limbs act as flippers and are adapted for swimming. It can be tamed and is very affectionate.

When not feeding they often spend their time lying in the shallow water near the bottoms of the rivers they frequent. They are hunted as an article of food, also for their skins, and for the oil which is extracted from their bodies and used commercially.

Grazing in submarine pastures.

Sea-cows are found on both sides of the tropical Atlantic. The American sea-cow grows to between nine and thirteen feet in length. It is dark-grey in colour, and frequents West Indian waters, and the rivers of Central America. The African manati is slightly smaller than its American relative. Its greatest length is about ten feet; it is bluish-black above, and yellow on the underparts.

The second member of the sirenia is the Dugong. It is nearly related to the manati, the chief difference between the two being that the male dugong possesses two large tusks in the upper jaw. Dugongs are found in shallow

estuaries and rivers all along the shores of the Indian Ocean from East Africa to the northern coast of Australia. They are coloured dark-grey above and white beneath, and they range between eight and fifteen feet in length. For food they eat seaweed and other aquatic plants. The females have one calf at a time. Some years ago dugongs were very plentiful, and might be seen feeding together in large herds, but of late years they have been so hunted for the sake of their flesh and the oil they yield that in some regions there seems to be danger of their extinction.

We next come to a group of carnivorous animals which have adapted themselves to an aquatic existence, but which still spend a large part of their time out of the water. These animals are the seals and their ally the walrus.

Seals are divided into two families, namely, the true or earless seals, and the eared seals. The former have no visible outward ears, but the latter still retain a rudimentary form of external ear. Of the two varieties, the earless



A STOLID YOUNGSTER.

[F. W. Bond]

The young Walrus, before his great tusks begin to grow, is not such a formidable-looking fellow as his father. Very ungainly on land, he is quite gentle until molested, when he defends himself fiercely, roaring all the time in a terrifying manner. His food consists chiefly of molluscs, but he also eats fish and even porpoises.

seals spend more time in the water than the eared seals; they are also usually monogamous, and are often seen together in pairs, whereas the walruses and eared seals are polygamous creatures.

ALTHOUGH spending so much time out of the water seals are ill adapted for a life on dry land. In the sea they are entirely at home, swimming and diving with perfect mastery, and able to remain submerged for fifteen minutes or more, but on land their movements are clumsy and awkward. The eared seals raise themselves upon their fore and rear flippers, and lurch forward as their remote ancestors did upon four feet, but the true seals do not use their hind flippers at all. If in no hurry they shuffle along with a wriggling motion of their bodies, but if pursued they lift their heads and shoulders and chests in the air by pressing the fore flippers upon the ground, and lurch forward in a series of short

jumps. In spite of the seeming awkwardness of this mode of locomotion, however, the speed is such that a man has to walk fast to keep pace.

Seals are intelligent animals, and curious by nature. Many of the species are easily tamed, and become very attached to their masters. Their food consists of fishes, squids, cuttle-fish, molluscs, crabs, and lobsters. Young seals do not swim naturally, but have to be taught by their parents, and at first enter the water very reluctantly. These little seals are covered with a coat of soft, white fur, and they do not start their aquatic instruction until this coat falls off, but remain out of reach of the water upon the beach where they were born.

Of the earless seals one of the most abundant is the Common Seal. This animal is a yellowish-grey marked with brownish spots, and reaches a length of about six feet. It is a harmless creature so far as human beings are concerned,



ELEPHANT SEALS.

[E.N.A.]

Here is a view of a Mexican beach, showing a family of Elephant Seals enjoying a siesta, while the gentleman in the foreground lazily scratches his nose. This beach is the home of a large number of Elephant Seals which, during the night and on cold days, root out trenches in the sand and lie quite snugly in them.



ON GUARD.

[E.N.A.]

A fine picture from the Pribilof Islands (Alaska), showing a bull Seal keeping guard over his "wives."

though the male seals often engage in fierce fights. This seal is native to the North Atlantic, as well as to the Mediterranean, and the Arctic and Northern Pacific Oceans.

Another seal which frequents the North Atlantic, and is commonly seen off the British coasts, is the Grey Seal. This seal reaches a length of eight to nine feet, and in colour is silvery-grey marked with dark spots. It is most usually seen off lonely beaches, and in the breeding season seeks some ocean cavern, where, upon the tiny beach at the end of the cave, the baby seals are born, and live until

they are old enough to begin their education.

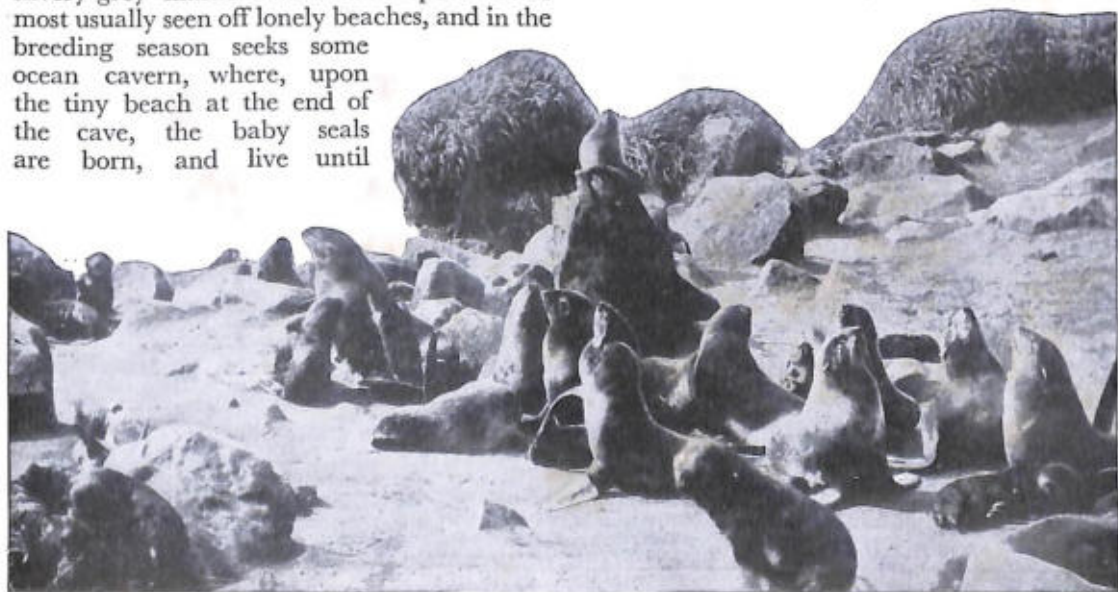
Monk Seals, known to the ancients, are another form of the earless variety. Their coloration is grey and brown above with white under-parts, and they attain a length of eight feet. They range all over the Eastern Atlantic, Mediterranean, and the Black Sea.

Hooded, earless and bearded Seals.

Farther north, inhabiting the circumpolar waters of the Arctic Ocean, there are several varieties of the earless seal. Largest of these is the Bearded Seal, the males of which grow to a length of ten feet. It is found in immense herds upon the shores of Greenland, Iceland, and Labrador. Then there is the Greenland Seal, hunted on account of its coat; the Ringed Seal; and the Crested Seal which spends its life in the neighbourhood of ice, and is rarely found on land.

Last of these Arctic species is the Hooded Seal. This seal is migratory, and according to the season is found as far south as Newfoundland or as far north as the shores of Greenland. The hooded seal is hunted by the Eskimos for food, a task not without danger, for the animal is fiercer than many others of its kind, and often turns upon its enemies.

The Antarctic Ocean is the home of four species of earless seal. Of these the largest is the Leopard Seal which reaches a length of twelve feet. It has olive coloured fur with



A SEAL COLONY.

[E.N.A.]

Another Alaskan picture of a bull Seal keeping watch over the females and young. During his long vigil of perhaps three months he fasts and becomes very haggard and emaciated. When it is over he enjoys a long sleep!

black or yellow markings, and possesses powerful teeth to rend the fish upon which it feeds. This seal is found as far north as Australia and New Zealand, and ranges southward to the Antarctic ice-pack. A seal which is restricted to the ice-pack is Ross's Seal. In colour it is grey above with whitish under-parts, and it feeds upon cuttle-fish and seaweed. The White Seal likewise makes its home upon the Antarctic ice-pack, but also ranges as far south as the great ice-barrier where it keeps company with Weddell's Seal which is found close to the shore, and feeds upon fishes and crustaceans.

Bull-fights among the Sea Elephants.

But most interesting of the earless seals is the huge Sea-Elephant. It frequents the Northern Pacific and Antarctic Oceans, and the bulls grow to a length of twenty feet, so that it is the largest of the seal family. These seals owe their name to the short trunk which is the chief characteristic of the males. Like many big creatures they are even tempered, and are too lazy to attack an intruder unless first attacked. In the latter case, however, the bulls display surprising agility, and with open mouths and huge bodies raised almost straight off the ground present a very threatening front to the enemy. Sea-elephants are monogamous creatures, and during the breeding season travel several hundred yards inland, where the bulls remain for such a long time that they become emaciated for want of food. Sometimes two bulls fight. To do this they raise their immense bodies, and with huge mouths wide open, fling themselves one upon the other, each bull trying to seize its enemy's head or neck with its powerful teeth. In this way severe wounds are inflicted, and the fight continues until one of the combatants retires from the fray.

The eared seals have two representatives, the Sea-Bear, or Fur Seal, and the Sea-Lion. The former are hunted for their fur, and are found both in northern and southern seas.

The northern sea-lion is larger than the sea-bear, and measures as much as thirteen feet in length. This variety is native to the North Pacific, and its habits are very similar to its relatives, the sea-bears. These great creatures are fond of playing games, and in the breeding season the huge bulls may often be seen carrying their young down to the water on their backs, and there playing with them in the surf. There are several varieties of sea-lions.

The Californian Sea-Lion is smaller than its

northern relative, rarely growing beyond eight feet in length. Then in the Antarctic there are the Australian Sea-Lion, Hooker's Sea-Lion, and the Falkland Sea-Lion. This last is the largest southern species and is golden-brown in colour. The old males possess a kind of mane. During the breeding season the bulls are very savage, and engage in fierce battles whilst the females look calmly on until it is decided which of the contending bulls shall be their master.

Last of all there is the Walrus, which forms a family by itself, and makes its home in the cold seas and upon the ice-bound shores surrounding the earth's northern pole. A full-grown male will measure as much as eleven feet from the tip of its nose to the end of its tail, and the whole of this great bulk is covered with short hair merging from yellowish-brown to chestnut on the under-parts of the body.

The walrus has small eyes set in a rounded head without visible ears, and on either side of the broad, flat muzzle there is a growth of stiff whiskers. But the most prominent feature of the walrus is its very long, thick tusks, which are common to both the males and females.

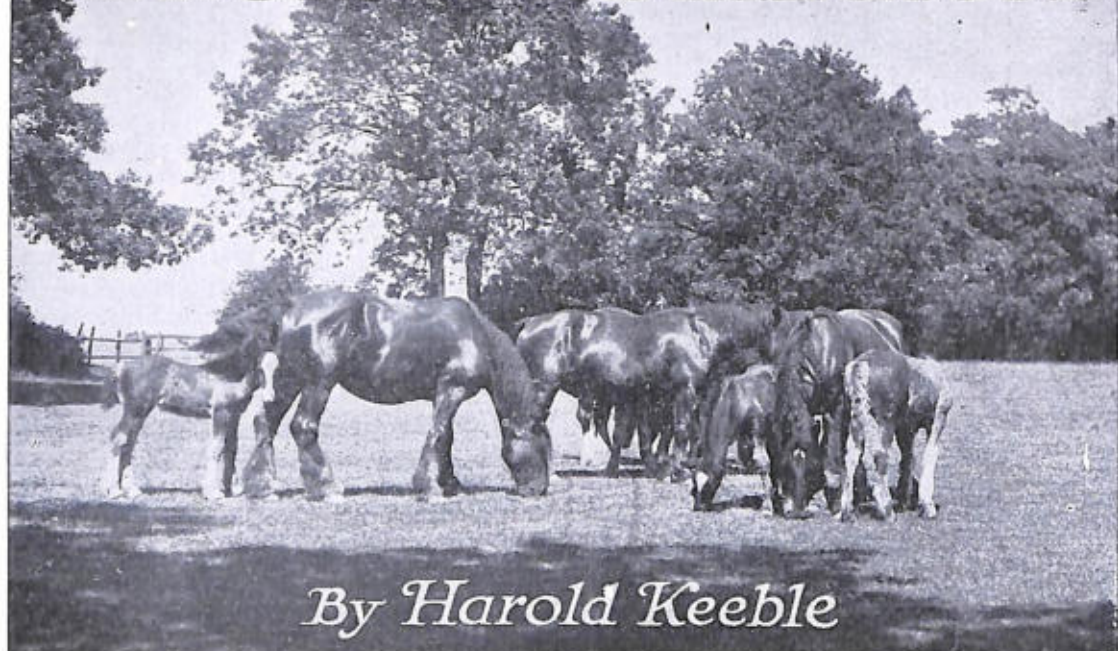
The terrible tusks of the Walrus.

The molluscs on which the walrus feeds are not swallowed whole, but are ground up by its teeth, the broken shell being separated from the soft parts and ejected from the mouth before the animal swallows its mouthful of food. Walruses also feed on fish, especially cod and crustaceans, and it is stated that they sometimes attack and kill porpoises and dolphins.

In character walruses are sociable animals, and are usually met with in herds. They are never found far from land, and so long as they are left alone they are harmless, inoffensive creatures; if attacked, however, they become very savage, and a whole herd will rally to the defence of one of their number, when their long tusks may inflict terrible wounds upon the man or polar bear who incautiously approaches within their reach.

Walruses are hunted for their hide which is made into leather, for the ivory of their tusks, and for the oil which is extracted from their bodies. To the Eskimos and coast tribes of the north these great animals are one of the chief sources of food, and between their civilised and uncivilised enemies who seek to destroy it there appears to be a great probability of the walrus becoming exterminated before very many years have passed.

The HORSE and its RELATIONS



By Harold Keeble

Photo: H. Bastin]

[Mondiale

Above is a group of sleek mares feeding contentedly with their foals. The young ones are not slow to find the use of their legs soon after they are born.

THE Horse through many centuries has been the friend of Man. In peace and in war he has shared in the labour and danger, and played a notable part in the pomp and pageantry of the civilised world. But his history goes still further back. Long before man arrived on the earth—in the far-off Eocene period—the Horse appeared as a tiny creature no bigger than a hare. The story of his development is told in the chapter below, where also you have fascinating glimpses of the Horses of to-day, with their cousins of the wild places, the beautiful Zebras and Wild Asses.

EVERYBODY loves a Horse. From time immemorial he has been man's most loyal animal friend and helper. The primitive people who first put a harness on his back would hardly realise they were virtually laying a foundation stone of civilisation. Yet that is strictly true. Without the service of the horse many of man's early achievements would have been impossible.

Young people who live in big cities are in danger of underestimating the valuable part horses have played in the development of life as we know it to-day. Fast motor-lorries—coupled with the resultant difficulties of this petrol era—are gradually driving our four-footed and more leisurely servants from the city streets.

Their partnership with man is, however, by no means broken. The production of

coal, for example, is to some extent even yet dependent upon the diminutive pony which toils down in the darkness of the coal mine—month in and month out—without ever seeing the light of day.

Every man who reclines in the luxury of a liner or glances from the coach windows of a modern railway express as it tears through the countryside at 70 miles an hour really owes a debt to these heroic little pit ponies; for where would the fuel for the engines come from if these patient animals were not there to work where machinery is unsafe—hauling grimy trucks along narrow passages hundreds of feet below the surface of the earth?

Let us look at the farm. For centuries the horse has been King of the Farm. He has drawn the ploughs that tilled the land; his

THE HORSE AND ITS RELATIONS

massive shoulders have dragged weights that the farmer alone could never have moved. In a hundred and one ways he has proved his usefulness to men who work on the land.

To-day the engine is threatening even this domain. Enormous mechanical contrivances—many times stronger than the strongest horse and a great deal speedier—are to-day being designed to put Dobbin out of work.

Poems of speed.

It is a long jump from the peace of the countryside to the excitement of the battle-field. But in the history of warfare the horse has played a rôle nearly as important. The fate of whole countries has been decided by the horsemanship of its soldiers and the courage of the steeds they have ridden. Their noble behaviour when in the thick of battle has done much to help on many a victory.

Similarly at the racecourse the fate of vast fortunes has depended on the speed of a thoroughbred and the skill of a crouching jockey on its back. There is, though, more than money behind the secret of horse-racing

popularity. The key probably lies in man's real affection for the horses themselves.

Perhaps you are lucky enough to have attended a big race meeting and caught a glimpse of these living poems of speed and grace as they flash past the grandstand; perhaps you have sensed the responsiveness of the horse to its rider—an almost uncanny understanding between the human being and the animal.

It has not always been like that. Suppose we trace the horse's story back hundreds of thousands of years. We shall find an animal no one would ever recognise as an ancestor of next year's Derby winner.

It will make our task much simpler if we first of all grasp how the story of the world has been divided up into different sections—just, for example, as a novel is divided into chapters. For the sake of convenience geologists have named the main divisions Eras, and then sub-divided these into Periods or Epochs.

The Eras are: Archeozoic, Preterozoic, Paleozoic, Mesozoic and Cainozoic. The Cainozoic era—which is the latest era and the only one which concerns us—is believed

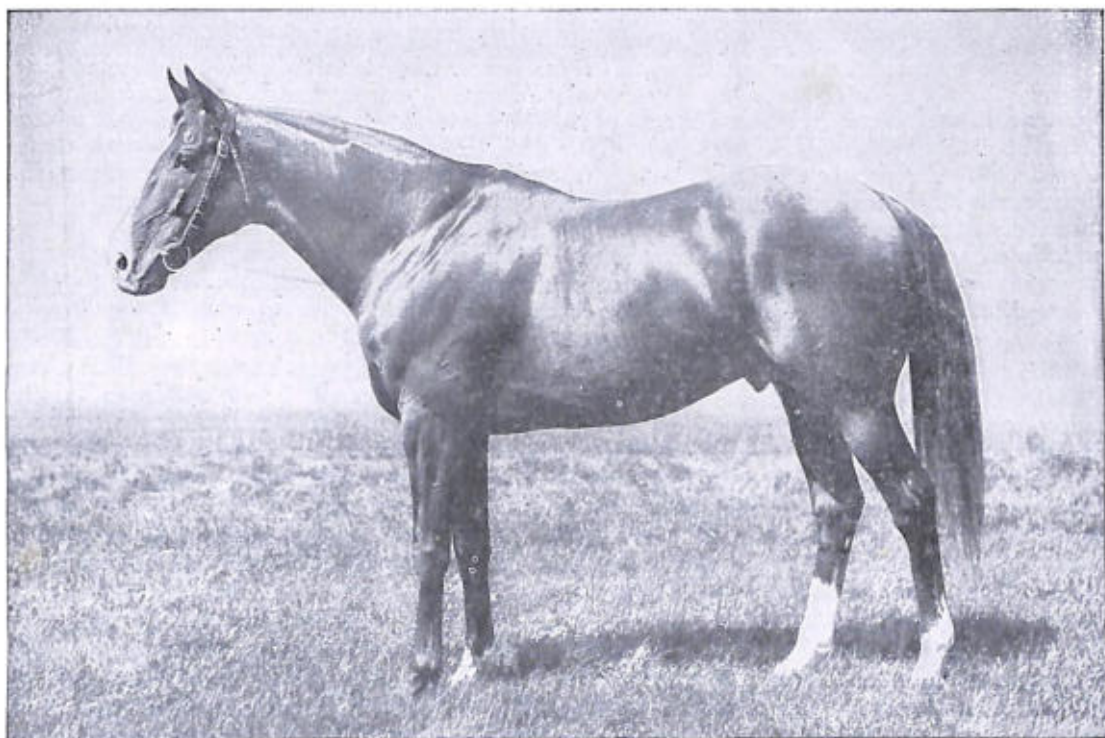


Photo: Niall Rankin

THE THOROUGHBRED (RACER).

[Mondiale

The Racehorse is a great British favourite. Beautifully streamlined, fine in temper and quality and every inch a sportsman, he fully deserves the high esteem in which he is held. The heavier varieties are sometimes seen on the hunting field, where their speed and powers of endurance are of value to the huntsman.

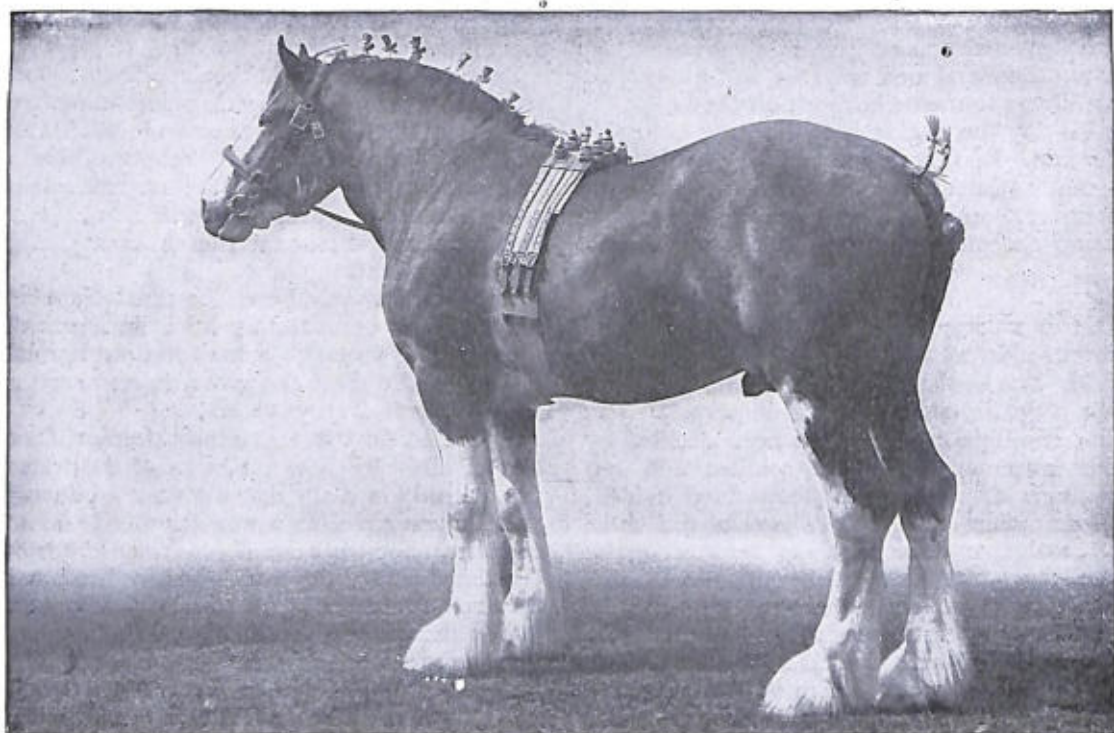


Photo: Niall Rankin]

SHIRE STALLION.

[Mondiale

This magnificent beast is the largest of the draught horses and a descendant of the great English War Horse, on which the knights of old rode into battle. He is tall and very strong, and may weigh more than a ton.

to extend back at least 50,000,000 years. It is further divided into six periods: the Eocene, the Oligocene, the Miocene, the Pliocene, the Pleistocene and the Recent. The name Eocene means "New Dawn," and indicates, in fact, the dawn period of our own era. In it we find the earliest traces of existing organic species, which in the succeeding periods grow more numerous and more varied.

While fixing these periods in your memory—before we get down to the actual life-story of the horse—it will also repay you to familiarise yourself with ten other rather frightening names—the ten genera into which the evolution of the horse has been classified. These names—reading in the order in which they appeared in the world—are: Eohippus, Orohippus, Epihippus, Mesohippus, Miohippus, Parahippus, Merychippus, Pliohippus, Pleshippus and Equus.

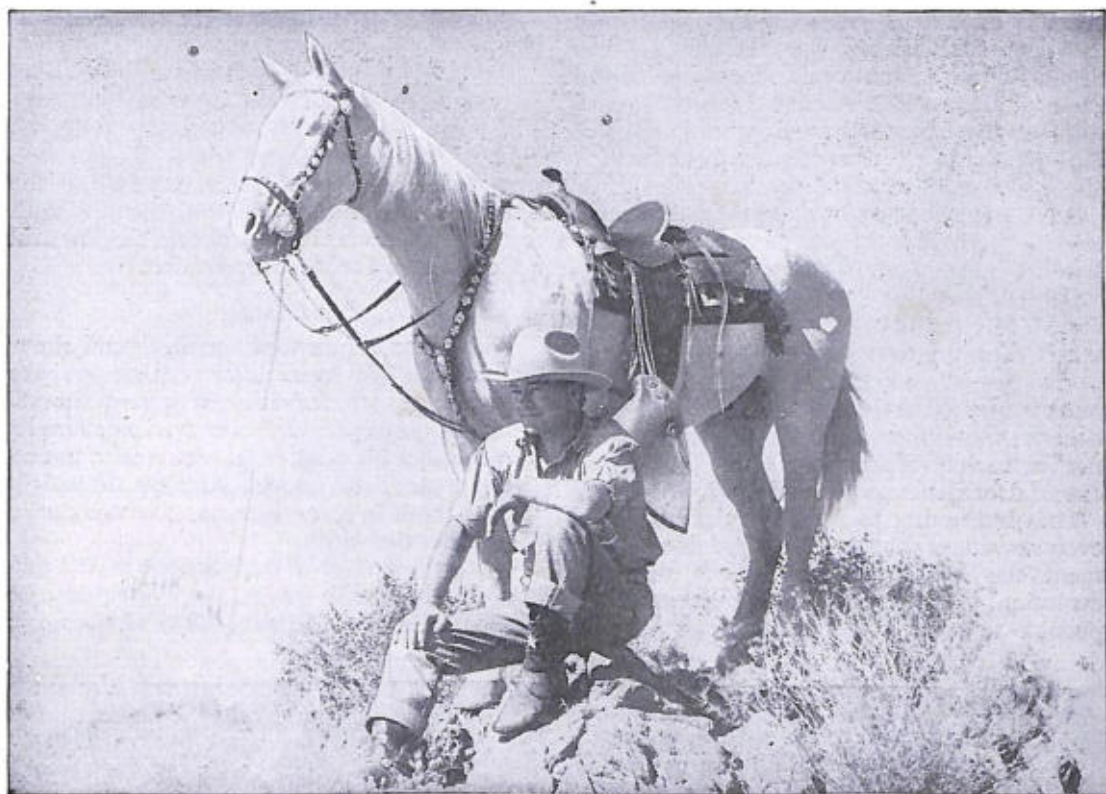
Now we are ready to start this interesting life-story. Exhaustive investigation into the evidence of the rocks—for it is chiefly from fossils that geologists have pieced this story together and learnt from their investigations

the mysteries of the past—shows that in the earliest periods of the Cainozoic era there was no mammal possessing any detectable characteristics of the modern horse.

Teeth and toes.

The most distant ancestor—traces of which have been found in America in the Eocene period—has been given the name Eohippus with the name Hyracotherium for its European counterpart. In size it was not much bigger than a large cat or an average fox-terrier. It had four toes on the fore foot and three on the hind. Its teeth were short and clearly not designed for grinding hard foods. In short, both in toes and in teeth it bore practically no resemblance to its present-day descendant.

Secondly—refer back to the list three paragraphs above—came the Orohippus which Nature's Museum of the Rocks leads us to believe flourished in the middle Eocene period. Here the evidence shows that the teeth are very gradually but noticeably becoming larger and the grinding surface more pronounced—indicating a change of diet.



THE BRONCO.

[P.D.G.]

The cowboy gives his "bucking Bronco" a breathing space as they journey over the prairies. Though swift and enduring, these Broncos are very mettlesome, and are with difficulty broken in to the saddle. They are well suited to rough ground and are much used for rounding up cattle in the great ranches of the West.

Let us skip a few million years to the latter part of the Eocene period and see how the *Orohippus* has developed. We now call him *Epihippus*. If we examine his foot carefully we shall see that there is already a vital difference between him and his ancestor of the early Eocene. We notice that his fourth toe has become considerably smaller. It is still there but it is manifestly tinier in comparison with the two middle toes, which have also increased considerably in size.

Important changes.

In the *Meshippus*—we have now reached the early part of the Oligocene period—the fourth toe has been completely reduced to a useless splint. In short, the three-toed horse has made its first bow. Its teeth are changing, too. They are slowly becoming still larger and still better equipped for grinding purposes.

From the skeleton of the fifth genus, the

Miohippus, which appears towards the end of the Oligocene period, most of us would now be able to recognise an ancestor of the horse proper. Not only has it increased in size, but the mechanical construction of its wrist and ankle has improved.

By the time the *Parahippus* makes its appearance with the dawn of the Miocene period there are indications of another important change. In some of the specimens the two outer toes have become so much reduced in size as to be entirely ineffective for running purposes. This change is completed in the *Merychippus* by the end of the Miocene period. The two side toes now never reach the ground and seem to be of no use to their owner. The development is now becoming more noticeable.

Let us just halt for a moment to note the significance of two developments which have taken us only five minutes to outline, but which actually took nearly 30,000,000

years to evolve. Firstly, the toes. We have seen how the horse's most distant relative began life with four toes and eventually lost three of them. The scientific explanation of this can be expressed in a nutshell. "The limb changed in construction according to the changed use to which it was to be put."

As the ancient animals moved from the already crowded forests to the drier and harder plains, speed of movement was practically their only weapon in their new surroundings. The need of several toes—so very useful in soft, marshy ground where speed was not so necessary—gradually disappeared, while—in other ways besides the substitution of one single effective toe—the whole limb became modified not for variety of movement, but for the one essential of fleetness.

It is interesting to note, by the way, that even nowadays during its embryonic development the horse recapitulates its own toe evolution. As the embryo progresses it is possible to trace how three perfectly formed

toes, evident after the first six weeks, slowly disappear.

Secondly, the teeth. Just as the horse's foot is designed for swift running over hard, dry plains, so are its teeth suited to eating the type of food to be found there. Tough food demands sturdy teeth and so we find, as the story of the horse moves on, that its teeth become better and better adapted for powerful grinding and for its different diet.

The Pliohippus.

Now let us return to the main thread of our narrative. We were commenting on the Merychippus which flourished towards the end of the Miocene period. Before we leave him let us note that his teeth in particular are undergoing a decided change. Already the height of the tooth in some specimens is two and a half times the width.

With the arrival of the Pliocene period and with it the eighth genus, the Pliohippus, we notice an increase in size, many of the fossils

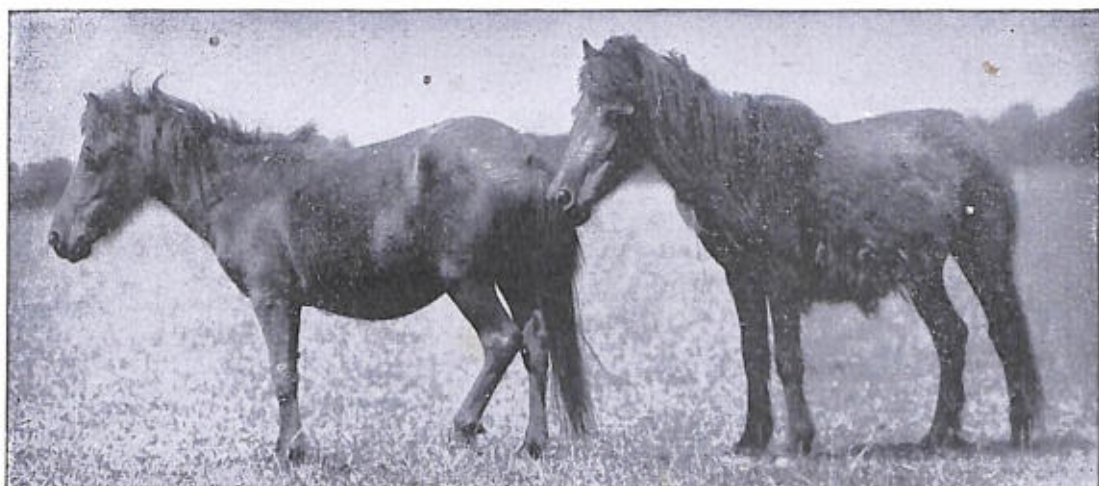


Photo: Niall Rankin]

HUNTERS.

[Mondiale

The Hunter is a popular saddle horse in Britain. Long cross-country runs call for strength and endurance as well as for speed, and the typical Hunter is heavier and bulkier than the Thoroughbred. Cavalry horses are recruited from this breed,—so that sport, if perhaps the chief, is not the only reason for its existence.



AN ISLAND BREED.

[W. S. Berridge]

Nature is kind to the Shetland Pony in providing it with a shaggy coat as a protection against cold in the winter. This native of the Shetland Islands is small, docile and hardy, able to forage for itself when running wild.

being as big as small ponies. And in some species of the pliohippus the now useless side-toes have actually become reduced until they are merely single splints.

And so we come to the Pleshippus—the final group before the Equus. Although it is something like 500,000 years since this creature existed, this ninth genus already possessed a skull closely similar to that of the present-day horse. With the dawn of the Pleistocene period comes the Equus proper. And—although we must remember that even in this group the hand of Evolution can easily be detected—we have now reached the real parent of the animal we know so well to-day.

Equus arrives.

There is, however, a question we have not yet approached. "Where did this perpetual drama of Nature take place?" It is difficult to answer. The horse's mobility has enabled him to move rapidly from one area to another. There is no doubt, though, that the first specimens lived in America, whence the stock appears to have crossed to the Old World by a narrow neck of land connecting Alaska and Siberia. This strip is, of course, now submerged under the sea. As an indication of the difficulty of closely following the wanderings of the species, it is stated that when Columbus arrived in America there was not a single horse to be found.

The truth is that as the earth's crust altered and climatic conditions became favourable, the prehistoric horses played out their destiny

first in one arena, then in another, wandering from America to Asia, from Asia to Africa—always taking advantage of new stepping stones to find fresh homes.

It is impossible to establish exactly when the horse first came into the service of man. But we find outlines of the animal scratched on the walls of cave-dwellers' homes. It is



THE HACKNEY. [W. S. Berridge]

This proud-looking Hackney is one of the breed of horses originating from a cross between cart-horse and racehorse. Before the days of motor-cars, this type was hired out, to draw coaches which came to be known as hackney-cabs.

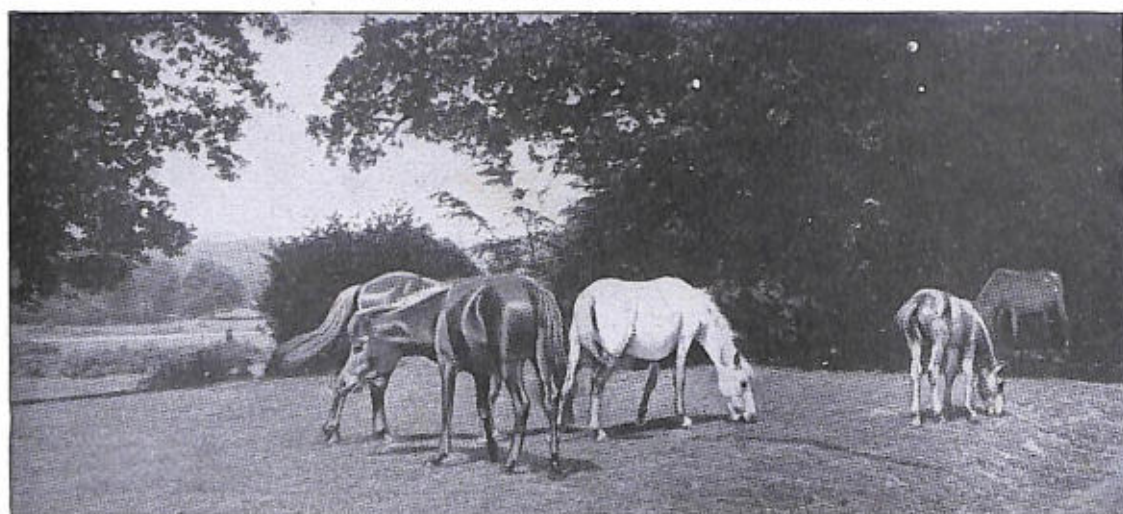


Photo: H. Bastin

NEW FOREST PONIES.

(Mondrate)

In the woodland district of Hampshire herds of ponies run wild in the New Forest, and are rounded up yearly, when some are captured and tamed. This area has been a forest since the days of William the Conqueror.

certain that there were horsemen among the savages of France, Spain, Germany and Britain even in the early Stone Age, and evidence also indicates that horses were used not only for transport purposes, but for food as well.

A great step forward came when these primitive people first began to put a bit in the horse's mouth and a crude "shoe" on its foot. With more complete control of the "mount" greater distances in shorter times became possible. Indeed, the growing importance of the horse in man's affairs is emphasised in the art discoveries of civilisations as ancient as the Persian, Assyrian and Egyptian.



THE ONAGER.

[F. W. Bond

This wild ass of the Asian deserts is not unlike the humble beast of burden with which we are familiar.

It is a big jump from these early times to more recent ones when Man decided to take a very real part in the shaping of the horse's future. He said to himself: "Now what kind of a job do I want my particular horse to do?" And thereupon—by skilful breeding designed to emphasise any individual quality—he began to produce different types of horses for different kinds of work. In other words, where horses are concerned the tragedy of the square peg in the round hole has largely been overcome.

British breeds are generally classed as Light and Heavy horses. In the Light section there are found the Thoroughbred, the Yorkshire Coach horse, the Hackney and the Pony. Included in heavy breeds are the Shire, the Clydesdale and the Suffolk Punch.

The king of the racecourse.

The Thoroughbred, the graceful king of the racecourse, has so long established a purity of descent that he is often spoken of as the "blood horse." Indeed, such remarkable progress has been made in the breeding and management of this stock that the British thoroughbred has increased one inch in height for every twenty-five years since 1700. It is easy to distinguish him from the heavier breeds. His frame is slender and light. He has a cleanly cut, lean head and finely poised, powerfully muscled shoulders. His neck is both long and strong. He possesses a deep, narrow chest and a round body, while his tail—carried gracefully—is set high on the hind-quarters, which are long and



HARTMANN'S ZEBRA.

[F. W. Bond

Native to the African mountains is Hartmann's Zebra, whose coat is marked with beautiful clear stripes right down to his hoofs. Speed and strength are expressed in his lean and sinewy outline—like that of a mountain lion.

full of strength to send him speeding along the turf.

Skilful handling of the thoroughbred is essential, for he is a highly excitable and nervous creature, disdainful of everyday work. His usefulness is, however, not solely confined to racing. Many huntsmen ride the stronger varieties of thoroughbred, which in some cases are able to carry fairly heavy weights and have great enduring powers. Early this century a great many British thoroughbred horses were bought by foreign governments, while Great Britain is stated to have paid over two million pounds a year for horses from abroad to meet the deficiency caused by the absence of organised management at home. Hence, at the present time, breeders are being encouraged to keep their young mares in the country.

Coach Horses.

The thoroughbred has also had a share in the development of the Yorkshire Coach horse which is widely bred in the North and East Ridings of Yorkshire. He is usually about sixteen hands high—a hand, by the way, equals four inches—and has a shapely head, sloping shoulders and strong loins. Normally

he is of a reddish-brown colour and is distinguished by a high-stepping action.

Another popular type of riding horse is the Hackney, a breed which can be traced back



BURCHELL'S ZEBRA.

[Mondiale

This pretty foal is a Burchell's Zebra, born to range the African plains, and darker in colour than the mountain species, which he otherwise resembles.



CHAPMAN'S ZEBRA.

[W. S. Berridge

Fine markings belong to this creature also, though the pattern on his legs is more broken than in the case of the Hartmann's Zebra. Note the curious "shadow stripes," between the dark bands on the hind-quarters.

to about 1755 when they made their first appearance. Hackneys are believed to be descended from Arab stock, but in one respect there is evidence of another ancestor; for the hackney is a natural trotter and the pure Arab is not. The hackney is bred chiefly in Norfolk, Cambridgeshire, Huntingdonshire, Lincolnshire and Yorkshire. Probably the Yorkshire and Norfolk farmers are the keenest rivals in producing the finest specimens of the hackney. The normal height of the hackney is just over fifteen hands, though horses of this breed used for drawing carriages have been known to be as tall as seventeen hands.

The little ponies that run wild.

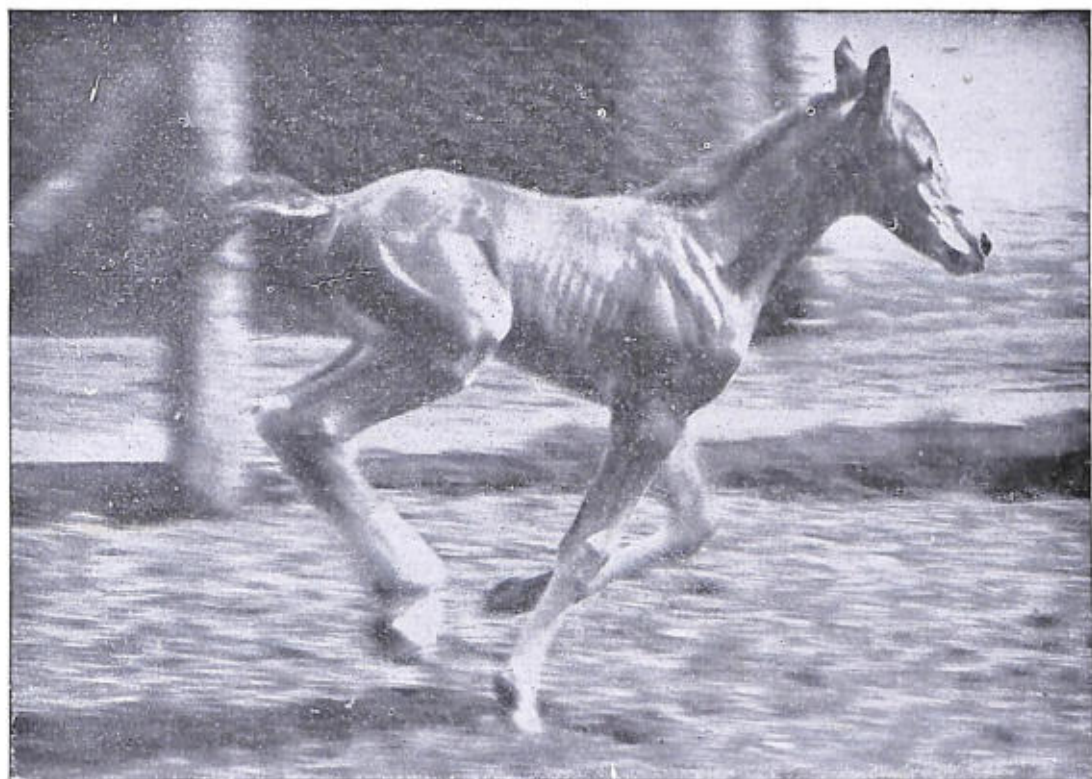
Let us have a look at ponies. They have always held a particular fascination for young people. Perhaps the greatest favourite is the clever little Shetland, which often stands under three feet in height. He is a hardy fellow, of agreeable disposition and content with the coarsest food. In their Shetland Islands home they live in a nearly totally wild state. There are, besides these, several other varieties of ponies, but nearly all of them—like the

hackney—have been bred with the help of the thoroughbred. In this group are included the Welsh, New Forest, Exmoor, Dartmoor, Cumberland and Westmorland, Highland, Garron, Celtic, Shetland and Connemara.

Towers of strength.

From almost all these varieties it is possible to breed the agile and speedy polo pony in which are concentrated into small compass all the most important qualities—a small head, proper action, well-set shoulders and a hardy constitution.

Now let us look at another versatile member of the horse family—the Cleveland Bay. He is an ancestor of the Yorkshire coach horse and is bred in Durham, Northumberland and some parts of Yorkshire. He can be used for drawing ploughs, for slow saddle work or for draught purposes and in some cases even makes a presentable carriage horse. Usually he is light or reddish-brown in colour with black legs. His shoulders and neck are sturdily set and he can be proud of a deep, impressive chest. In most instances this breed stands about sixteen or seventeen hands high.



HIS FIRST GALLOP.

[Mondiale]

The foal in this remarkable picture is very young, yet at an age when a human baby would be rather helpless he has strength of limb and lung sufficient to enable him to gallop at a fine speed.

What about Britain's cart horses—the good-humoured towers of strength and intelligence that every one admires? Perhaps the most popular and best-known variety is the massive Shire, bred for centuries in the Lincolnshire Fens, in Cambridgeshire and neighbouring counties. He has really more than one name. Sometimes he is known as the War Horse, the Old English Black Horse, or the Great Horse. He is the largest of the draught horses—an impressive descendant of the great British steeds which carried armour-clad knights of old to the battlefield or the tournament.

Famous draught Horses.

His great height and weight—it is no uncommon thing for him to turn the scale at a ton—give him tremendous strength. The Shire's stout, short legs are covered with long hair. He has a short, straight back, deep, full chest, good-sized head and heavily muscled thighs. The original Shire was deep black in colour, though nowadays it is more usual to find him a brown-reddish colour.

Another powerful draught horse—though

not nearly so large as the Shire—comes from Scotland, and is named the Clydesdale. Normally he stands about sixteen hands two inches tall, is distinguished by finely textured hair on his legs, and is quite easily broken to



GREVY'S ZEBRA AND FOAL. [Mondiale]

The Grevy, largest of the Zebras, is delicately striped all over, and has a fine handsome mane and tail. Its call is something between a grunt and a whistle.

harness. Some experts hold the view that the finest draught horse is obtained when the strains of the Clydesdale and the Shire are blended.

Quite different from either of them, however, is the Suffolk Punch—another tireless worker who also frequently weighs very little short of a ton and averages a height of about sixteen hands. He has a flat, round body, that is inclined to appear a little too cumbersome for his short, hair-free legs. His usual colour is a chestnut shade, and he takes his name from Suffolk, the county in which he has been bred for several hundred of years.

The three-toed Horse.

So far we have contented ourselves with a brief study of the horse's development. It would be incomplete, however, if we did not devote a little space to the horse's interesting relatives, both distant and modern.

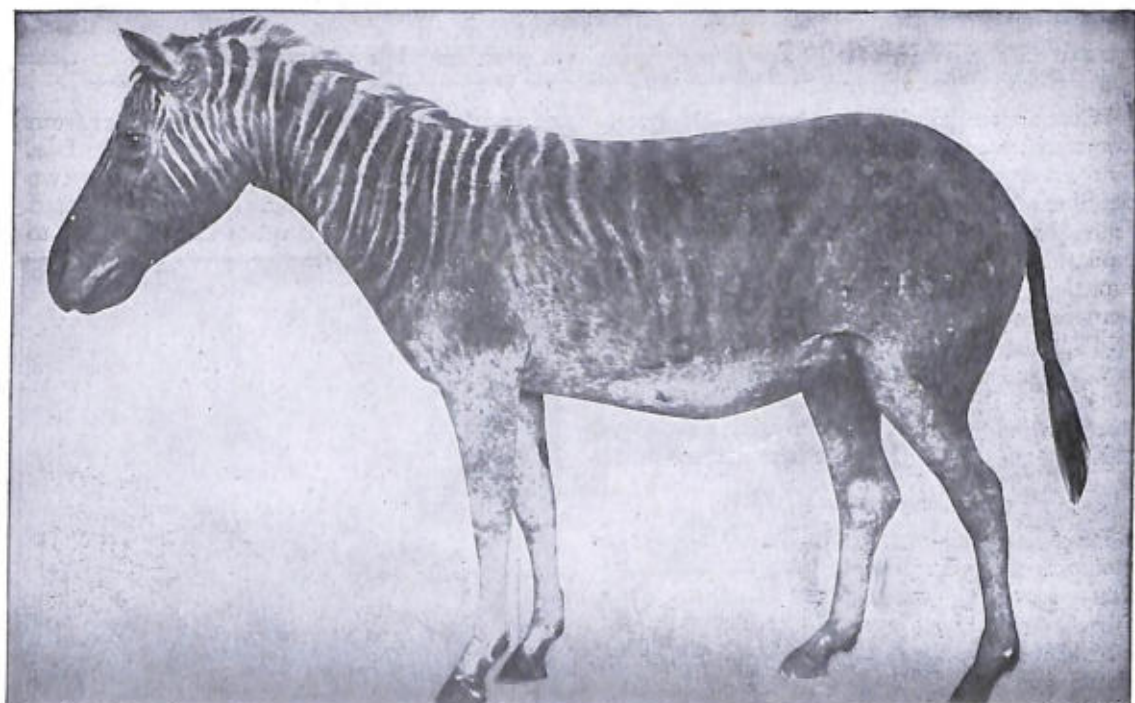
Let us begin at the beginning and see how these offshoots appeared, lived for a time in their own individual path and eventually became extinct. The first indication of this departure from the main branch came as early as the Eocene period, though it failed to survive



ZEBRAS FIGHTING.

[Mondiale

Is it a friendly contest or a real battle? Biting does not seem to be against the rules!



Nat. Hist. Museum]

THE QUAGGA.

[Mondiale

This remarkable member of the horse tribe, now unhappily extinct, is familiar to us through the medium of pictures. He had a long and rather ugly head and a straggling tail, and was striped on the neck and fore-quarters only. His name of Quagga was taken from the native name, and had reference to his peculiar cry.

THE HORSE AND ITS RELATIONS

the Oligocene. It is certain that in this first side-line there were at least twenty species, the best-known being the *Palaeotherium*, which had three toes and was less expert at running than its brothers.

We now move on to the close of the Miocene period to greet the second divergent branch. Three well-splayed and useful toes, coupled with teeth inferior for grinding, suggest that it usually found its home in soft woodland and lived for the most part on easily-digested leaves that required little chewing. These characteristics culminated in the early Pliocene period into the *Hypotherium*, a side branch which was very imperfectly equipped for life on the hard plains with its corresponding coarseness of food, difficult to chew,

Zebra—the Horse's cousin.

Number three is the *Hippidium*, whose home was in South America. The *Hippidium* had short legs—from which we infer it was adapted for mountain life—and possessed a peculiarly shaped nose.

The largest of all the side branches, however, was the *Hipparion*, an offshoot of the *merchippus*, in the late Miocene period. Thirty-five separate species sprang from this branch before its extinction towards the end of the Pliocene.

Its chief interest lies in its teeth, which in some specimens reached an even more advanced stage of grinding power than in the present-day varieties of the horse. The *hipparion* also possessed two outer toes long after they had been reduced to mere splints in the main stock.

Among the horse's modern cousins the best-known is the Zebra, a handsome striped creature of striking appearance found chiefly in British Central and British East Africa. The largest member of this branch is Grevy's zebra which often stands as much as five feet high. The Grevy, which frequents the mountains of Somaliland and Southern Abyssinia, has large, broad ears, a big head and stripes narrower and more numerous than in other varieties. He has a long, stiff mane and his tail is thickly clothed in hair. His "call"



THE KIANG.

[W. S. Derridge]

The largest and most horselike ass of Asia is the Kiang, whose coat is reddish-brown. The neck and underparts are cream-coloured and the ears short. He ranges the Tibetan plateau at a very high altitude.



PRZHEVALSKI'S HORSE AND FOAL.

[W. S. Berridge]

Like a pony with a large head is the Mongolian Wild Horse, also known as Przhevalski's Horse. Naturalists are divided as to whether this is a really primitive type or a domesticated Horse which—centuries ago—ran wild.

is rather peculiar inasmuch as it begins with a hoarse grunt and finishes with a low whistle which in some of the younger specimens is not unlike the cry of a bird.

Closely resembling the Grevy is the Mountain zebra, a smaller variety of which there are not a great many left nowadays, though for the past hundred years or so they have been fairly common on the mountains of Cape Colony.

The mountain zebra has larger ears than the other types. His stripes do not cover the under-part of his body; coloured bars connect the oblique stripes on the hind-quarters with the black stripes, giving him a strikingly handsome appearance.

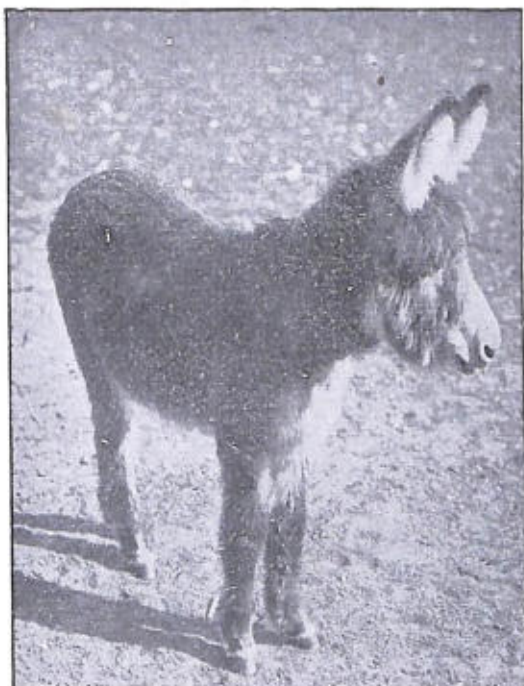
The zebra of the African plains is known as Burchell's zebra. An interesting story is centred round his name. It is said that Burchell, a noted explorer, quarrelled with Dr. Gray of the British Museum, and Dr. Gray—partly in fun—named a newly discovered variety of zebra the "*asinus burchelli*." Burchell, who apparently did not

appreciate the compliment, challenged Dr. Gray to a duel!

One of the most noticeable features of the Burchell is that he has much broader stripes on his coat than any of his brothers have, and the ground colour of his skin is of a much deeper yellow than found in the mountain species. In several instances, too, the leg stripes are not quite perfect.

Shadow stripes.

Another member of the Burchell section of the zebra group is the Chapmani or Chapman's zebra, the first specimen of which was sent to England by a Mr. Chapman. The point of distinction in this variety is that the stripes go right down to the hoofs, but the legs are not so prominently marked. The dark stripes on the hind-quarters have parallel stripes of a lighter colour running between them. The zebra found in Nyasaland has none of these "shadow" stripes, though its jet-black markings, standing out effectively against the light



THE BURRO.

[E.N.A.]

This picturesque little Donkey is the American Burro much used as a pack animal in the Southern States of the U.S.A.

fawn ground colour which gradually softens into white, give it exceptional beauty. When seen in flight it presents a lovely picture.

Probably you have heard of another type of fawn called the Quagga. It was quite a distinct type of zebra, but has been extinct since the latter part of last century. It was similar in several ways to Burchell's zebra except that the stripes were confined to the head and the forepart of the body, the remaining upper parts of which were brownish. The limbs, too, were of a paler colour. Other varieties are Grant's zebra—found in Abyssinia—Jalla's, Crawshay's, Whalberg's and Foa's. The latter, by the way, is now confined to a relatively small area on the north bank of the Zambesi.

All zebras have a keen sense of smell and—except those living among the hills—they move in large herds, often accompanied by gnus, springboks or ostriches. Their arch enemy is the lion, who finds the zebra a particularly appetising dish. Often two or three lions lie in hiding while others frighten the herd and drive them into the waiting ambush.

Although he is docile in captivity, attempts

to make the zebra a useful beast of burden or to use him for riding purposes have not met with much success. He is used, however, by white men in territories where the dreaded tsetse fly is prevalent. This fly has a poisonous bite, fatal to ordinary domestic animals, but having little or no effect on the zebra.

Wild Asses.

The next relatives of the horse are the wild asses, all natives of the Old World and mostly plain dwellers. The Kiang—probably the best known of them—is a hardy inhabitant of the highlands of Tibet. Winter 15,000 feet above the sea-level evidently holds no terrors for him. He shows no hesitation whatever in jumping into icy water and swimming to safety.

The kiang, sometimes named kulan, closely resembles a horse in appearance. His body is usually chestnut-coloured, but his nose and the under-parts of his body are white. He is very wary. When a party of kiang stop to feed you can be sure one of them is on guard ready to give a warning signal at the faintest sign of danger.

Other varieties of wild asses—mostly found in Central Asia—are: the Ghorkar, the Baluchistan, the Punjab, the Sind, the Kach, the Onager and the ugly big-headed Mongolian wild ass, known as the Dzeggetai.

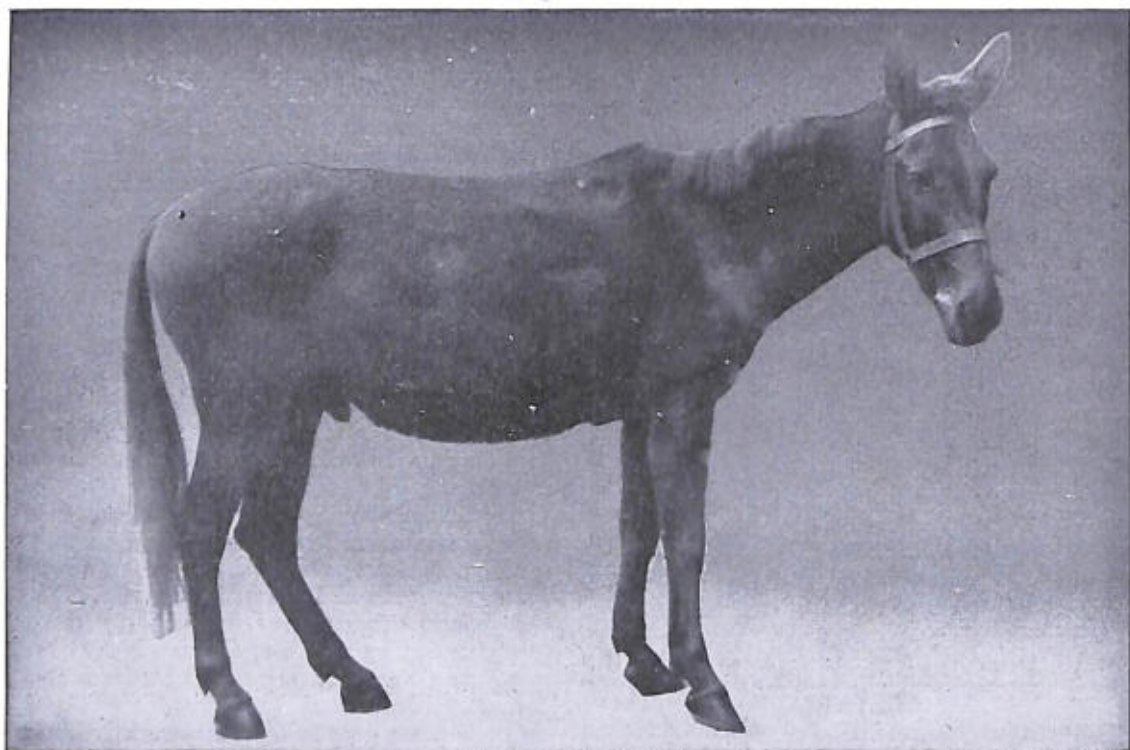
We have not yet mentioned the Mongolian wild horse. Some authorities regard him as



[F. W. Bond]

THE MONGOLIAN WILD HORSE.

Here is another picture of the Mongolian Wild Horse, showing to advantage his handsome tail, well covered with long hair. The species is now becoming rare.



A STURDY MULE.

[W. S. Berridge

The Mule is valued because of its sure-footedness and its great powers of endurance. In the picture above is shown a gelding—14½ hands—bred from a Catalanian Jack and an English Thoroughbred Mare.

the animal most closely approaching the early stock from which the modern horse sprang. In other circles, however, the view is held that the Mongolian is really a once-domesticated variety which has enjoyed a long spell of uninterrupted freedom. Before they became rare these Mongolians moved in herds consisting of ten or twenty mares and their young together with one stallion, who was, so to speak, in charge of this miniature colony. The male members were driven away as they began to reach maturity, only to return when they were stronger to fight the Stallion-in-Command for the leadership of the party.

To look at, the Mongolian is similar to a pony with a large head. He has a short, bristly mane and his long tail is covered with hair almost to the root. Both his ears and legs are short in comparison with the size of his body, which is dun-coloured except for darker-hued portions on the front limbs, the tail and the mane. Finally, he has a rather frightening alternative name—Przhevalski's Horse, after Nikolai Przhevalski who first discovered him.

Finally there is the Donkey, and his half-

brother, the Mule. Most of us at one time or another have enjoyed a beach ride on a donkey's back. He is another of the horse's cousins—a long-suffering fellow, a slow but patient toiler, and by no means so stupid as inaccurate tradition has estimated him. Indeed he is fully as intelligent as the horse, and besides is healthier and sturdier, and requires a relatively smaller amount of food to keep him in good condition. In mountainous regions, too, he shows greater endurance, and is much used as a pack-animal over rough and hilly paths. In some parts of the world asses' milk forms a very valuable addition to the diet of the people. Thus on the practical side the ass succeeds in justifying its existence. True, it may seem to be lacking in natural dignity, a fitting butt for the humorist and fabulist, but the person who sneers at the ass should remember the lines of G. K. Chesterton :

"Fools ! For I also had my hour ;
One far, fierce hour and sweet :
There was a shout about my ears,
And palms before my feet."

ANTELOPES AND GAZELLES

By W. S. BERRIDGE, F.Z.S.



Photo: Gambier, Bolton]

[Autotype

These beautiful sable antelopes are famed for their great speed and amazing powers of endurance. Their favourite resorts are forest-clad hillsides.

NATURE has bestowed varied gifts on her children. To the Antelopes and Gazelles she has given speed and elusiveness in the highest degree. Lightly as a cloud they drift over the African plains or slit among the reeds in the marshy places. Always their instinct is to fly from their enemies, whether it be the sportsman with his gun or the prowling lioness. Yet in spite of their fleetness their numbers are continually growing less.

THE Antelopes and Gazelles are a very extensive group of animals, the majority of which are found in Africa, Syria, and Arabia. Among them are to be numbered the most graceful of living creatures, but, on the other hand, a few are somewhat ungainly, or even grotesque, in appearance. Both sexes may have horns, though very often they are absent in the females. As mentioned in our chapter on Animal Weapons, the horns vary considerably in formation with the different species, while the bony core supporting the sheath of the horns is solid throughout, except in the case of the gnus, hartebeestes, blesbok, and bontebok, in which that part is honey-combed with cavities.

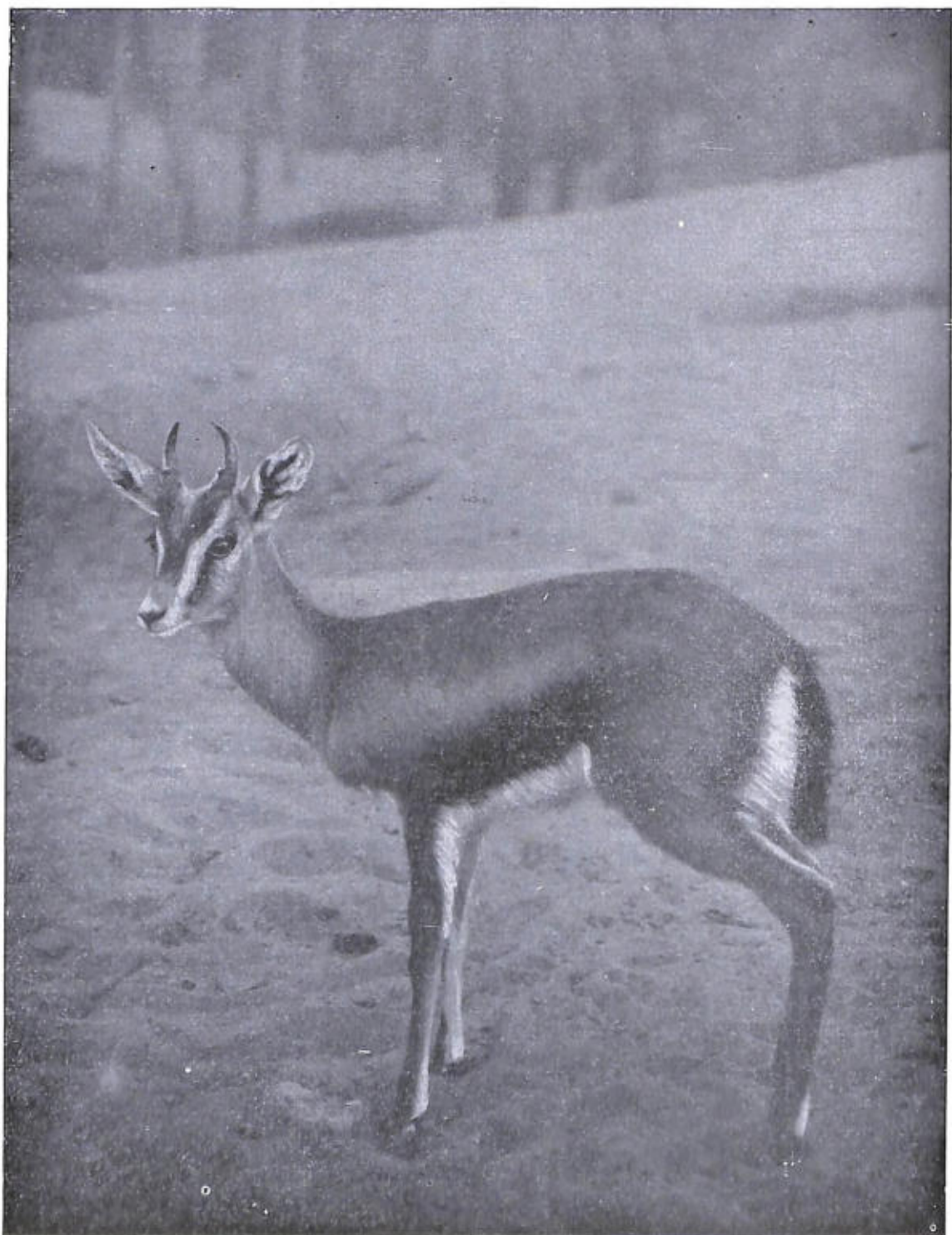
The largest of all antelopes are the Elands, of which there are two distinct kinds, namely, the Giant eland and the Common eland. Two different races of the latter, however, are recognised, the one, which may be called the

typical form, being of a uniform fawn colour, and inhabiting South-West Africa, while the other, known as the Derbian eland, and found farther north and east, has its body marked with a varying number of narrow white and vertical stripes.

An adult bull of the common eland may weigh as much as 1500 pounds, and stand nearly six feet in height at the shoulder. Its spirally-twisted horns have been known to measure three feet one inch in length, while the record measurement of the more slender horns of the female is three feet five inches.

A characteristic feature to be noted in both sexes is the curious flap of skin, or "dewlap," that depends from the lower part of the neck; while the male possesses a tuft of dark-brown hair upon his forehead. Elands congregate in herds which may sometimes consist of as many as two hundred individuals.

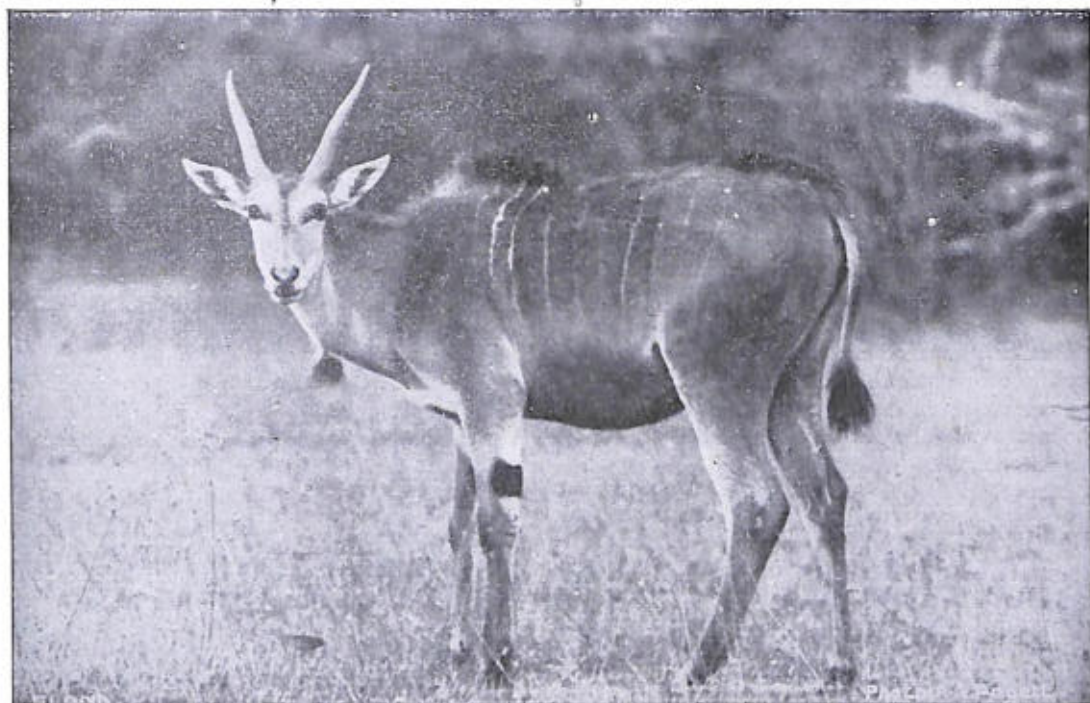
Some years ago the experiment was made in



A DESERT DWELLER.

[E.N.A.]

The young Gazelle is a pretty creature with soft bright eyes and a gentle, timid expression. The one above has been snapped in the Nefta Oasis, Tunis. Other varieties are found in India, Persia and Mongolia.



THE KINGLY ELAND.

[E.N.A.]

The Eland—the King of the Antelopes—is truly a regal animal with fine horns which in some cases measure thirty-three inches in length. Its flesh is excellent for eating, being better flavoured than that of most large game.

South-West Africa of domesticating elands. Not only is the milk of the females much richer than that of the domestic cow, but, when the animals are kept and fed in stalls, the quantity they produce is double, or even treble, the normal quantity. Because of their hardiness and great strength, and because they are less susceptible to disease and to the bite of the tsetse fly than other hoofed animals, elands make excellent beasts of burden. They have been successfully employed on the Kenya farms for pulling ploughs, and also for dragging along wagons and buggies.

The Kudu's 70-inch horns.

The giant eland is a much rarer animal than the foregoing, and its range is also very restricted. Colonel J. L. F. Tweedie, D.S.O., writing of this species, states: "There are only a dozen or so outstanding trophies from Africa which combine both grandeur and rarity, and of these the giant eland comes very high in the list."

The Kudus, of which there are two species, namely, the Greater kudu and the Lesser kudu, are interesting animals. The former is a magnificent-looking beast which, when adult,

possesses large, spirally-twisted horns that have been known to measure more than seventy inches along their curve. It is the males alone of this species that normally carry horns, but a few instances have been recorded of females with small ones of imperfect shape.

Antelopes who appear to wear harness.

The Greater kudu is rarely to be seen in captivity, though it has been exhibited at the London Zoological Gardens on several occasions. At one time the animal had an extensive range in Africa, but, owing to the ravages of rinderpest, it is no longer to be found in many districts where it formerly dwelt.

As implied by its name the Lesser kudu is smaller than the greater kudu, from which it may further be distinguished by the absence of the fringe of hair upon the throat that is such a characteristic feature of the latter animal. Only the males possess horns, the record length of which is two feet eleven and three-quarter inches.

There are a number of different animals known collectively as Harnessed Antelopes, so called because of the white striping upon their bodies that suggests the harness of a horse.

ANTELOPES AND GAZELLES

The best known, and also the smallest, is the common or true harnessed antelope. Also known as the Guib, it inhabits West Africa, where it dwells in the forests, and congregates in small parties. Its bright rufous coat is decorated with white spots and stripes.

Saving the Marsh-buck from sinking.

Other members of the group are the Marsh-bucks or Situtungas, of which there are several species. They differ from the typical harnessed antelope in the formation of their hoofs, which are deeply divided and capable of being spread out to a considerable degree. This peculiarity enables the creatures to walk about the swampy ground where they dwell, without sinking deeply into the mud, for the splayed or outspread feet act in a similar manner to the snow-shoes worn by human beings, and distribute the weight of the animals over a greater area than would be possible if the toes were held close together.

Marsh-buck are reputed to be of a very fearless disposition. This trait in their character, however, may be partly due to defective eyesight, making them slow to discover the approach of an enemy. As they spend the whole of their existence among beds of reeds and papyrus, they are never able to get an unobstructed view of more than a hundred yards, and for this reason they are



THE LESSER KUDU. [F. W. Bond]

The Lesser Kudu is a wary creature, and lives in small herds in the scrubby jungle.

probably less sharp-sighted than those animals that live in the open. Marsh-buck are very fond of lying in the water; it is even said that they will go to sleep with their bodies entirely submerged, and only their nostrils exposed.

Other swamp-dwelling antelopes are the Water-bucks. The most familiar are the Common Water-buck of South Africa, and the Sing-sing or Defassa water-buck of Western and Central Africa. These are very similar in appearance, though the former can easily be distinguished from the latter by the white, oval patch that is present upon the rump and encircles the tail. Both species stand about four and a half feet in height at the shoulder. The males alone have horns; these slope backwards for the greater part of their length, and then turn forwards. They are two to three feet long, and ringed almost to the tips.

The Buck that feeds under water.

The Lechwe water-buck, first discovered by Livingstone in Tanganyika, is a smaller animal and measures about three feet four inches in height at the withers; it also possesses a much brighter-coloured coat. The animal frequents swampy ground, amid which it roams knee-deep in the water. It feeds largely upon water weeds which it often obtains by placing its head entirely beneath the water. Indeed, it will even eat



THE GREATER KUDU. [F. W. Bond]

The Greater Kudu is in many ways like the Lesser Kudu, above, though it is a much more magnificent creature in size. It is very timid and inoffensive.

ANTELOPES AND GAZELLES



[W. S. Berridge]

THE ORYX.

The Sabre-horned Oryx is distinguished by its large size and long horns, from its creamy colour comes its other name of White Oryx.



THE ADDAX.

[F. W. Bond]

The Addax is sensibly provided with large broad hoofs, specially adapted for treading the desert sand. This animal, which is the same colour as its sandy home, grows a mane in the winter time.

while its head is submerged, but how it manages to do so without choking is a mystery. Until quite recently the lechwe water-buck was rarely seen in captivity. The first living specimen ever exhibited at the London Zoological Gardens arrived there in 1860; not until 1924 was another obtained. In 1925 the first young one was born in the gardens. At the present day some of the animals are to be seen both at the London Zoo in Regent's Park and at the Whipsnade Zoological Park.

The Antelope that raced with greyhounds.

In North Africa and Arabia is to be found the handsome Addax Antelope, an animal that stands about three and a half feet in height at the shoulder. Both sexes possess long, spiral horns that are transversely ringed throughout the greater part of their length. This antelope dwells amid the sandy deserts. It is of a shy disposition and very fleet of foot; at one time the Bedouins used to test the speed of their horses and greyhounds by racing them against this fleet-footed antelope.

Passing to the Oryx Antelopes, we come to animals that are remarkable for the great length of their spear-like horns. Found in

ANTELOPES AND GAZELLES



MARSH-BUCK.

The timid-looking animal above is the West African Marsh-Buck.

the desert regions of Africa, Arabia and Syria, five species are known; these are the gemsbok, the beisa, the tufted-eared or fringed oryx, the beatrix oryx, and the sabre-horned or white oryx. The largest is the Gemsbok, which stands about four feet in height at the shoulder. Both sexes possess horns; those of the female grow to a greater length than those of the male, and have been known to measure nearly four feet. Needless to say, the gemsbok is able to render a good account of itself when making use of its horns in animal warfare; even such a formidable foe as the lion will occasionally fall a victim to a well-directed thrust of those dangerous weapons.

It has been said that the gemsbok never drinks, but this is a mistaken idea. It is true that the animal can go for a very long time without water, but, when this is scarce, it often manages to quench its thirst by obtaining the moisture from bulbs which it digs up from the sandy soil with the aid of its fore-feet.

The gemsbok inhabits South Africa. In North-East Africa it is replaced by the Beisa

Oryx. The two are very similar in appearance, but the latter may be distinguished from the former by the fact that the black stripe upon its nose is separated throughout its entire length from those upon the cheeks, instead of, as in the case of the gemsbok, meeting upon the muzzle.

The horns of the beisa, moreover, are more diverging and rather shorter than those of the gemsbok.

At one time beisa oryxes were to be met with in herds numbering as many as five hundred head, but now from six to forty is the usual figure. The animals have been much persecuted in the past by the natives, who find they are more useful dead than alive and who convert their horns into weapons, and also make use of their skins for covering shields.

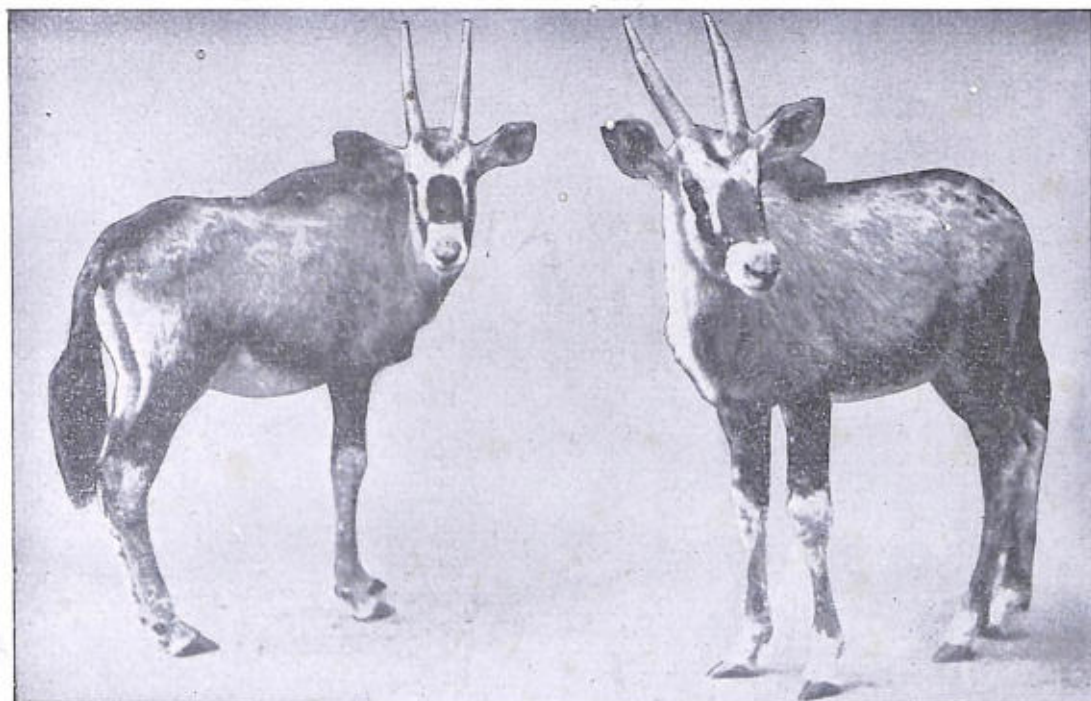
The Tufted oryx is chiefly distinguished from the other species by the tufts of hair upon the tips of its ears; while the Beatrix oryx is the smallest of all and measures only about two feet eight inches in height at the shoulder.



SABLE ANTELOPE.

[Mondiale]

The Sable Antelope's dark coat is relieved with light underparts, making a striking contrast in colour.



TWO MOUNTAIN DWELLERS.

[W. S. Berridge

The Gembok, found only in the mountains of South Africa, has almost straight horns, and peculiar patches on its face. Strong and fleet, it is specially adapted for its mountain surroundings.

The Sabre-horned oryx differs from all others in the pronounced backward sweep of its long horns; these have been known to measure three feet eight and a half inches in length. The prevailing colour of the animal is creamy-white, for which reason the creature is often called the White oryx.

It occasionally happens that as the result of a conflict with one of its many enemies an oryx antelope breaks off one of its horns at the base, a misfortune that cannot be remedied; the lost or broken horn is not replaced by a new growth, as is the case when a stag sheds its antlers. One-horned oryx antelopes have been seen in a wild state from time to time, and it is suggested that these may have given rise to the belief in the existence of the unicorn.

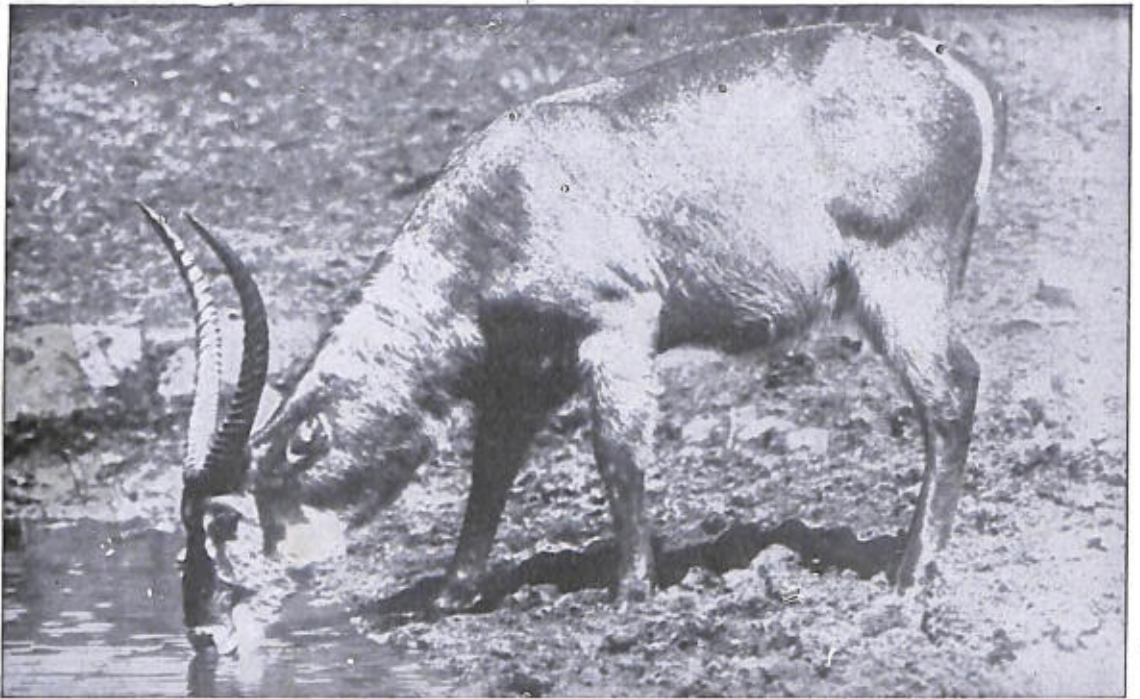
Closely allied to the oryx antelopes are the Sable and Roan antelopes, both of which are very similar in appearance. The sable antelope, however, may be distinguished from the roan antelope by its smaller size, and by the broad, blackish band that runs down the front of the face extending as far as to the end of the nose. Moreover, the white streak on either side of this broad band joins the white on the muzzle with the sable antelope, but is divided

by a transverse and dark-coloured band across the cheek in the case of the roan antelope.

Both sexes possess horns, but those of the females are shorter and less curved than those of the males. Except at their tips, they are broken up by transverse ridges. The sable antelope has been known to carry horns measuring four feet two and a half inches in length; the record length of those of a roan antelope is about three and a quarter feet.

The Antelope that will challenge a Lion.

At one time the roan antelope was to be found in most parts of Africa, south of the Sahara, but now the area of its distribution is greatly restricted. The sable antelope also inhabits South Africa, but its range was never so extensive as that of the roan antelope. When brought to bay both animals fight fiercely by delivering sweeping blows with their horns. As a rule they do so while standing up, but, should they be wounded, they lie down and continue to attack in a similar manner. The late F. C. Selous, the famous big-game hunter, says: "I have seen a wounded sable antelope, when lying down, drive one of its horns clean through a large dog deep into its own haunch, and I have had four valuable hounds killed



COMMON WATER-BUCK.

[W. S. Berridge

When the Water-buck finds itself in danger its one thought is to reach water. It will plunge into deep rivers—but there the eager jaws of a crocodile may be ready to snap it up.

and four others grievously wounded by one of these animals in less than a minute." So courageous are the creatures that a female with a young one has been known to ward off successfully the attack of an intruding lioness.

The sacred "Blue Bull."

The largest antelope found in India is the Nilgai (or nylghaie); an adult sometimes attains a height of nearly six feet at the shoulder. It is not a very graceful-looking creature, for, as its fore-limbs are considerably longer than its hind-limbs, its back takes a pronounced slope from the shoulders to the hind-quarters. The two sexes differ in several particulars. The coat of the cow (as well as that of the immature male) is brown, but that of the adult bull is of a dark, slaty tint—hence the name of "blue bull" by which he is often known. The male alone possesses horns. These do not look very imposing, as they are merely short, upstanding spikes that average nine or ten inches in length.

Nilgai congregate in small parties, and frequent plains and low-lying hills. Sometimes, however, the bulls lead a solitary life during most months of the year. Although the flesh

of this antelope is eaten by the Mohammedans, the Hindus will not eat it as they consider the beast to be a sacred animal and treat it with due respect. Nilgai become very tame in captivity; in their native country they have at times been trained to work when harnessed to a cart.

South Africa is the home of a little antelope known as the Springbok; it stands about two and a half feet in height at the shoulder. Both sexes have black, ringed and lyrate horns, which, in the males, have been known to attain a length of nineteen inches, though such a measurement is far above the average. The springbok is a handsome and conspicuously marked creature; the general colour of its coat is cinnamon-yellow, but the rump, the under-surface of the body, and the greater part of the face and legs are white. A dark brown band separating the cinnamon colour of the body from the white under-parts emphasises the colour-contrast, and a dark streak is present on either side of the face.

The most interesting feature, however, is that the white area upon the rump is extended along the back into what appears to be a narrow white line. When the animal is alarmed or engaged in its gambols, however, it draws back

ANTELOPES AND GAZELLES

the skin on either side of the top of the back, and thus reveals a *broad* band of white hair. The display of this white expanse is usually accompanied by a curious gymnastic performance called "pronking"; the animals spring up into the air to a height of from twelve to sixteen feet, and repeat the action at intervals as they bound forward over the ground. From this peculiar performance the creature derives the name of "springbok."

How the Antelopes went on holiday.

In former days these antelopes were to be met with in vast herds, more especially during their periodic migrations, when hundreds and thousands congregated together, but to-day their numbers are greatly diminished. Gordon Cumming gives a vivid picture of the migratory journeys or *trekbokken* ("travelling of the bucks") of these animals. On one occasion he saw the plains and hills around him thickly covered with a mass of springbok. "As far as the eye could strain," he writes, "the landscape was alive with them, until they softened down into a dim-red mass of living creatures." Flocks of sheep have been carried away from their pasture by the press and onward rush of the antelopes, and it is recorded that a lion has been seen entrapped in the midst of the ceaseless stream.

Under the title of Gazelles are included a large number of small or moderately sized



THE ADDRA GAZELLE. [F. W. Bond]

The Addra Gazelle, with his sharp horns, is a fiery combatant when the need for fighting arises.

antelopes that are found in Africa, Arabia, Western and Central Asia, India, and Mongolia. They are essentially dwellers of the plains and desert regions, and most of them are of a sandy colour, relieved here and there with white. One of the better known species is the North African or Dorcas gazelle, an animal that stands about twenty-two inches in height at the shoulder. Like many other gazelles it has a tuft of hair upon its knees. It is very agile and is a swift runner; often it will bound high into the air in the manner of a springbok. Both sexes possess horns.

A Gazelle that sneezes.

Another well-known and closely allied species is the Korin or Red-fronted gazelle, the latter name being given to it because of the reddish-brown colour of the hair upon its forehead. Its range extends from Senegal to Gambia.

Then there is the Indian gazelle, also known as Bennett's gazelle, the Ravine Deer, or the Chinkara. The name "chinkara" is derived from the native word *chink*, meaning "a sneeze," and is applied to the animal because of the half-hissing and half-sneezing noise it produces through its nose when frightened. It is believed that this animal never drinks, as it is often met with in districts where the only water supply is to be obtained from deep wells. The Indian gazelle is easily tamed.



THE ADDAX ANTELOPE. [F. W. Bond]

The Addax Antelope, found in the deserts of Arabia and Northern Africa, is about three feet high.

ANTELOPES AND GAZELLES

Captain Baldwin says, "I have seen tame ones driven out with a herd of tame goats to graze." Even wild ones will often approach quite near to a herd of goats that are feeding. The horns of this Indian Gazelle, present with both sexes, are but slightly curved, and rarely exceed a foot in length.

The Gazelle with goitre.

With the Persian, or Goitred gazelle, we come to a species in which the females are hornless. The Latin name of the animal is *Gazella subgutturosa*, the latter word signifying "somewhat wide-throated," and referring to the fact that, during the breeding season, the males develop a large, goitre-like swelling upon the throat. This animal is said to frequent the neighbourhood of salt-deserts, and is usually to be met with in parties numbering from three to six individuals. It is very fleet-footed, and, provided the ground is dry and firm, the swiftest greyhound is unable to outpace it.

A very beautiful animal is the Addra or

Dama gazelle which is found in the Sudan; while another closely allied species is Soemmerring's gazelle. Although these are rarely to be seen in captivity, both have been exhibited at the London Zoo.

Most gazelles can truthfully be described as graceful, but this term can hardly be applied with justice to the Dibatag, the Gerenuk, and the Saiga. The first has been known only since 1890, when it was discovered in Somaliland by Mr. T. W. H. Clarke. In honour of the discoverer it is sometimes called Clarke's antelope. The chief peculiarity of the animal is the unusual length of its neck; when the creature is running this is inclined backwards.

The Giraffe-like Gerenuk.

With the Gerenuk, or Waller's gazelle, the neck is even longer than that of the dibatag, and almost suggests that of a giraffe. According to Captain Swayne, this animal "is found all over the Somali country in small parties, never in large herds, and generally in scattered



THE GRACEFUL SPRINGBOK.

[F. W. Bond

When the Springboks of South Africa migrate, they collect in great herds and travel through the country, causing great anxiety to the farmers whose crops and flocks suffer. They are very graceful in motion.

ANTELOPES AND GAZELLES



[W. S. Berridge]

PYGMY, OR ROYAL ANTELOPE.

This amusing-looking fellow, with the inquiring gleam in his eyes, is the baby of the Antelope family.

bush, ravines, or rocky ground." It is not very active in its movements, and its trot has been compared to that of a camel. Like the dibatag the gerenuk is a browser rather than a grazer, its long neck being well adapted for browsing.

The Saiga is a heavily built, sheep-like creature, about two and a half feet in height, found in Southern Russia and South-West Siberia. The male is remarkable for the shape of its nose; this is large, convex, and has a swollen appearance, while the openings of the nostrils are directed downwards.

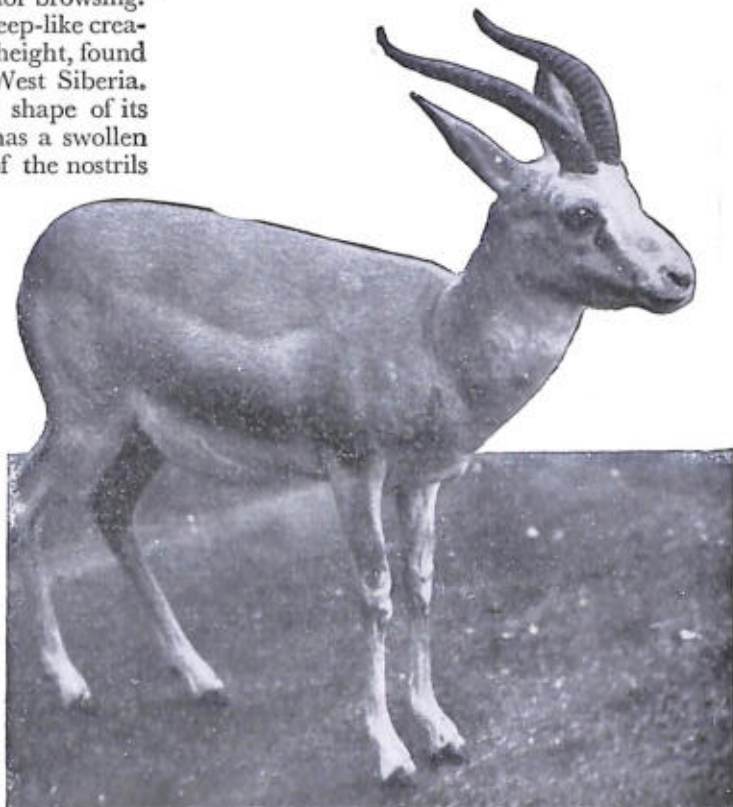
Mention must be made of the Black-buck or Indian antelope, an animal that congregates in large herds, sometimes numbering as many as one thousand individuals. These antelopes are able to run very fast; when hunted by dogs they can be overtaken only upon sandy ground, or when rain has softened the soil and made it so slippery that it retards their progress. The black-buck is largely hunted in India with the aid of trained cheetahs or hunting-leopards.

The pretty little animal known as the Klipspringer is found from Somaliland to the Cape, though in the latter region it is almost (if not quite) exterminated. In former days, however, it was so plentiful in the Cape that its hair was employed for stuffing saddles. In scientific language, the

klipspringer is called *Oreotragus saltator*, which may be translated as "a rock-jumping, mountain he-goat." It is quite a small creature, measuring less than two feet in height at the shoulder. The males alone possess horns, however, these are merely small, upstanding spikes that average only about four inches in length. The animal's coat, which is of an olive-brown colour, is composed of thick, hollow, and brittle hairs.

The "African Chamois" as a pet.

Because of the remarkable agility the klipspringer displays in clambering over the rocks where it dwells, it has been dubbed the "African chamois." Its hoofs, which are rather clumsily shaped, and so small that they look like little pegs, are able to obtain a foothold upon almost imperceptible projections of the rocks, and the animal can ascend the almost perpendicular face of a cliff. The late F. C. Selous states: "These little animals are usually met singly or two or three together. When caught young they become wonderfully

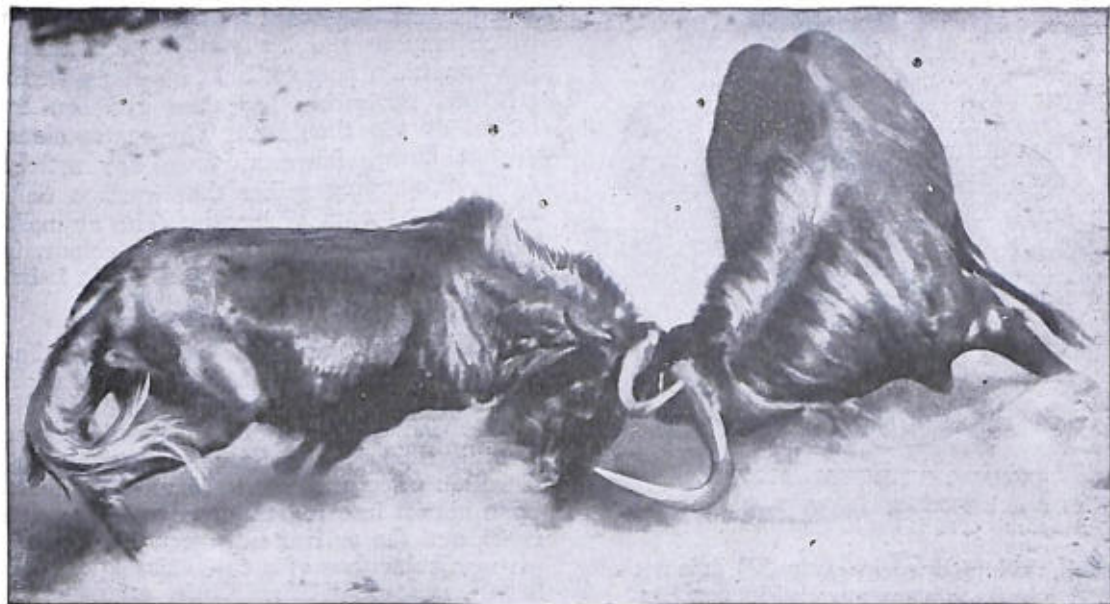


PERSIAN GAZELLE.

[F. W. Bond]

Though most Gazelles carry useful horns, the female of the above type—the Persian Gazelle—has none, but has to rely on its fleetness.

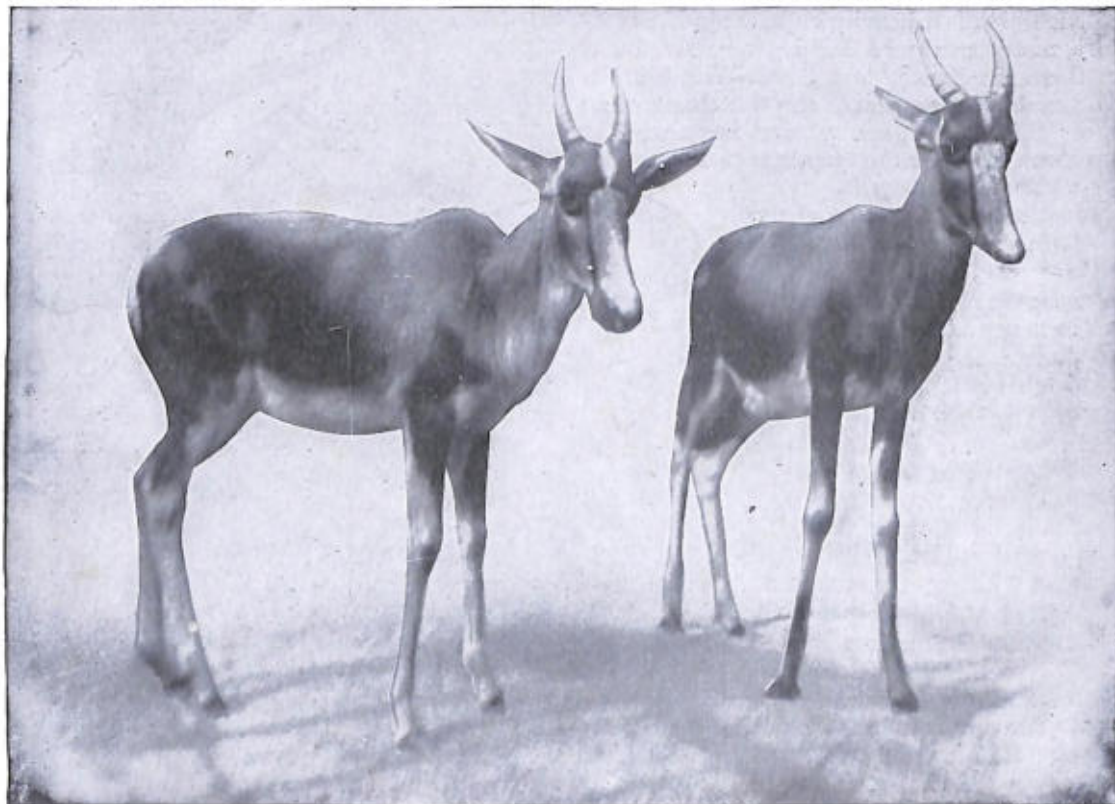
ANTELOPES AND GAZELLES



A FIERY FIGHT.

[Mondiale

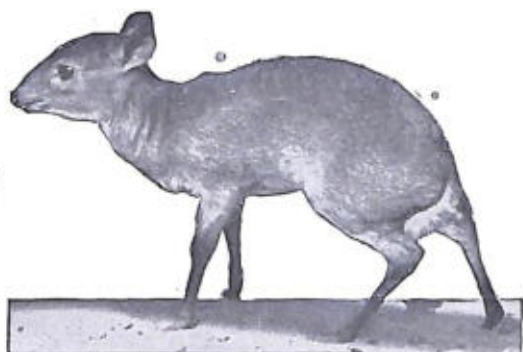
The horns of the Antelope tribe are useful not only for defence against enemies, but also in inter-family feuds. The two Gnus above, engaged in a battle for leadership of the herd, use horn and head in their struggle.



BONTEBOKS FACE THE CAMERA.

[W. S. Berridge

The Bontebok tribe once numbered many thousands, but to-day they are reduced to only a few herds, preserved on various farms in South Africa. Note, above, the peculiar light markings on their faces.



ROYAL ANTELOPE.

[F. W. Bond

This tiny Royal Antelope seems much afraid and mouse-like. It is only ten inches high.

tame, and make charming pets, being very playful and fond of jumping, with surprising ease and grace, from the floor of a room on to any elevated position, such as a table, mantelpiece, or window-sill."

The "King of the Harts"

Under the name of Steinboks are included a group of animals comprising the typical steinboks, the oribis, the pygmy antelope, and the grysbok. The Common steinbok, found in South and East Africa, stands about twenty inches in height at the shoulder. As a rule the males only possess horns, and these rarely exceed four inches in length, though a measurement of seven and a half inches has been recorded. The animals dwell in the plains, or amid sparsely timbered country, and are to be found congregating in considerable numbers.

The Zanzibar steinbok is larger than the foregoing species, but the Pygmy antelope is much smaller. Indeed, the latter is the smallest of all antelopes and may be compared in size to a fox terrier dog. Its legs are so slender that in parts they barely exceed the thickness of an ordinary lead pencil; while its horns are less than an inch in length.

Known by the natives as the "King of the

B.W.L.

Harts," the pygmy antelope was discovered in the year 1704 by the Dutch explorer Bosman. It is a rare animal, and has been exhibited at the London Zoological Gardens only on two occasions; the first of these being in 1914, and the second in 1933.

The Oribis, of which there are several species, are distinguished from the true steinboks by the presence of a long tuft of hair upon the knees. All are of small size, and stand about two feet in height.

The Grysbok differs from other members of the group in the peculiar colouring of its coat; this is of a chocolate-red tint, heavily grizzled with silvery-grey hairs. The animal also lacks the knee-tufts that are such characteristic features of the oribis.

The Dik-diks of North-East Africa are other dwarf species of antelopes. They vary from fourteen to seventeen inches in height at the shoulder, and weigh from seven to nine pounds. Phillip's dik-dik, the only species ever seen at the London Zoo, is about the size of a hare. In a wild state it has been described as "an active little creature, in its general habits much more like a hare than an antelope; indeed, its appearance is decidedly hare-like in some respects, quite apart from its small size."



THE GRYSBOK.

[F. W. Bond

The Grysbok, a South African antelope, twenty inches high and three feet long, is a timid little creature, very easy to capture. Its flesh furnishes excellent food.



THE COMMON DUIKER. [F. W. Bond

This is one of the smallest Antelopes in all Africa.

ANTELOPES AND GAZELLES



THE GAMBIAN ORIBI. [W. S. Berridge]

Tufts of hair upon its knees distinguish the graceful Oribi from its near relative the Steinbok.

With the Duikers or Duikerbok we come to a group of small, African antelopes, of which there are a number of species. They are characterised by the presence of a long tuft of upstanding hair that arises from between the bases of their short, spike-like horns; these are usually carried by both sexes, though generally they are absent in the female of the common or Cape duiker. This animal is very plentiful in its haunts. Lieutenant A. W. Hodson, in an account he gave of a journey he made some years ago in the heart of the waterless Kalahari Desert, writes:

"I never in my life saw anything like the number of small bucks, duikers and steinboks we passed *en route*. They were . . . running

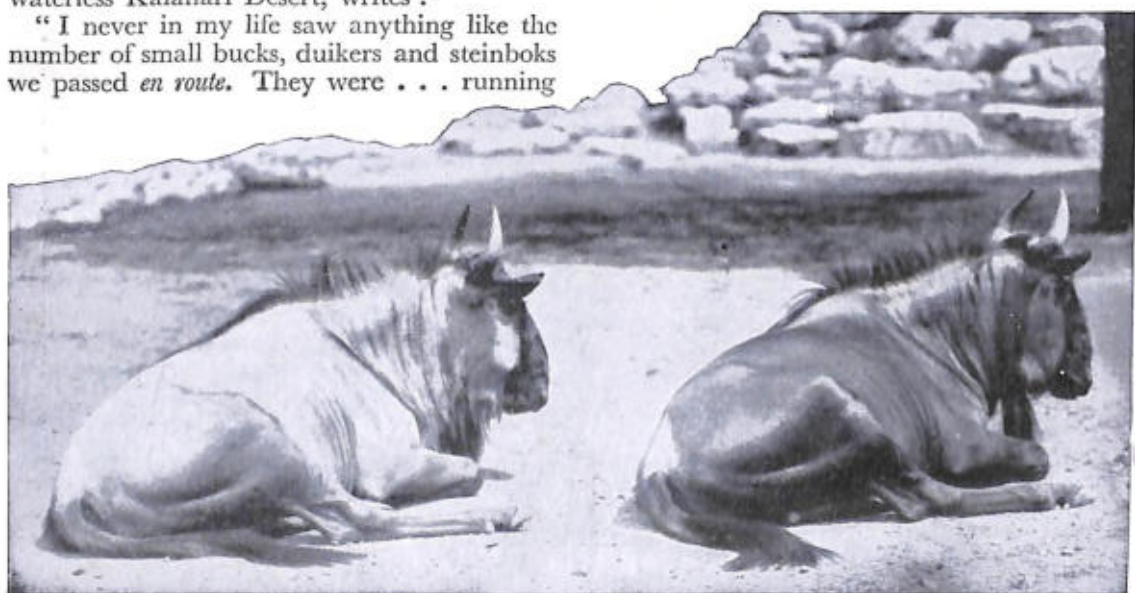
about like rabbits, and they were quite tame, I suppose because they had never seen human beings before."

India is the home of the curious Four-horned antelope or Chousingha. Of all ruminants it is the only one that possesses two pairs of horns. It is only the males, however, that are thus endowed, though among these some individuals have only a single pair. The posterior horns are always longer than the anterior; the greatest length of the former recorded is five inches, and of the latter two and seven-eighths inches. This antelope frequents sparse jungle in the neighbourhood of water; it is a very shy creature, and only on exceedingly rare occasions are more than two Chousingha seen congregating together.

The extinct white-tailed Gnu.

The Gnus are familiar animals, if only by name, for do they not share with the Emu the distinction of being mentioned more frequently than any other creature in cross-word puzzles? Also called Wildebeests, they are found in South and East Africa. Three species are known, namely, the White-tailed Gnu or Black Wildebeest; the Brindled Gnu, Black-tailed Gnu, or Blue Wildebeest; and the White-bearded Gnu.

At one time the White-tailed Gnu was plentiful in the northern part of Cape Colony, Orange River Colony, Transvaal,



BRINDLED GNUS.

[W. S. Berridge]

The Brindled Gnu, which stands about four and a half feet high, is a native of South Africa. It is quite a sociable creature and is often to be seen crossing the veldt in the company of ostriches and zebras



TWO FRIENDLY BLESBOK.

[W. S. Berridge

The Blesbok is one of the handsomest of its tribe. Related to the Buffalo, it has great ringed horns and a brilliant coat of purple-red. To defend itself or its family it will attack a lion with its horns.

British Bechuanaland, and West Griqualand, but in 1899 only two herds existed. "These animals," to quote the words written many years ago by F. C. Selous, "numbered some five hundred head altogether and were protected by the Dutch farmers. There are probably very few of them left to-day, and it is scarcely possible that this most interesting animal will long escape extinction." Alas, his words have proved to be true, for it is believed that none of these queer antelopes now exist.

The Gnu's way of slimming.

The remarkable manner in which these animals prance and gambol must be seen to be believed. First of all they trot along in a manner that can be described almost as dancing, for they move their legs in a most dainty fashion, and place their toes upon the ground with such a light tread that the creatures look as if they were progressing upon tiptoe. Suddenly they will wheel round and, flourishing their long tails, kick their heels into the air, accompanying the action with a loud snort.

In appearance the gnus are unlike any other

antelopes. In the white-tailed species the snout is decorated with a compact and brush-like tuft of upstanding hair; the chin is adorned with a beard-like growth; and a fringe of hair is present upon the chest and



THE STEINBOK. [W. S. Berridge

This neat little creature is the Steinbok, a small antelope cunningly coloured to match its veldt home.

extends between the fore-legs to beneath the body. The strange formation of its horns has been described elsewhere in these pages.

The Brindled Gnu, or Blue Wildebeest, so called because of the bluish-grey colour of its coat, has not suffered the fate of the white-tailed gnu. Indeed, judging by the many cinematograph pictures of African wild life that have lately been shown, its numbers are very considerable. This animal is larger than the white-tailed gnu, and measures about four and a half feet in height at the withers. It has no fringe of hair upon the chest, and the horns do not drop from their base but spread outwards and then turn upwards.

The Gnu with a white beard.

The White-bearded Gnu, found only in certain parts of East Africa, is considered by some people to be but a local race of the brindled gnu, though others believe it should rank as a distinct species. Be that as it may, however, it is very similar in appearance to the latter animal, though the beard upon its chin and throat is of a creamy tint, instead of black as in the brindled gnu.

The Hartebeests are curious-looking animals with a long, slender face that imparts to the creatures a very mournful expression. Except for one kind which inhabits Arabia, all occur in Africa. Of the many different species that are known the true hartebeest, or cama, of South Africa may be taken as a typical example. It stands about four feet in height at the shoulders and possesses a reddish-brown coat with a yellowish

patch on either haunch, while the forehead and nose are almost black. The ringed horns, which may attain a length of two feet, arise from the top of the skull and, diverging from one another in a V-shaped formation, turn back at the tips at a right-angle to the rest of the horn.

Closely related to the hartebeests are the Blesbok and the Bontebok. They resemble each other so closely that an unobservant person would probably fail to see any difference between the two. The bontebok, however, has a broad, white band, or "blaze," down the front of the face that extends upwards in a narrower line to the base of the horns, but with the blesbok the blaze is divided in the region above the eyes by a transverse bar of a colour similar to that of the rest of the animal's coat. In former days the blesbok was very plentiful in its haunts, so much so, indeed, that Gordon Cumming spoke of the plains being "one purple mass of graceful blesboks, which extended without a break as far as the eye could strain." Now, however, the animals may be considered very rare, and such sights can no longer be witnessed.

But even worse has been the fate of the bontebok. Some years ago only about two hundred of the animals existed. These were strictly preserved by the Cape Government, and by the owners of the land where the creatures were dwelling, a timely action that has no doubt saved this graceful species from becoming extinct.



THE BLACKBUCK.

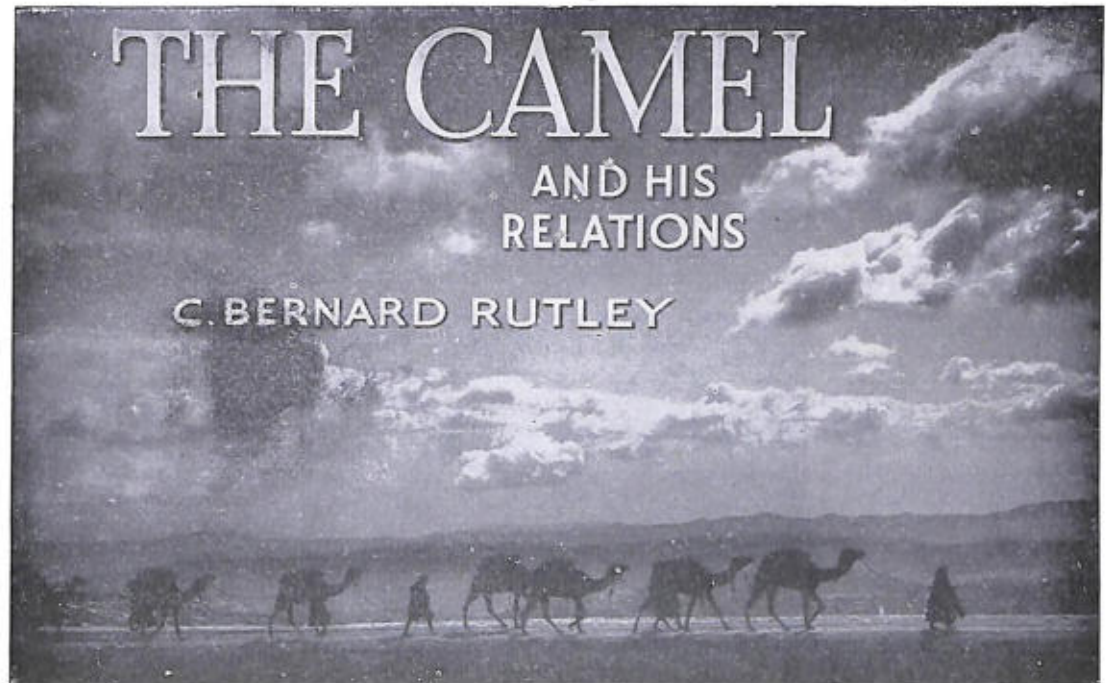
[F. W. Bond

The handsome Blackbuck lives in large herds on open plains, where it can seldom be overtaken even by the fastest greyhounds. Trained cheetahs—or hunting-leopards—however, will sometimes bring it to earth.

THE CAMEL

AND HIS RELATIONS

C. BERNARD RUTLEY



Here is a picturesque view of a caravan of Camels on the march at sunset in the lonely desert. Their gait is leisurely but has the regularity of clockwork and their powers of endurance are wonderful. [H. J. Shepstone

IS there a more picturesque form of transport than the Camel caravan? Silently it wends its way through the desert, over the barren sands, beneath the burning sun of the tropics—sure and mysterious as Fate itself. In the following chapter we shall see how marvellously well the Camel is adapted to his desert life. Thus, despite his bored, unfriendly mien and frequently savage temper, he takes an honourable place among the domestic animals, and finds his grudging and scornful service much valued by man.

THERE are two species of Camel existent in the world to-day. There is the single-humped Arabian camel, and the two-humped Bactrian camel which is found in Central Asia.

Of these two species the Arabian Camel is the more widely known. There are no wild Arabian camels. It is purely a domestic animal, and is found in Arabia, North Africa, and India, whilst attempts, more or less successful, have been made to introduce it into the desert regions of Australia and North America.

In appearance the Arabian camel is not a beautiful animal. It stands about seven feet high, and its long neck and legs give it an ungainly appearance, whilst the hump on its back varies in size according to the condition of the animal. When food is scarce, or the animal is being worked very hard, the hump, which is made up chiefly of fat, becomes small and soft and sometimes almost disappears, but in times of ease, and when food is plentiful,

the hump increases in size and becomes firm and upright.

The camel's disposition is no more prepossessing than its appearance. The habitual expression of its face is one of boredom and disdain, and a camel will never become attached to its master as a horse or a dog becomes attached. Its disposition is surly, jealous, and revengeful, and during the rutting season the male camels are liable to sudden, violent attacks of rage. When in the grip of these attacks, the camels will fight savagely amongst themselves, and will even attack and kill human beings.

Nor is the camel gifted with intelligence such as marks the horse and elephant. Never tamed, as some animals are tamed, the camel is too stupid to be wild. It is a mechanical worker. Started upon a journey it will travel straight ahead for hour after hour, and if for some cause it deviates from the straight path, tempted perhaps by a tasty looking growth of herbage, it will proceed to travel straight ahead

THE CAMEL AND HIS RELATIONS

in the new direction, either because it does not care, or because it does not realise that it has strayed away from the right track.

"The ship of the desert."

Yet, despite its unprepossessing disposition and lack of intelligence, the camel is eminently suited to the conditions of earth and climate amidst which it lives. It has aptly been called

"the ship of the desert," and without the camel to carry them and their baggage across the great wastes of shifting sand, many of the conquerors who in the past established mighty kingdoms in Asia and Northern Africa, would most probably have failed in their attempts at conquest. For a camel can travel and survive in regions and under conditions which would kill any other beast of burden. A million years ago the ancestors of the camel roamed the plains and deserts of North America, and since then, through countless generations of fighting for existence against drought, and heat, and scanty herbage, it has adapted itself, as no other beast of burden has adapted itself, to meet and withstand the conditions of life in the desert.

The foot of the camel has two toes, and each of these toes is fitted with a broad pad out of all proportion to the size of the bone. As the animal walks, these broad pads spread out and keep it from sinking into the sand or soil, even with a load of 700 or 800 pounds on its back, whereas a horse, similarly burdened, would sink deep into the loose sand and soon be tired out.

The camel's long neck is also well adapted to its environment, for it enables it to see a long way over the desert, and to reach the desert growths upon which it feeds. These growths are, for the most part, hard and thorny plants, so through countless centuries of adaptation the mouth of the camel has become cartilaginous, a state which permits it to feed off this unfriendly pasture without injury. The glare of the sun is very strong in desert regions, but the prominent eyes of the camel are pro-

tected from the glare by heavy, overhanging lids, and so well is the animal adapted to withstand heat that, even when resting, it will not seek the shade, but will kneel down in the full glare of the sun as though revelling in the light and warmth.

A camel has small ears, but its nostrils are large, and it can close them at will to keep out the flying sand. Here is another remarkable

instance of adaptation. When the dreaded sand-storm bursts over the desert, the camel kneels down, and lies with its neck stretched along the ground and its eyes and nostrils closed until the storm passes, while its master, less adapted to the situation, wraps his mantle round his head, and in the lee of the camel's body seeks what shelter he can from the dread simoon.

Very wonderful is the way in which the

camel has adapted itself to withstand hunger. The hump upon its back is composed chiefly of fat, and in time of shortage this hump provides nourishment for the animal, and shrinks accordingly. When food is plentiful, the camel eats voraciously, and the hump grows fat again, and the store of nourishment is renewed in readiness for the next period of want.

The Camel's store of water.

But most marvellous of all is the camel's capacity for going without drinking for several days. The camel's stomach is divided into a great number of pockets like the cells of a honeycomb, and in these pockets it stores up water. When a camel drinks it drinks as much as it can hold, and fills up all these reservoirs, after which it will travel for days without going near a well. A baggage camel, with a load of 700 pounds or more upon its back, will travel for three days at a rate of twenty-five miles per day without drinking, whilst a thoroughbred riding camel can maintain its strength and run for five days across the loose desert sands before it needs to renew its store of water. A curious thing about the camel is that it can drink water quite unfit for human



[F. W. Bond

A LOFTY DESERT DWELLER.

The Arabian Camel or Dromedary has long and shaggy hair which is shorn every year by the Arabs.

THE CAMEL AND HIS RELATIONS

ase, and yet return it in the form of sweet, nourishing milk. The camel is, in fact, a living filter, and many a desert traveller has been kept alive by the milk of his camel. Many stories told of travellers who kill their camels for the sake of the water to be found in their stomachs are, however, without foundation. Such water is unfit for human consumption.

When Camels are shorn.

The food of the camel consists chiefly of desert growths such as shrubs and the leaves of trees, and the length of its life is from forty to fifty years. The female of the species gives birth to only one calf at a time. The young animal stands three feet high within eight days of its birth ; yet, despite its size, it is a very helpless creature, requiring constant care, and it is not until its sixteenth or seventeenth year that it reaches its full growth.

Amongst the Arabs there is a saying that the camel is the greatest gift Allah has given to man, and from the Arabs' standpoint this is undoubtedly true. Living, the camel draws the plough which cultivates the land, and provides a means of transport marvellously

suited to the conditions under which the Arabs live. Its milk is a wholesome, nourishing food, and in the spring, when pasturage is plentiful and the wandering Bedouins camp far from water, both men and horses subsist on the milk of the camels. Every summer the fleecy coat is shorn from the camels, and the long hair is woven into cloth with which the Arab clothes himself and his family, or is made into rope and shawls, whilst it is also exported to other countries where it is used to make small brushes for painters. The droppings of the camel are also useful as fuel in a country where fuel is scarce, and sal-ammoniac is extracted from the incinerated remains.

Making use of the dead Camel.

Dead, the camel is equally useful. It provides flesh food ; the flesh of a young camel closely resembles veal, and is highly prized by the Arabs. Camel hide makes excellent leather, and the bones are sometimes used in place of ivory. Altogether the camel, in spite of its cross-grained disposition, is one of the most useful of living animals, and without it the Arabs could not exist as they do to-day.



SHIPS OF THE DESERT.

[H. J. Shepstone

Here is a typical scene in Egypt, where Camels are much used by tourists on sight-seeing expeditions.

THE CAMEL AND HIS RELATIONS

The Bactrian Camel, which is found throughout large tracts of Central Asia, stretching from the cold regions of Southern Siberia to the Crimea, differs somewhat from its Arabian cousin in appearance. It is a shorter, sturdier animal than the Arabian species, and in the winter months it grows a very long, thick coat which it sheds in the spring. It also possesses two humps to the Arabian camel's one, and, unlike the latter, it is not entirely domesticated, but is found in wild herds inhabiting the deserts of Central Asia. These wild camels are very shy, and some authorities think that they are the descendants of domesticated camels which, centuries ago, escaped into the deserts, when the homes of their masters were overwhelmed by the sand-storms which have destroyed so many Central Asian cities. The manner of origin of these wild herds is, however, uncertain, and not all authorities agree with the foregoing explanation.

The colour of the Bactrian camel ranges from

dun to dark brown. It is not a dainty feeder, and is by no means conservative in its choice of food. In times of scarcity it will eat almost anything it can get its teeth into, and will devour flesh, bones, skins of animals, and even its master's blankets if it can get hold of them. No doubt this ability to eat and digest almost anything it can devour is another instance of the camel's adaptation to its usually unfriendly environment, and helps it to exist in places where other animals would die. Like the Arabian camel, the Bactrian camel is a sort of universal provider, and plays the same important part in the daily life of its master as does its cousin in Arabia.

Why the Dromedary is useful.

There is one special breed of camel which must be mentioned. This is the Dromedary. The dromedary is the "racehorse" of the camel tribe. Usually the name is applied solely to the thoroughbred of the one-humped species which is found in perfection only in Central Arabia, but the name may be given with equal correctness to the swift Bactrian riding camel. The dromedary is of lighter, more graceful build than the baggage camel. Its gait is easier, and it is able to subsist without drinking for a much longer time than its common brother. A thoroughbred *dalul* or riding camel can travel at the rate of 100 miles a day, and keep it up for seven days in succession. When its rider is pressed for time such a camel will maintain a pace of from eight to ten miles an hour for eighteen hours before it needs rest. No other animal in the service of man can equal this performance. In desert warfare these fast camels have proved themselves without an equal, as witness the good service of the British and Egyptian Camel Corps in the Great War of 1914-18.

The Camel's wild relations.

Related to the camel, and descended from the common ancestors which inhabited North America, are the guanaco and the vicunas. These animals are the South American wild representatives of the camels. The Guanaco is the more important of the two, and is found both in a wild and in a domesticated state in Ecuador and all along the western side of South America to as far south as Tierra del Fuego and the plains of Patagonia.

It is interesting to note how different conditions have changed the course of evolution in these animals as compared with the camel.



THE ALPACA. [W. S. Berridge]

The haughty Alpaca, bred solely for the sake of its fine, long wool, is a native of South America.

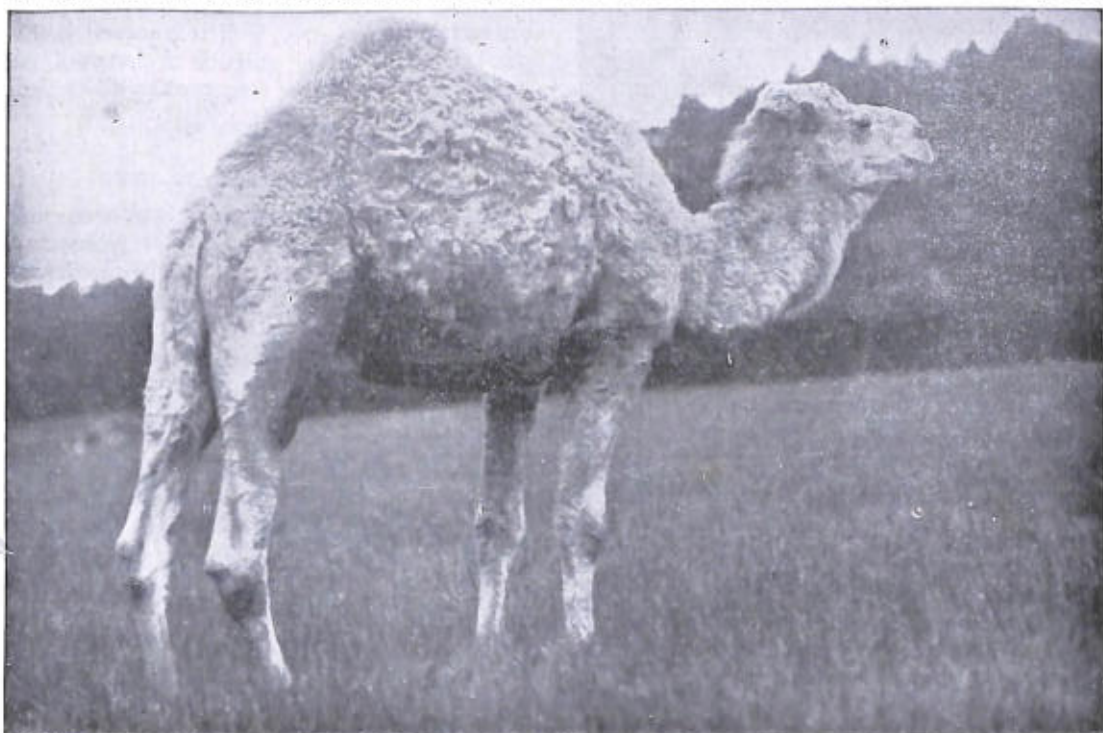
THE CAMEL AND HIS RELATIONS



A LONG DRINK.

[H. J. Shepstone]

Calling a halt at a shady watering-place, the natives allow their Camels to "stock up" for a long trek.



THE "RACEHORSE."

[W. S. Berridge]

The Dromedary as he appears when he casts his shaggy coat. He is the "racehorse" of the Camel tribe.

B.W.L.

THE CAMEL AND HIS RELATIONS

of the old world. Probably the ancestors of the guanaco found life kinder than did the ancestors of the camel, for these animals have not adapted themselves to withstand hunger and thirst to the same degree as the camels have done. A guanaco has no hump. Its feet also are different. For countless centuries the guanaco has lived amongst mountains where its need has been speed and sureness of foot, and accordingly, instead of the broad pads of the camel, it has developed a foot with smaller pads and more hoof-like nails which enables it to travel over rugged country, and to climb the steep sides of mountains where the camel would be helpless. Altogether the guanaco is a smaller animal than the camel. It stands about four feet high at the shoulder, and lives in small herds of from ten to thirty individuals, though sometimes large herds numbering several hundreds may be seen roaming wild over the mountains. The wild guanaco is a very timid creature, and if surrounded by hunters will become completely bewildered, and so fall an easy prey. In the tamed animal, however, this timidity gives place to boldness,

and the domesticated guanaco will attack man by kicking at him from behind with its knees. The guanaco is an excellent swimmer, and will sometimes swim across the sea from one island to another. Here again it differs from its cousin, the camel, which hates water, and is at the best a very poor swimmer.

The burden-bearing Llama.

From the guanaco have come two domesticated breeds of the same animal, both of which serve their masters in different ways. These breeds are the alpaca and the llama. The Alpaca is bred solely for its wool, which is black or dark brown in colour, and grows to such a length that sometimes it touches the ground. All the year round the alpacas roam in large herds through the mountains of Bolivia and Peru, and only when the time comes to clip their coats are the animals driven down to the villages to be shorn.

The other domesticated breed, the Llama, is a beast of burden. It is larger than the alpaca or guanaco, and its hair is comparatively short. It has a long neck and legs, and its colour ranges from pure white to brown and black. When Pizarro and his Spaniards conquered Peru the llama was already the pack-animal of the country, and it is recorded that the Incas maintained 300,000 of these animals for the sole purpose of transporting silver from the mines to the capital.

The Camel's little brother.

In temper the llama is very stubborn, and, with the rest of the group, has an unpleasant habit, if annoyed, of turning its head and spitting a quantity of ill-smelling saliva into the face of the person who has incurred its dislike. It defends itself by striking with its forefeet. Though it resembles the camel in some ways, it has no hump, and its neat hoofs are those of a mountain animal.

The Vicuna is the smallest of the camel family. It is entirely wild, and is found at a height of 13,000 feet and more in the mountains of Bolivia and Ecuador. Its colour is light brown with white hair on the legs and shoulders, and amongst its wild environment it leaps and climbs with the agility of the mountain goat.

How different from the awkwardness of the ungainly camel! Yet the agile vicuna is descended from the same stock as "the ship of the desert." Such tricks can evolution play.



A YOUNG LLAMA. *Atondale*

This newly-born baby Llama, which, however, is already able to stand firmly on its legs, looks very much like a woolly Teddy-Bear. It is allied to the camel but has no hump on its back, and is more like a long-necked sheep in form.



Monarchs of the air and chief of the Birds of Prey are the lordly Eagles. Above are seen the American White-headed Eagle and the Golden Eagle, the latter frequently found wild in Great Britain. [Mondiale]

BIRDS OF PREY

By OLIVER G. PIKE, F.Z.S., M.B.O.U.

THERE is something both beautiful and terrible in the magnificent swoop of the kingly Eagle and no less interesting are the other birds of prey that depend on their powerful talons to capture their meals. Here their story is told by one who has made an intimate study of the characteristics of these majestic birds. He has many interesting tales to recount of peril in mid-air and deadly feuds waged between different members of the bird world.

THE majority of the British birds of prey are graceful in the extreme, either when at rest or when chasing their quarry, but the same cannot be said of some of their foreign relations. Some of the most repulsive looking of all birds are the Vultures which we find distributed all over the world in the hot countries; although they are not attractive, however, they are the most useful scavengers. They all have wonderful methods of discovering their prey, for if an animal should die, the vultures find the body very quickly. The birds will sometimes follow a dying animal, hovering over it as it wanders falteringly along, to pounce down upon it the instant it gives in and can go no farther.

A friend of mine while travelling on the Balkan mountains lost his horse. One hour

later he found it with all the flesh cleared from its bones, for a large colony of vultures had swooped down upon it and made a meal of the beast. The same traveller witnessed an incident which shows how certain birds respect the great eagle. A dead horse was lying among some rocks on a hillside; near was a Golden Eagle which had been feeding on the flesh, and not many yards away there stood a circle of vultures. All were wanting to pounce upon the carcass, but dare not approach while the eagle was there. They waited patiently watching for the eagle to move but it was not until the evening that it left; then, within a few minutes, a wild jostling crowd of birds were pulling at the flesh of the horse, and within half an hour there was little left of the beast but cleaned-up bones.

BIRDS OF PREY

The opinion of naturalists has for a long time been divided as to the way in which vultures discover their prey ; some say it is by scent, others by sight. When these great scavengers are waiting for food, we see one high up in the sky, at such a height that one would think it impossible for them to detect anything on the ground beneath, say, the size of a sheep ; half a mile or more away there will be another sentinel in the sky, and farther on still more, so that over a great stretch of country there is a long post of birds all on the look-out for prey. If one vulture is seen to swoop down, the next to it will follow, and the news is thus carried all along the line, until there may be fifty or more all struggling to get at the food which the first bird discovered. This looks as though sight guides them more than scent, but we do know that some of the birds of prey have a very powerful sense of smell. Some interesting experiments have been made

with an American species of buzzard ; the food was actually buried in the birds' haunt, but they soon found it.

The supply of carrion food is so limited in some districts, that it is



[F. W. Bond]

1. Lammergeier.
2. Bald Eagle.
3. Vulture.
4. Martial Hawk-Eagle.



[E.N.A.]



[W. S. Berridge]



[W. S. Berridge]



AN AMERICAN VULTURE. [W. S. Berridge]

The American King Vulture has a very remarkable appearance. On his head are bare, gaudily-coloured patches of orange, purple and crimson.

fortunate that vultures have the provision of being able to go for several days without food. When they do find a large carcass, however, they gorge themselves until they cannot fly; some, incapable of standing, have been seen to continue forcing food down their spacious throats while lying on their side!

Among the ancient Egyptians the great Griffon Vulture was regarded as a sacred bird, and its remains have been found embalmed. It is often seen engraved on the old monuments.

Larger than any of the vultures to be found in the Old World is the magnificent Condor of the American continent. This bird of prey has a stretch of wing of over eight feet and is a majestic sight when it soars up in wide circles, reaching such a height that it looks like a dot in the sky; from this vast altitude it will float about on outstretched wings, carefully watching the ground for any trace of food. It will often attack live creatures, but kills them on the spot, for although such a great bird, it is not capable of carrying its prey like the eagles.

One of the most spectacular of the birds of prey is the Osprey or Fishing Eagle. It is found in many parts of the world and at one time nested in the British Islands. It will float about



[W. S. Berridge]

THE COLOURFUL OSPREY.

The Osprey is distinguished by its conspicuously-marked plumage and the reversible outer toes and spicules on the soles of the feet.

high up over a large lake waiting for a fish of reasonable size to come to the surface. When it sees one, the great bird swoops down, drives its claws into its back, lifts the struggling fish from the water and carries it off to its feeding ground. But it will sometimes happen that the fish is more powerful than the bird, and is able to pull its enemy under the water. One naturalist witnessed an interesting encounter in which the strength of the attacker and the hunted were about equal. The osprey had its sharp talons fixed in the back of the fish so



THE SNOWY OWL. [E.N.A.]

This nocturnal bird of prey with its noiseless flight is occasionally to be seen in Great Britain. Its white livery allows it to pass unperceived in the snow.



[W. S. Berridge]

THE HARPY EAGLE.

The common Harpy Eagle is a forest-dweller, with owl-like plumage, rarely seen on the wing. Included in its diet are sloths, peccaries and spider-monkeys.

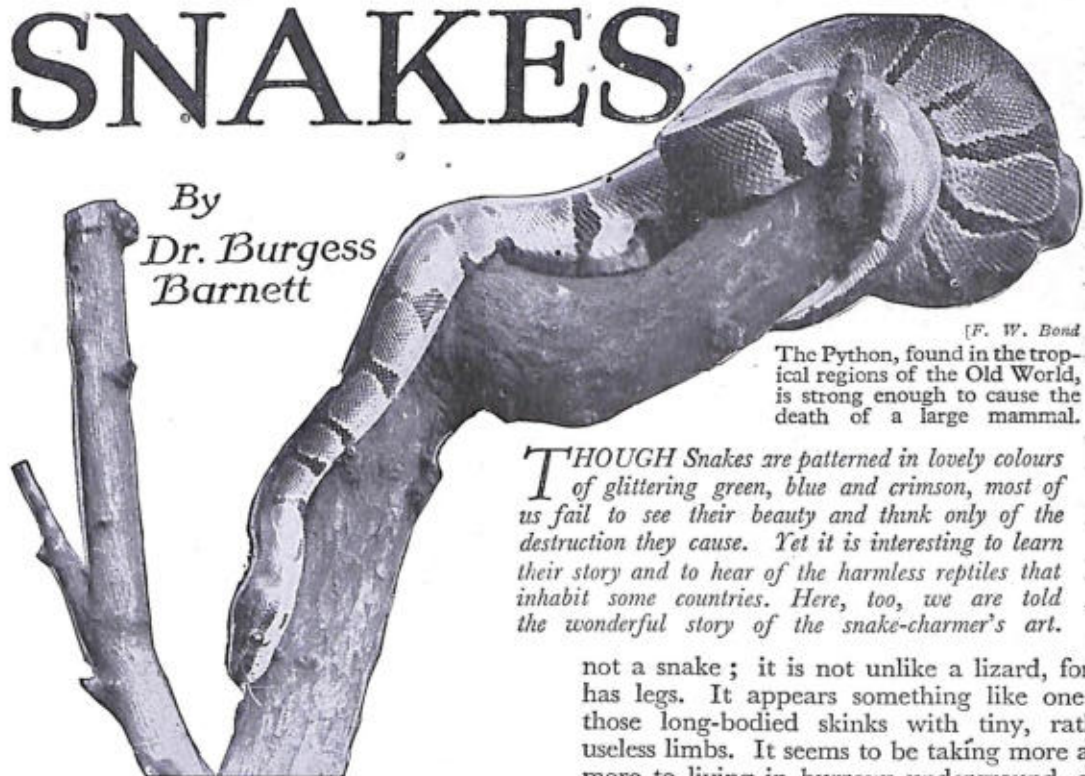
firmly that it could not release them; the fish could not quite manage to pull the bird under, but darted about on the surface with the osprey holding on like a jockey. Eventually the observer was able to reach both from his boat and found that the fish was a large trout.

In Ceylon there is a bird of prey known as the Fish Owl, and in the same manner as the osprey it captures its prey from the surface of the water, but like many other owls, it hunts by night. Most owls have mournful notes, but the cry of this fish-eating bird is surely the most ghostly of all, for as it sits on a tree near the lakeside, it constantly utters a weird, low note which sounds like "gloom, oh, gloom!"

The largest of the owl family is the great Eagle Owl which is found all over Europe; a few specimens have been obtained in Great Britain, but some of these have probably escaped from captivity. It is one of the fiercest of all the birds of prey. Although other birds look upon owls as dangerous enemies they will not fail to attack them when roosting in the daytime. I have often watched a whole host of small birds fluttering around the common tawny owl, many of them so bold as almost to touch it, but if the large bird moves or flies to another perch the attackers flee in terror. The eagle owl is attacked in the same way, but large birds such as ravens and crows will join in the fray, and the bird must have a very uncomfortable time when once its roosting place is discovered. If it should take to its wings, as sometimes happens, the flock of birds, large and small, will follow; the crows strike at it, dislodging many feathers, while the warblers and other diminutive attackers show their delight at this rough treatment of their enemy with noisy calls.

SNAKES

By
Dr. Burgess
Barnett



[F. W. Bond

The Python, found in the tropical regions of the Old World, is strong enough to cause the death of a large mammal.

THOUGH Snakes are patterned in lovely colours of glittering green, blue and crimson, most of us fail to see their beauty and think only of the destruction they cause. Yet it is interesting to learn their story and to hear of the harmless reptiles that inhabit some countries. Here, too, we are told the wonderful story of the snake-charmer's art.

AFASCINATING cinematograph picture is produced by taking very slowly the separate photographs that form the film, and speeding up the process of showing them on the screen so that events which really occupied a comparatively long time appear to happen quickly. In this way, for example, the growth of a plant from seed to fruit may be shown in a few minutes, although in life it took the greater part of a year.

Let us pretend for a moment that it is possible to extend this trick photography so enormously as to take a speeded-up "movie" of the evolutionary history of Snakes. One would have to begin the film millions of years ago in Tertiary times—Miocene, perhaps—and take one little picture, say, every thousand years. It would show the race of snakes starting from some pre-snake ancestor, developing along certain lines, and branching into certain types to suit different ways of life. Of course, the scenes would be very much blurred and out of focus; they would be seen darkly, with great gaps cut out of which we can never know anything, but they would probably look something like this:

At first the animal on the screen is certainly

not a snake; it is not unlike a lizard, for it has legs. It appears something like one of those long-bodied skinks with tiny, rather useless limbs. It seems to be taking more and more to living in burrows underground, and altering its body to suit its conditions. Because the sand gets into its eyes a transparent skin forms permanently over them. Because its limbs are rather a hindrance than the reverse, they disappear—the front legs are the first to go—and all it has left are little claws where the hind legs used to be and vestiges of hip-bones, straightened out to fit under its streamlined body. Now the animal is definitely a snake. It is the type of the most primitive snakes found to-day.

From now on the picture is mainly concerned with the snake's efforts to manage its food. It has forsaken its burrows and taken to eating disproportionately large animals, so that there is always a struggle between snake and prey that often ends in the escape of the latter. Then the snake's teeth grow larger and back-curved, and become so numerous that they occupy every available bone in the palate. They form an armoury of grappling irons to hold the struggling creature in the jaws. At the same time the snake develops a tremendously muscular body and learns the trick of throwing itself in coils round its prey to crush it to death. It has become much more like the typical snake as we know it, though it has not yet lost those vestigial hip-bones. It is, in fact, a Python or a Boa.

The next glimpse of a snake on the screen shows the creature still struggling with its living food, but it is mastering it in a different way. This is a typical harmless snake. Presently its saliva is becoming poisonous, although as yet there is no definite poison apparatus. A frog that is seized in the snake's jaw becomes slightly paralysed and ceases its struggles when it is half swallowed. To aid this process some of the back teeth develop grooves down which the saliva trickles into the puncture they have made, and here is a back-fanged poisonous snake.

Another snake develops grooves in the front teeth, and tubes leading forward to them from the salivary glands. The poison becomes more potent till it kills a small animal instantly, and to make its effect more certain the grooves in the teeth close up to form tubes like hypodermic needles. These are the front-fanged snakes, such as cobras, mambas and coral snakes. Some of them take to the sea, when they are called sea-

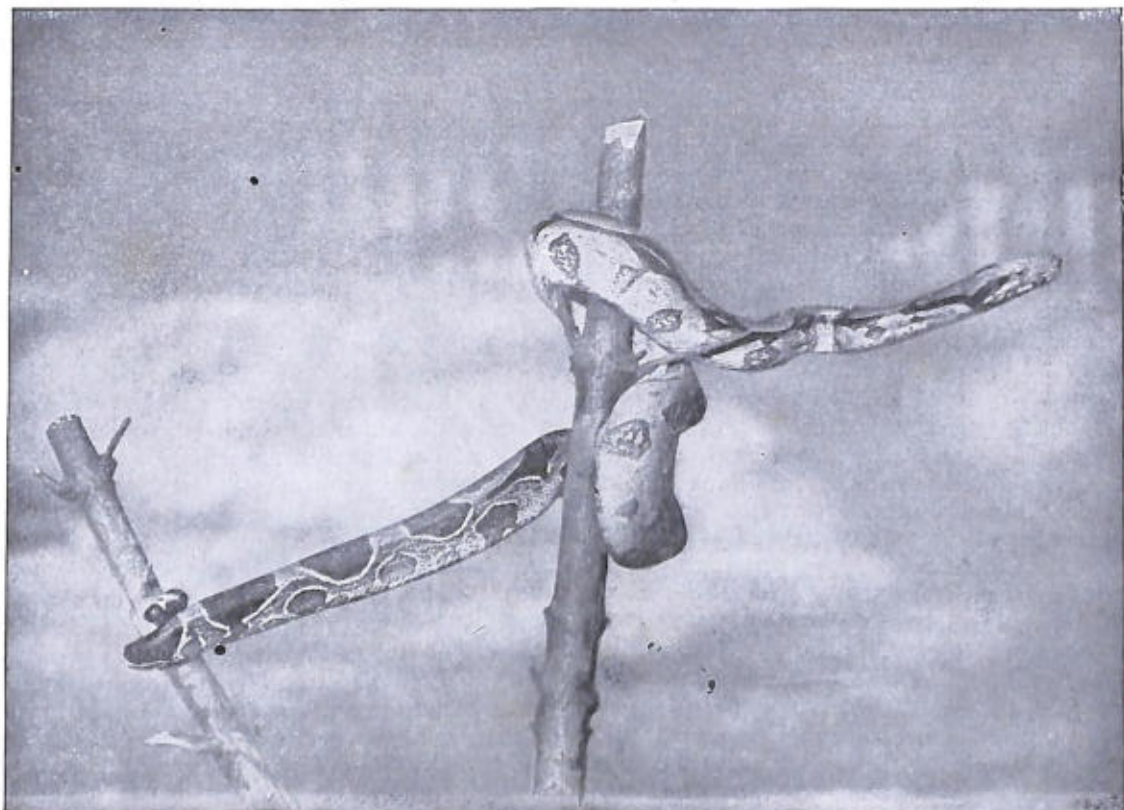
snakes, but they are still practically cobras, though adapted to their aquatic life.

Meanwhile the back-fanged snakes, which can poison their prey only when it is nearly eaten, are becoming more deadly by shortening the fang-bearing bones to bring the poison-teeth to the front of the mouth. They learn to rotate these bones so as to erect the fangs when they strike. These are the Vipers, the Rattlesnakes and the Bushmasters.

These, then, are the main groups of snakes :

1. The Burrowing Snakes.
2. The Constricting Snakes—Pythons and Boas.
3. The Typical Snakes, which may be :
 - (a) Harmless,
 - (b) Back-fanged, slightly poisonous snakes,
 - (c) Front-fanged, exceedingly poisonous snakes.
4. The Vipers.

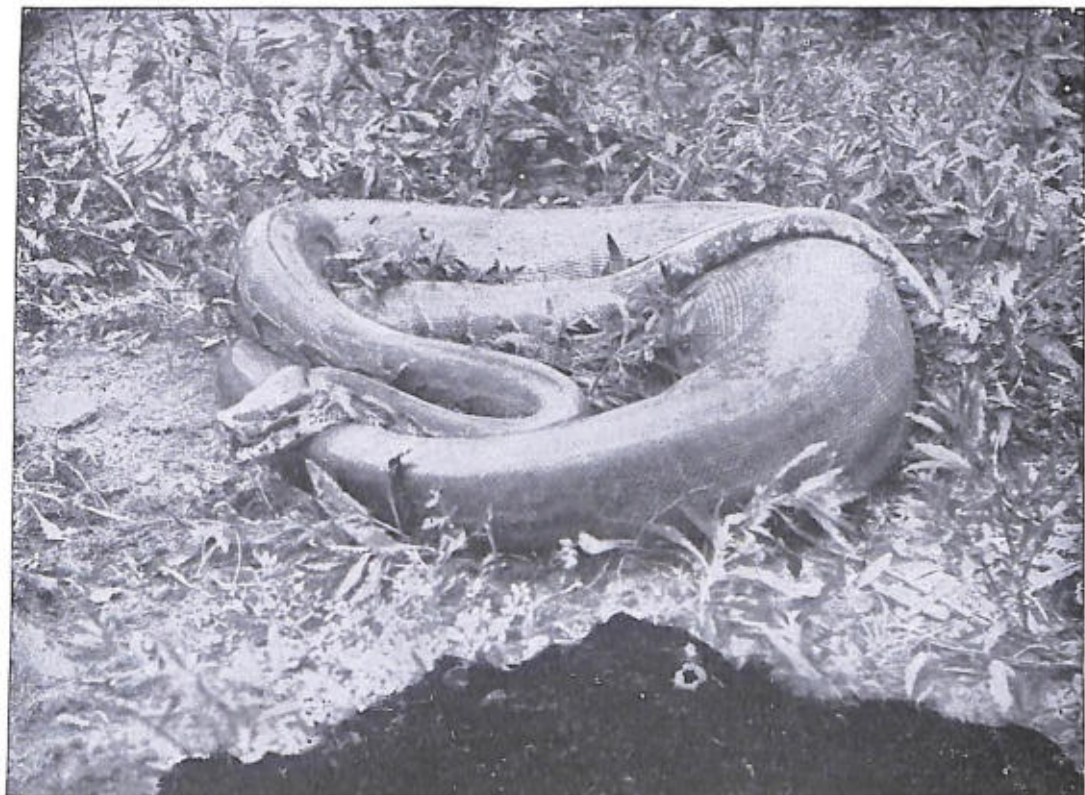
One of the most interesting of the Burrowing Snakes is the Red-marked Burrowing Snake. It is found in the Malay Peninsula,



THE BOA'S SIESTA.

[F. W. Bond

The Boa likes to rest in a twisted position round a tree, keeping on the look-out for food in the form of birds and small mammals. Some species include deer and dogs in their diet.



A LARGE REPAST.

[E.N.A.]

This after-dinner study of a Python, just after it had swallowed a full-sized pig, shows the great capacity of this reptile's stomach. Note the size of its throat and neck, through which the animal had to pass,

in parts of which it is known to the natives as *Ular kepala dua*—the Two-headed Snake. It earns this name by its strange habit of elevating its tail when it is alarmed. The extremity of the tail is adorned with three conspicuous, bright red blotches that give a momentary impression of a pair of eyes and an open mouth, so that the whole effect of the raised tail is to suggest the head of an angry snake.

Actually, like all primitive snakes, the *Ular kepala dua* is perfectly harmless, and no doubt profits by the alarm it creates by beating a hasty retreat—apparently backwards—before the effect of the illusion wears off. Possibly, too, there is an advantage in being able to present its less vulnerable end to an enemy. There are several of these snakes at the London Zoo, but naturally, like all burrowing snakes, they make poor exhibits unless they are dug up and encouraged to show off their specialities.

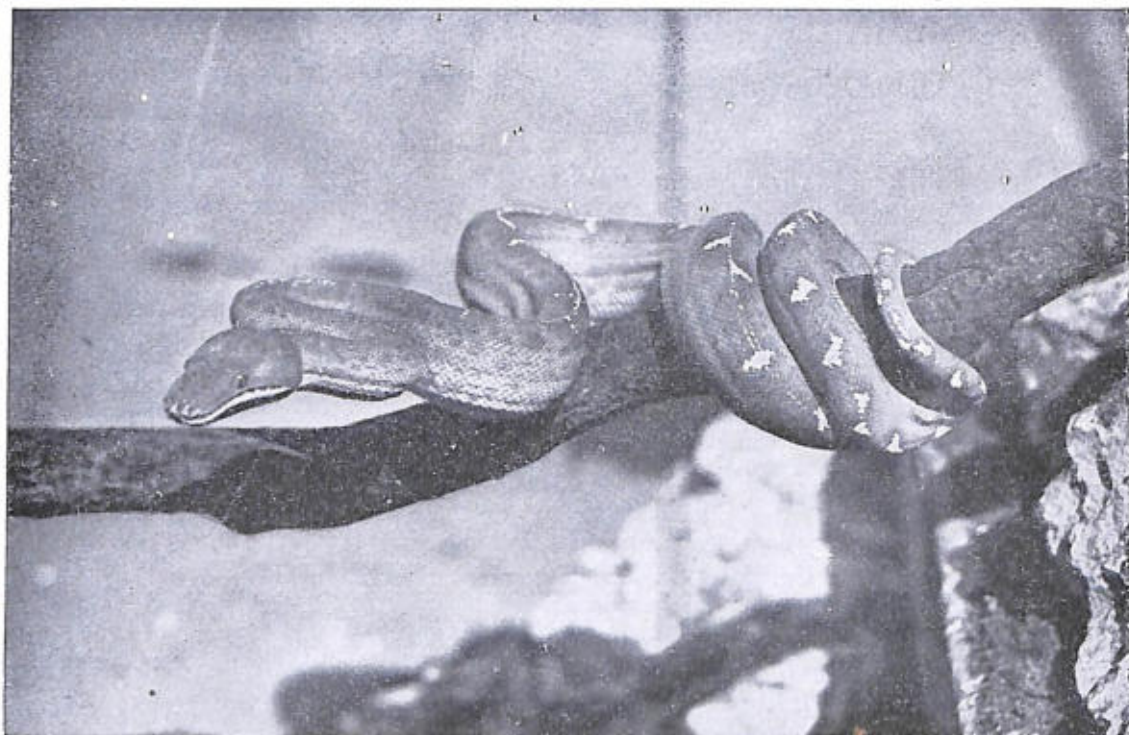
Another pretty little snake is Phillips's Thistle-tail. Hardly more than 6 ins. long, it is black with a regular pattern of minute,

white spots. Its name is derived from the presence of a pair of minute bristles like thistle-down at the extremity of the tail.

The Constricting Snakes—the Pythons and Boas—are to be found generally within the tropics. As a rule, subject however to one or two exceptions, the Pythons are confined to Asia, Africa and Australia, while the Boas inhabit the steamy forests of Tropical America.

The giants of the Snake family.

In spite of the great size to which some of these snakes grow they are really rather primitive. Like the little Burrowing Snakes of the preceding section, they still retain remnants of the hip-bones, and possess tiny claws near the root of the tail which are vestiges of hind limbs. They have not developed even the beginnings of a poison apparatus. But they include the giants among snakes. The Reticulated Python of Further India and Malay and the Anaconda—which is really a Water-Boa—of South America occasionally reach a length of 30 ft.,



AN AGILE CLIMBER.

[F. W. Bond

The Green Tree Boa harmonises in colour with its leafy surroundings. It is an adept at climbing and twisting itself round the branches of the trees, from which it launches swiftly at its prey before it can escape.

or even a little more, with a girth exceeding that of a man's thigh.

Naturally such huge snakes as these have been the subjects of many travellers' tales and fables. It is amusing to see how, as the tropics became better known, these stories became less and less incredible. In Roman times it was said of a monster serpent that it could strangle an elephant; a hundred years ago the natural history books told of the Great Hyboya of Ceylon which was able to swallow a buffalo whole. In this century exaggeration dare not go further than Anacondas of the Amazon, fifty feet in length.

The enemy of man.

According to the beliefs of a Burmese tribe, the Karens, the Python must have been the original Enemy of Man. In the beginning, they say, the python was entirely white. The first woman, whose name was Eve, was lured to the Serpent's lair and there compelled to weave for it a multi-coloured garment.

In actual fact, white Reticulated Pythons are not unknown. The London Zoo possessed

a specimen not long ago. They have occasionally been revered by uncivilised tribes, even to the extent of being provided with a temple and a priestess. It is possible that this version of the Eve myth just quoted is a tribal memory of some such albino snake.

Records of big snakes are often of doubtful authenticity, but several reticulated pythons more than 25 ft. in length by actual measurement are living in zoological gardens in Europe and America to-day. Probably the longest skin in any museum is that of an Anaconda in Butantan, Brazil, measuring 32 ft. 6 ins., but it is possible that this skin may have been stretched a little in the drying.

The size of an animal that these great snakes are capable of swallowing is another matter for popular exaggeration. Pythons in the Zoo are occasionally fed on sucking pigs and young goats; an Indian Python was known to eat a leopard measuring 4 ft. excluding the tail; in the writer's own experience an Imperial Boa, 11 ft. in length, was found comatose, digesting a young deer—without antlers. But the stories told of snakes devouring full-grown oxen are obviously absurd.

SNAKES

Digestion is not a very prolonged affair after these huge meals. A week or a little more appears to suffice to disintegrate the largest prey. Snakes are capable of very long fasts, and seem none the worse for them. "Praggers," the largest python in the London Zoo, was presented to the Zoological Society by the Prince of Wales in May, 1922. It resolutely refused the food offered it week by week until July, 1923, when it accepted a dead fowl from the keeper. Since then it has eaten fairly regularly, taking, on an average, two to four fowls every Friday.

The Snake's brood.

These snakes lay large clutches of eggs—forty is a usual number. Most snakes, having deposited their eggs in a hole in the ground, take no further interest in them, but pythons guard their eggs zealously. The female gathers her clutch into a pile and coils her body round them until they hatch. During this time there is a slight increase in the body temperature of the mother. This added heat no doubt assists in the incubation of the eggs,

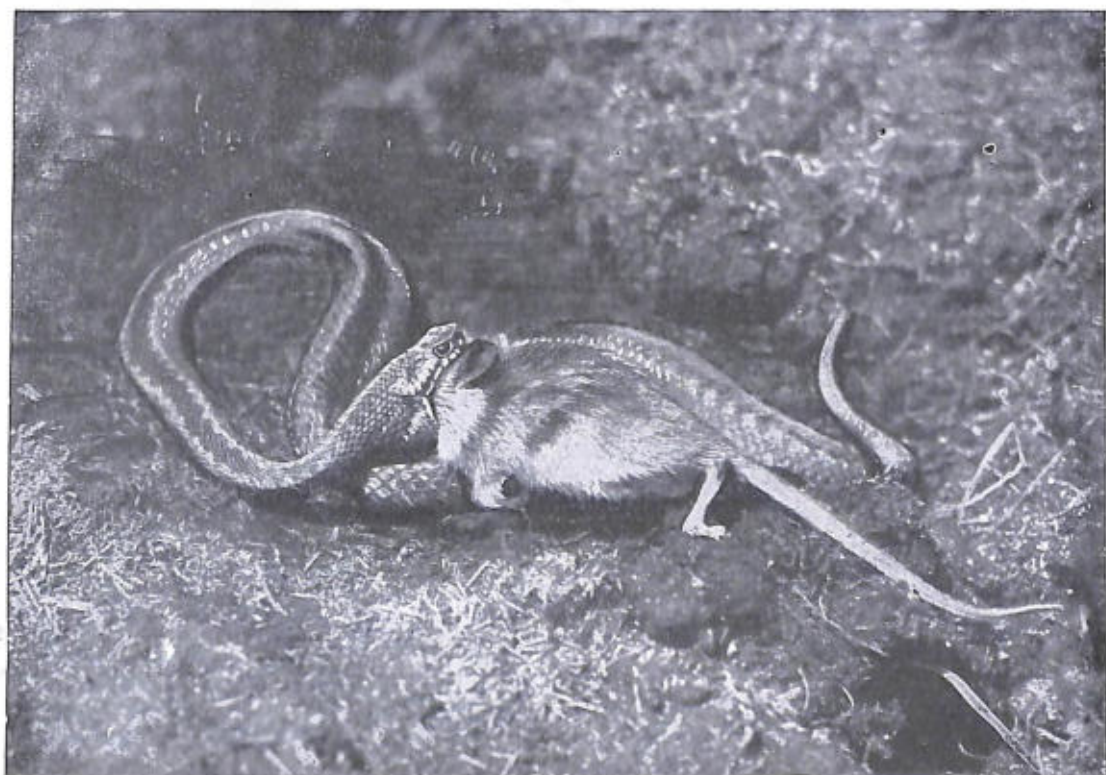
but they derive still more benefit from the care of the mother snake.

Not all the boas and pythons are gigantic. Next in size to the reticulated python and the anaconda are the Indian and the Common African Pythons. Neither of these kinds much exceeds 15 ft. in length.

The African species is being persecuted, perhaps more than any other snake, by the agents of leather merchants. Many thousands of their skins are imported into England every month. As a result of this these snakes are becoming scarce in many districts, and it is being realised too late that they have in the past done a great deal of good in checking the increase of rats.

The Diamond Python and the Carpet Python are varieties of the same species found in Australia. Specimens up to 6 ft. in length are common in zoological gardens. The Amethyst Python is another beautiful Australian snake.

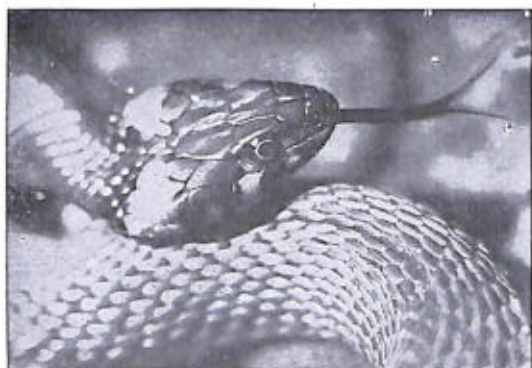
The Common Boa, or Boa Constrictor, is found on the east side of Tropical America. It is a harmless and beautiful snake, seldom



THE ADDER'S MEAL.

[Mondiale

Here is a remarkable picture of the Adder making short work of a rat. After killing its prey, the snake sprays the body with a kind of saliva to make the meal easier to swallow. Note the wide stretching of the hungry jaws.



[W. S. Berridge]

THE SNAKE'S FORKED TONGUE.

Though the Snake's tongue looks very dangerous it is not from this source that the poison is ejected, but from the fangs. The Snake above, however, is the non-venomous Grass Snake family.

exceeding 12 ft. in length. In many places its presence is encouraged in plantations and even in warehouses on account of its appetite for rats. On the west coast of America its place is taken by a very similar species, the Imperial Boa, and in the West Indies by the Antillean Boa.

The smaller Tree Boas are a distinct group of snakes characterised generally by their gorgeous colours. The most striking of these is the Green Tree Boa of North-West South America. Its ground colour is brilliant green, with a paper-white and canary-yellow pattern, but no description can do it justice. It is perhaps the most beautiful living snake, but, unfortunately, it does not thrive in captivity.

A rainbow in the trees.

Another beautiful species from the same locality is the Rainbow Tree Boa, whose livery is dark crimson and black. Sganzin's Tree Boa is more sombre in colour, being ash-grey with black reticulations. It is notable because of its habitat. While its relatives are all American, this snake is found in that home of zoological mysteries—Madagascar.

Instead of entering the world as eggs, like the typical Boas, Tree Boas make their first bow as active replicas of their parents. As soon as they are born they immediately fend for themselves by climbing into the trees to escape their numerous enemies on the ground.

The Fangless Typical Snakes, in which all the teeth are honest, without any groove or hollow to carry poison, comprise about one thousand species. Half a dozen of them, mostly inhabiting the rivers of South-Eastern

Asia, form a sub-group by themselves. These are the River Snakes.

They are rather eel-like creatures, and like the poisonous sea-snakes to be described later, their skin is granular instead of scaly. Most of their lives are spent in the water hunting for fish, though it is noticeable that those in the London Zoo drag their minnows ashore before they eat them. Their eyes and nostrils are situated high on their heads, so that they can see and breathe without exposing themselves above the surface of the water.

Egg-eating Snakes.

Another sub-group is occupied by a single species—the Egg-eating Snakes of South Africa. This remarkable snake possesses a strange anatomical development, unknown in any other animal, that enables it to crush eggs in the act of swallowing them. It is not a large snake, being only two or three feet in length with a moderate head, yet it is able to eat a pullet's egg comfortably. In order to accomplish this the vertebrae of the neck are provided with tooth-like processes which project into the gullet. A muscular contraction of the throat breaks the egg against these "teeth" and crushes it into a cigar-shaped mass. The contents of the egg pass into the stomach, and the shell is usually regurgitated later.

Most zoological gardens possess specimens of these snakes, but unfortunately they feed at night, so that the remarkable process is not often witnessed by visitors.

The remaining sub-group of fangless typical snakes includes a rather bewildering collection of land-snakes, water-snakes and tree-snakes, divided into about 150 genera. The European



AN EGG-Y MEAL. [F. W. Bond]

This egg-eating Snake, having just swallowed an egg, prepares to digest it. Usually it eats the eggs of small birds, but occasionally robs the hen-roost.



BRITAIN'S VENOMOUS SNAKE.

[Mondiale]

This clever and unique picture of an Adder swimming across a lake gives us an unusual glimpse of the only venomous snake in Great Britain. It feeds mainly on mice, lizards, young birds, newts and water voles.

Grass Snake is one of these. Although this pretty snake is well known to be harmless it is often killed in mistake for the Adder—the only poisonous British species. It can be distinguished from the Adder by the presence of a conspicuous yellow collar nearly encircling the neck, and by its slenderly tapering tail.

Snakes that bluff their enemies.

The average length of a Grass Snake is less than three feet, but much larger specimens occur occasionally. Adders, on the other hand, very seldom exceed two feet in length. Unlike the adder, which frequents dry heaths and commons, the grass snake is seldom seen far from water, and is fond of swimming. Its principal food is frogs. In late spring or early summer it lays from eight to ten soft-shelled eggs. These are often deposited in manure heaps, where the heat generated by fermentation hastens their incubation.

Grass Snakes never bite under any provocation, but many other harmless snakes do their best to bluff their enemies into the belief that they are poisonous. Indian Rat Snakes,

for example, rear their heads and strike like Cobras.

Other harmless snakes carry the deception still further. The North American Hog-nosed Snake, which possesses a fat, triangular head suggestive of the existence of poison glands, flattens its neck, opens its mouth and hisses when annoyed, so that nobody unacquainted with it would doubt that it was deadly.

Merrem's False Viper of Brazil even possesses large fangs which it can erect at will and which need a magnifying glass to detect their fraudulent character. Although this snake has been known for a long time the extraordinary venomless fangs were described only comparatively recently by Mr. E. G. Boulenger.

A primitive poison arrangement.

In this group the Poisonous Snakes have their beginning. The poison glands, which are situated far back in the mouth, are grooved in front to allow the venom to enter the puncture made by them. The venom, which is really specialised spittle, is manufactured in glands resembling salivary glands in mammals. It

SNAKES

flows from these glands along short ducts which open at the base of the fang. •

As will be seen, this is a much less perfect arrangement than that found in the more deadly snakes, such as the Cobras and Kraits. It is generally effective merely in paralysing small animals as they are being eaten. Only one of the Back-fanged Snakes has ever been proved to be seriously poisonous to man.

The Snake that matches the forest lianas.

This is the African Boomslang. It is a large and handsome tree-snake which for many years was thought by scientists to be comparatively harmless. But South African natives always regarded it as highly poisonous, and for once a popular prejudice proved to be correct. Several cases have been reported of Europeans narrowly escaping death after having been bitten by Boomslangs.

The most beautiful of the back-fanged snakes are undoubtedly tree-snakes. The Black and Gold Tree-Snake of Malaya, the Indian Emerald Tree-Snake, and the Pike-Headed Snakes of tropical America are examples of these. They are all very gorgeous snakes, but their vivid colours blend with the tones of the trees and their slender bodies so merge with the twigs and branches that they are often invisible to passers by.

There are two species of Pike-

Headed Snakes, each peculiar to a special type of country. One is bright green and typically inhabits leafy bushes in open woods, while the other is silvery brown to match the rope-like lianas of the forest depths where it makes its home. The latter snake is even marked in darker blotches exactly like the mottles on the bark of the lianas, and the resemblance is so complete that the natives have but one name—*bejuco*—for both liana and snake. It is always found motionless, looped among these aerial roots waiting patiently for passing lizards, and it is a real tree snake, in that it seldom, if ever, descends to earth. Its perfect camouflage hides it from its unsuspecting prey.

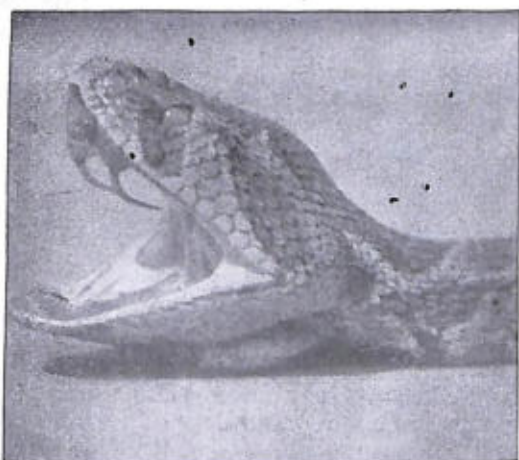
The Front-fanged Snakes include all the really deadly typical snakes—the Cobras and Kraits, the Copperheads and Coral Snakes. In them the poison glands are large and the fangs are situated well towards the front of the mouth where they can best reach an enemy as the snake strikes. These fangs are more fiendishly perfect than those of the Back-fanged Snakes, for the groove that conducts the venom is converted into a



HYPNOTISING ITS PREY.

[E.N.A.]

This amazing photograph, taken in South America, was obtained accidentally, the creatures both being alive and the picture not posed. It shows a frog completely fascinated by a snake and unable to dash to safety.



DEADLY FANGS. [W. S. Berridge]

Here is the deadly Puff Adder showing its poisonous fangs. This venomous snake is said to cause many deaths both to natives and animals.

tube. Thus the teeth become hypodermic syringes to carry the poison right to the depth of the punctures.

The Sea-Snakes which abound in most tropical waters are really sea-cobras. They are all highly poisonous, though, weight for weight, their venom is much more deadly to fish than to man. There are many species of these snakes, but they are all alike in possessing laterally flattened tails which serve as fins, and—like the River Snakes—a granular rather than a scaly skin. Black and vivid yellow are the colours found on the most common species.

The Sea-Snake's deadly bite.

The only case of poisoning by a Sea-Snake that the writer has met was that of a fishing Indian, who was bitten by what his companions described as a black and yellow eel while they were fishing from a sea-going raft. The victim died half an hour after the catch of fish was landed, and probably about four hours after having been bitten.

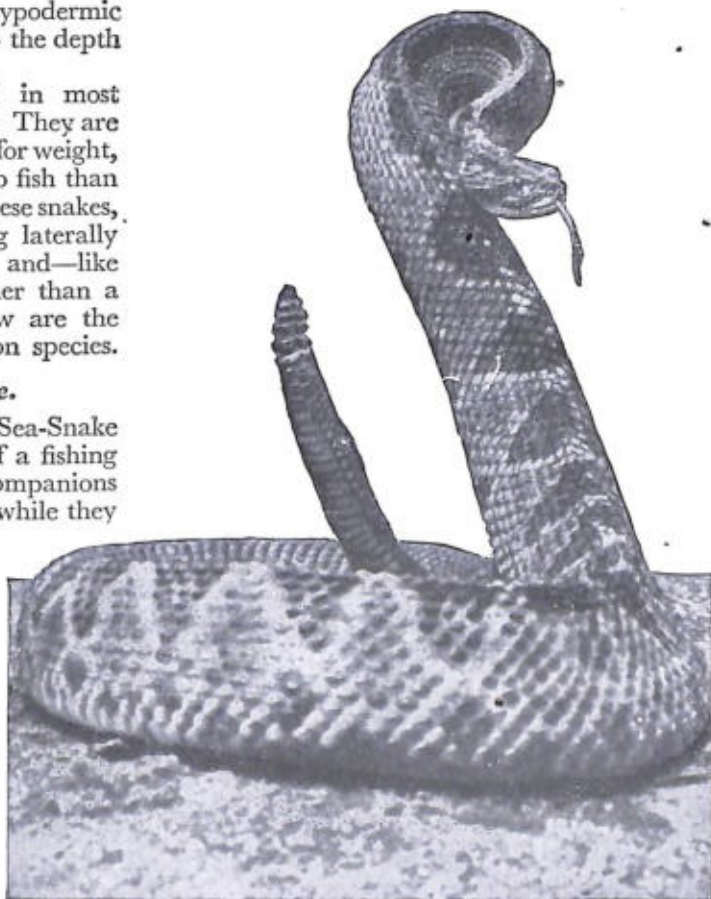
The remainder of the front-fanged snakes are all included in the family to which the cobras belong. They are found in every continent except Europe, and they probably account for the great majority of deaths from snake-bite. In India particularly the mortality from this cause is very high. It has been estimated (though it must be admitted on very vague grounds)

that 29,000 deaths occur annually from snake-bite in that country. Probably most of those deaths are due to cobras.

The most dreadful of all the cobras is the Hamadryad or King Cobra. This creature is the largest of the poisonous snakes, fourteen feet being a common length for large specimens. Perhaps the biggest Hamadryad ever seen in captivity was one in the possession of the London Zoo some years ago which taped sixteen feet three inches by actual measurement.

The Snake that rises to fight.

The quantity of venom that can be injected into a bite by these snakes is enormous, and they attack and strike under the least provocation. Happily, Hamadryads are nowhere common, and appear to be becoming rarer. They are not beautiful snakes, being dull yellow or brown with only indistinct markings, but when they assume their threatening attitude



THE RATTLESNAKE IN ACTION. [L.N.A.]

This extraordinary photograph shows the Rattlesnake in a threatening pose. Though very decorative, it is a stealthy and repulsive reptile.

with spread hood and perhaps five feet of their length raised perpendicularly above their coils they are imposing and awe-inspiring.

The Indian Cobra is found throughout South-Eastern Asia generally. In different parts of its range many varieties are found differing both in colour and in habits. Entirely black specimens are found in the Malay Peninsula. In India the variety with only one "eye" on the hood inhabits marshes, while the Spectacled Cobra is often found around houses. Although they are deadly snakes they are by no means fierce, and natives encourage them by placing saucers of milk in their haunts so that they may rid their houses of rats.

How a Cobra shielded a sleeping god.

In certain parts of India they are venerated. The reason for this is said to be that once a cobra spread its hood to shield a sleeping god from the sun's rays. The "spectacles" are the imprints of the divine fingers placed in benediction on the snake's hood.

Cobras are, of course, the snakes most commonly used for "snake charming" as seen in the East. There is nothing mysterious about these performances in which a basketful of snakes are put through their paces. They are a compound of skilful handling and showmanship. The adepts know that their snakes will react in certain ways, rearing when teased, swaying their heads from side to side in time with the rhythmic movements of the charmer's body and falling to earth at the presence of a rod on the nape of the neck. The effect on the audience is heightened by music and the performance is called the Dance of the Cobras. Actually, the snakes are probably quite deaf to the sound of the pipe and its use is really in the nature of a deception. The belief, however, that snakes respond to musical sounds is ancient and widespread.

"The deaf adder that stoppeth her ear; which will not hearken to the voice of the



A DEADLY BATTLE.

[E.N.A.]

This unique picture shows the death struggle between a non-poisonous but immensely muscular *Mussurana* serpent and a *Jararaca*, one of the most venomous of snakes. The former won after a desperate fight.



THE INDIAN COBRA. [F. W. Bond

This underside view of the Indian Cobra shows the peculiar markings on its neck. This reptile, whose bite is poisonous, builds a nest of dried leaves and watches carefully over its eggs till they are hatched.

charmers" was considered an exception by the Psalmist. Pliny and Seneca believed that snakes could be drawn away from their lairs by the seductive power of music. The following story dating from the beginning of last century may be cited as a highly-coloured example of the popular belief, although it deals not with cobras but with rattlesnakes.

How music charmed the Rattlesnake.

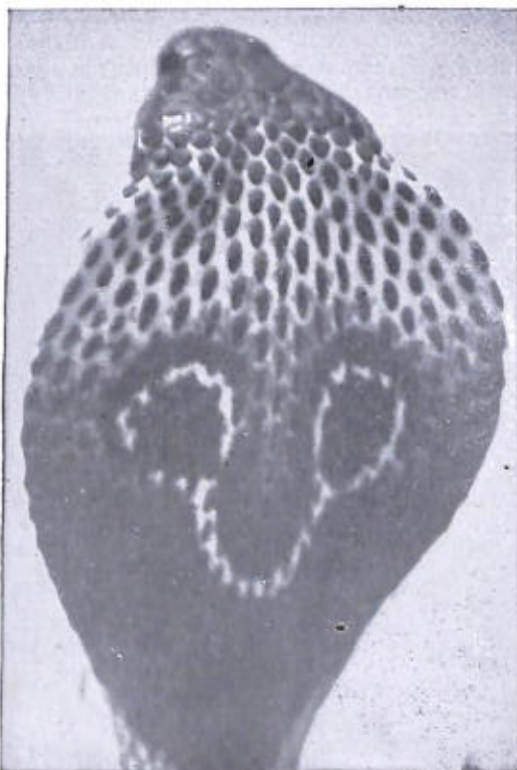
When Chateaubriand was in Canada a rattlesnake entered his encampment, "the haughty reptile curled himself into a spiral line, flattened his head, inflated his cheeks, contracted his lips, displayed his envenomed fangs, and his bloody throat; his double tongue glowed like two flames of fire; his eyes were burning coals; his body, swollen with rage, rose and fell like the bellows of a forge; his dilated skin assumed a dull and scaly appearance, and his tail, which sounded the denunciation of death, vibrated with so great rapidity as to resemble a light vapour. A Canadian now began to play upon a flute; the serpent started with surprise, and drew back his head. In proportion as he was struck with the magic effect, his eyes lost their fierceness,

the oscillations of his tail became slower and slower, and the sound which it emitted became weaker, till it gradually died away. Less perpendicular upon their spiral line, the rings of the fascinated serpent were by degrees expanded, and sunk one after another upon the ground in concentric circles. The shades of azure, green, white and gold recovered their brilliancy on his quivering skin, and slightly turning his head, he remained quite motionless in the attitude of attention and pleasure.

Removing the fangs.

"At this moment the Canadian advanced a few steps, producing with his flute sweet and simple notes. The reptile, inclining his variegated neck, opened a passage with his head through the high grass, and began to creep after the musician, stopping when he stopped, and beginning to follow him again as soon as he moved forward."

Probably all accounts of snakes' amazingly keen appreciation of music are derived from the same source as this one—the imagination.



[F. W. Bond

A SPECTACLED SNAKE.

Here is a view of the Indian Cobra's "spectacles." This black snake, though handsome, is very venomous, and is best admired from a distance.

SNAKES



A SNAKY COURTSHIP.

[F. W. Bond]

In the photograph above, a pair of Vipers in a loving mood are seen basking side by side. They chase and twist round each other in such amazing convolutions that they become—as it seems—inextricably entangled.



THE VENOMOUS COBRA.

[E.N.A.]

A deadly Indian snake is the Cobra, which feeds largely on other snakes, varying its diet with birds' eggs and small mammals. When angry or excited it has the power of dilating its neck into a kind of hood.

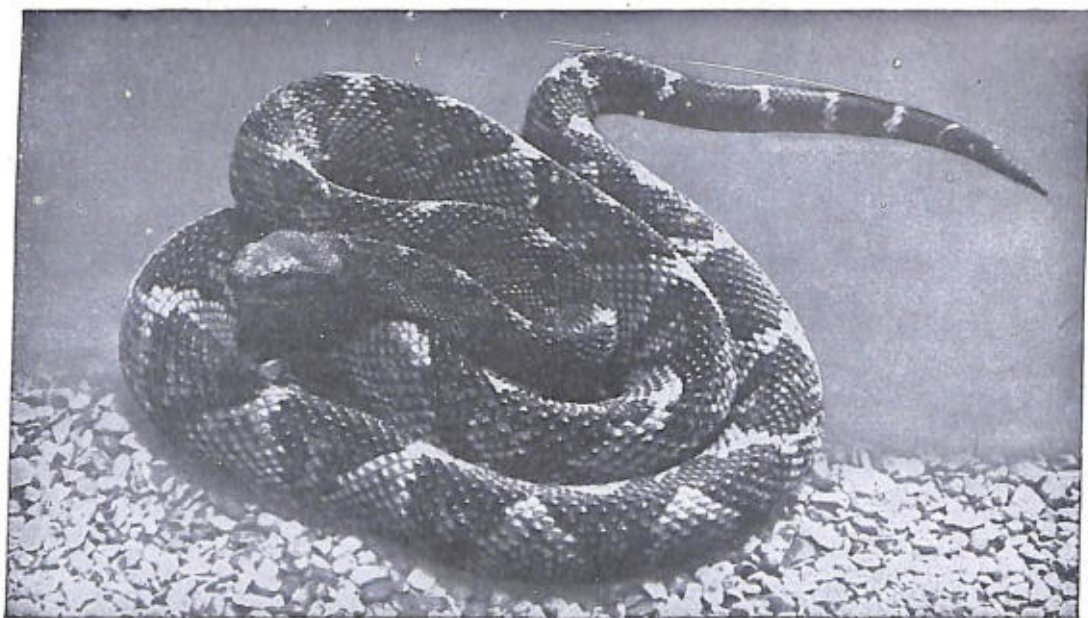


THE POWER OF MUSIC.

[Mondiale

The Indian snake charmer has methods of his own whereby the deadly Cobra is lured into ecstasy. By the notes of his curious wind instrument this modern Pied Piper entices his charges to perform reptilian dances.

SNAKES



THE BUSHMASTER.

[F. W. Bond]

This South American snake, the Bushmaster, reaching a length of from nine to twelve feet, is exceedingly venomous and adopts a fierce and aggressive attitude to intruders. It is without a "rattle" on its tail.

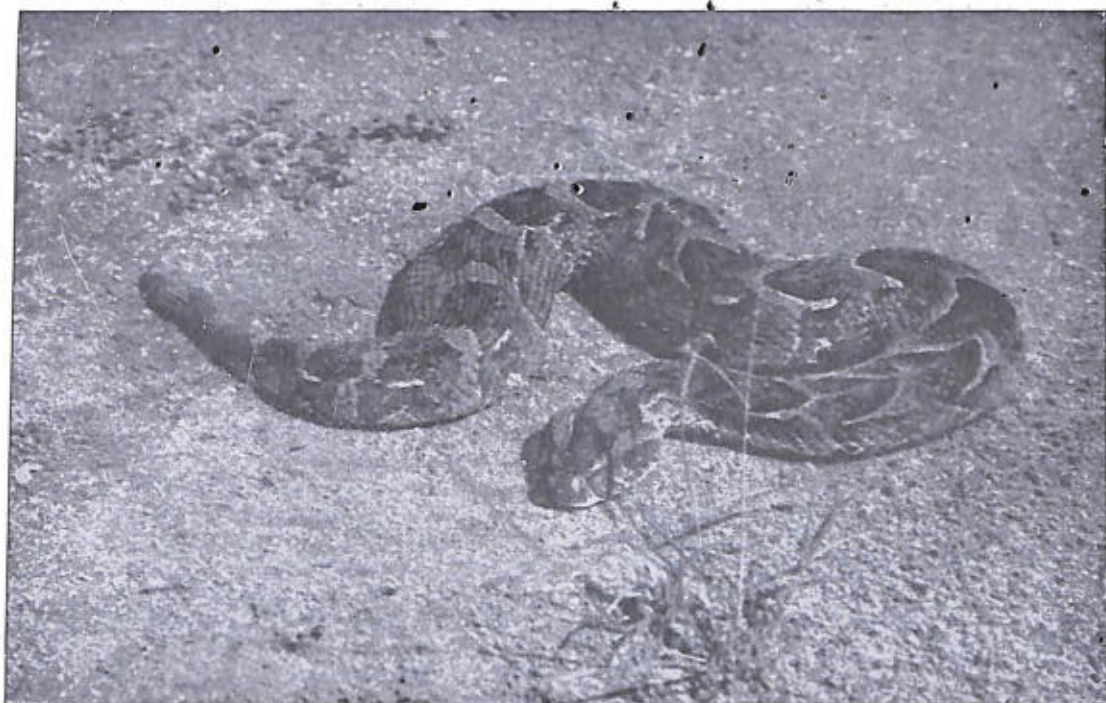


A HARMLESS SNAKE.

[Mondiale]

The Grass Snake, found in Great Britain, is non-venomous, feeding chiefly on frogs and fish. It is olive-brown in colour with a bright yellow collar encircling its neck, and averages four feet in length.

SNAKES



THE PUFF ADDER.

[Mondiale]

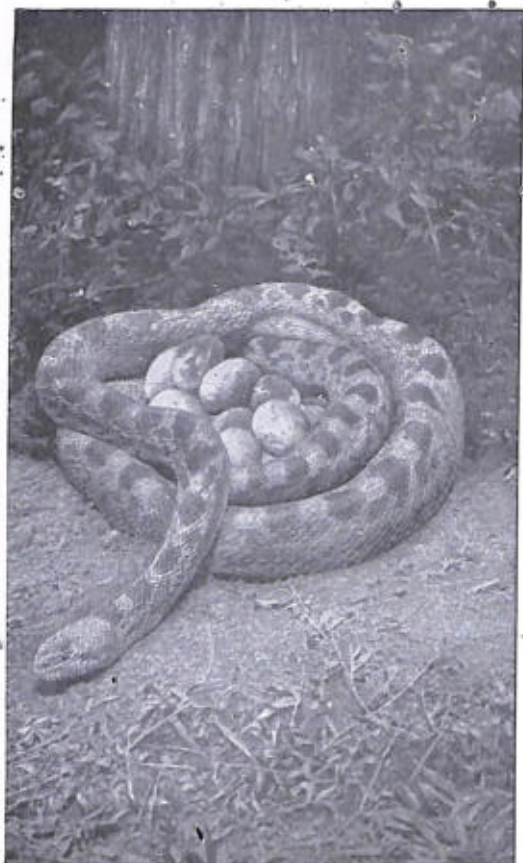
One of the most deadly of African snakes is the Puff Adder, which emerges at night to hunt small mammals.



A NEW DRESS.

[Mondiale]

The male Adder has just discarded his old skin and appears fresh and vigorous in his glittering new garb.



THE PINE-SNAKE. [E.N.A.]

"Btill-snake" is a popular name in U.S.A. for the Pine-snake. This serpent hisses loudly if disturbed, but is of a mild and harmless disposition, and is non-poisonous. It is seen above guarding its nest.

In present day "snake charming" the poison fangs of the snakes employed are occasionally extracted. This is sometimes done by allowing the snake to strike at a cloth which is quickly snatched away so that the delicate teeth are broken off at their roots. But the removal of the fangs is not to be relied on to render the snake innocuous. Apart from the fact that the venom, which still enters the animal's mouth, may infect scratches produced by the solid teeth, the poison fangs themselves are capable of being reproduced in less than a fortnight.

How snake charmers preserve against venom.

In other cases crude attempts are made to occlude the poison ducts by searing them with a hot iron, while some unfortunate cobras which were brought to England some years ago for an exhibition were found to have had their lips sewed together as a precaution.

But Indian snake charmers who treat their profession seriously would not deign to adopt such methods. In certain families where the art is hereditary its members are inoculated in infancy with minute doses of the venom to render them immune—a secret rite which must surely result in many fatalities. It is said that certain African natives acquire immunity—real or fancied—after taking a course of venom in increasing doses by mouth.

In other cases in India reliance is placed in cabalistic tattoo marks, usually on the little finger and forearm, in incantations or in "snake stones." These "stones" are occasionally lumps of porous black lava, but more often they are pieces of charred bone or even beans from a particular plant. In use they are applied to the punctures caused by the fangs, to which they adhere, and are supposed to draw out the venom from the wound. It is probable that the natives who rely on these methods have acquired a certain amount of immunity to cobra venom in the past practice of their art.

Reptiles that resemble jewels.

The Front-fanged Snakes of the American Continent are the Coral Snakes. They are all remarkably lovely reptiles with patterns suggesting rings of polished jet alternating with red and white coral; but they are deadly enough to suggest Borgia jewels. Fortunately they are for the most part small snakes, two feet or three feet in length, with small heads, so that they are seldom able to employ their venom on human beings. They are, too, remarkably docile. A Peruvian schoolmaster of the writer's acquaintance, believing them harmless, used to keep two in his desk, allowing them



AT WAR. [F. W. Bond]

Here are a Grass Snake and a Viper having a stirring fight. The former is winning the battle and is seen in the act of swallowing the Viper.

to crawl round his penholders. They appeared to like being handled and never bit him. He could not be induced to give up his dangerous pets until he witnessed the fate of a lizard given them for food. The unfortunate animal's death was as sudden as though it had been struck by lightning.

These snakes are not only highly venomous, but they are well equipped to inflict their bites on relatively large animals. The fangs are so long that, were they always in position the snake would be unable to feed or even close its mouth. When they are at rest, however, they lie backwards in the mouth. When the snake is disturbed and strikes they hinge forward through nearly two right angles till they are erect in the very front of the jaws. It is a fiendishly perfect mechanism for its deadly purpose.

Cleopatra's "Asp" was a Horned Viper.

The Vipers proper are confined to the Old World. The common British Adder, the Northern Viper, is the familiar example. Happily British specimens are not very poisonous; their bite is only sufficient to incapacitate



THE DEATH KISS.

[Mondiale]

This is a very tense moment in the snake charmer's display, for, should her power fail her and the Hamadryad strike, death would be the result. This daring act requires a great deal of nerve.

a healthy adult for a few days and fatalities are almost unknown. The continental varieties are, however, much more venomous.

The Asp, traditionally accountable for the death of Cleopatra, is supposed to have been the Horned Viper common in Eastern Mediterranean countries. It is a repulsive little snake characterised by a fleshy, horn-like protuberance on the snout. It inhabits desert countries where it is in the habit of basking in the hot sand with its dun-coloured body just below the surface, only the "horn" and pair of evil eyes showing. Another peculiarity of this viper is that its tail is very distinct from its body.

The African Puff Adder is one of the most deadly of the Vipers. It is a comparatively large snake, sometimes exceeding four feet in length, with a fat body and very short tail, but its habits are much the same as those of the preceding species.

Russell's Viper is perhaps the most dreaded of the Indian snakes, for it is not only deadly,



CHARMING A COBRA.

[Mondiale]

It is amazing what power skilful snake charmers can exercise over a snake once it is under their control. This girl is demonstrating her power over the Hamadryad, one of the deadliest of the Snakes.

but very fierce. It is found in Ceylon, Burma and Siam as well as in India. Native snake charmers who handle cobras unconcernedly fear the "tic polonga" too much to include it in their stock-in-trade.

Suitably housed behind thick plate glass they take kindly to captivity and well repay observation. A pair at the London Zoo have produced successive broods of young for several years.

The Pit Vipers are distinguished from Vipers proper by the presence of a pit or depression situated between the eye and the nostrils. What the function of this pit may be no one knows, but it is possibly some kind of sense organ.

The Rattlesnakes are probably the best known of these. The rattle consists of a number of horny buttons on the extremity of the tail which can be vibrated rapidly, producing a surprisingly loud sound. Usually when the rattler sloughs its skin one button is added to the rattle, and as this happens on an average three times a year an estimate of the snake's age can be made by counting the buttons. But when the length of the rattle becomes unwieldy it may be shed, so that the method is not infallible.

The Fer-de-Lance of South America is practically a rattlesnake without a rattle. The

tip of the tail is adorned with a single horny spike which, when the tail is vibrated, produces a rattling sound against dead leaves or whatever may be beneath it. This species is common in Brazil. Though not large, it is one of the most dreaded of the rattlesnakes, with a bite that is nearly always fatal to its victims.

The most potent poison.

One species—the Island Fer-de-Lance—possesses the most virulent venom that has been subjected to experiment. The snake inhabits a small island off the coast of Brazil where the only food is small sparrows. In order to kill these it has to possess a poison so potent that a bird, once bitten, will fall near enough to be recovered. The strength of venom is measured by determining the smallest quantity which, injected into the vein of a pigeon, will cause death. In this case four-thousandths of a milligram of the dried substance is the lethal dose—a quantity so small that it can be measured only by the most delicate balances.

That the potency of the venom is relative to the activity of the snake's prey is evidenced by another Fer-de-Lance known as the Jararaca. This species feeds on frogs, which are more easily gripped. The potency of its venom measured in the same way is represented by the figure seven-hundredths of a milligram.



LIZARD OR SNAKE?

The Slow Worm, snake-like as he seems when wriggling through the tangled grass on a sunny bank, is not really a snake, but a lizard who has lost his legs. Also called the Blind Worm, he is common in Br. in.

[Mondiale]

