

Animals of Central Asia

Written and illustrated by

**EDWARD
OSMOND**



ABELARD-SCHUMAN

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1

Central Asia

Where would you go if you wanted to explore new lands—to find unknown, untrodden country?

There is not much of our planet left to be discovered, and explorers are being forced to take to their spacecraft to reach new lands. One part of the world, however, that is still almost unknown and unmapped, is the high plateau of Tibet in Central Asia and the confusion of mountains, deserts and grasslands to the north of it.

Wandering herdsmen take their flocks of sheep and herds of yaks to the moorlands of Tibet at certain seasons to crop the wiry grass. But nearly all of that country is too high and too dry for cultivation. Yak hunters go to the most barren, northern regions only in the summer, and in the winter the wild animals have it all to themselves.

On those bleak heights the visiting herdsmen build walls, to break the murderous upland winds, around their black yak-hair tents, or even dig pits, seven or eight feet deep, in which

to pitch these tents. Roads are mere paths, and anyone venturing into that lonely desolation is entirely on his own. There are no buses or trains to help him on his way, no hotels, no post offices or telephones—just hundreds of miles of treeless moorlands—bare rock, thin turf—broken only occasionally by mountain ridges or grassy valleys.

These cold, dry uplands of Tibet are separated from the hot plains of India by the vast rock rampart of the Himalayan mountain range. Barely a hundred miles of colossal mountains separate the two lands, yet climatically they are a whole continent apart. It is this gigantic wall of mountains that largely dictates the climate of Tibet and the rest of Central Asia farther to the north, and with it the character of its animal and human inhabitants.

The southern limit of the Tibetan plateau is marked by the Himalayas, the highest mountain range in the world. From a huge central mass of mountains called the Pamirs, the “Roof of the World,” a series of mountain ranges radiate. From south to north are the Himalayas, the Hindu Kush and the Karakoram range, the Altyn Tagh, which continue into the Nan Shan range, the Alai mountains, and the Tien Shan. Farther north still lie the Altai, Tanu Ola and Sayan mountains, and there are many minor ranges in between.

The world’s “roof” dips down steeply in the south, but away to the north it slopes very gradually downward in a series of broad steps. To the south lie the lowlands of India—dried up and sunscorched in the dry season, and steaming and sultry when the monsoon winds bring drenching rain from the ocean. These wet winds are halted by the wall of the Himalayas; so most of the lands to the north of the Himalayas are dry, ranging from moorland and grassy steppe to true,

arid desert. It is only at the extreme east of the Himalayas, where the mountains break up into a series of ranges running north and south, that the wet winds can penetrate. There, in the extreme south-east of Tibet and western China, they bring sufficient rain to produce dense forest.

Conditions in Tibet are very similar to those in the Arctic Tundra much farther to the north; but in Tibet it is high altitude, not high latitude, that causes the harsh, inhospitable climate. The average height of the plateau is about 15,500 feet, and at that great height—three miles up—one would normally expect to find the ground covered with wide snowfields and glaciers. But the rainfall, or rather snowfall, is so slight that much of the land is clear of snow all the year round; and surprisingly enough most of the snowfall comes in the summer.

In the northern region of Tibet—the highest part—even the valleys do not drop below a height of 16,000 feet, whereas the summit of Mont Blanc, the highest peak in Europe, is only 15,780 feet above sea level. This gives some idea of the enormous height of that bleak land.

The summer sun can be uncomfortably hot in Tibet; but for most of the year the bitter winds, which range across the land, make the life of its inhabitants, both human and animal, extremely hard. There are no trees to break the wind's force, and no escape from its incessant raging.

The nights are usually bitterly cold, with severe frost, even in summer time. The difference between the heat of the day in summer and the cold of the following night can be as much as 90 degrees Fahrenheit. In winter, day and night temperatures are more equable, which is less unbearable in some ways, although the cold is intense.

The plateau of Tibet is the highest and most remarkable plateau in Central Asia—indeed, in the world—but it is not the only one. In fact the whole of the land to the north—from Turkestan in the west, through Sinkiang to Mongolia in the east—is composed of a series of plateaus, mainly decreasing in height towards the north, forming a flight of huge, low stairs. These wide land-shelves are crossed, as Tibet is also, by ranges of mountains and by valleys, some of them like canyons; and there are gigantic flanking ranges defining the edges of the steps, where the land drops away to the next plateau below.

In the comparatively level plateau lands which are enclosed by these mountain ranges, the country is remarkable for its monotonous sameness over vast areas. The same climate, scenery, plants and animals are found over thousands of miles, the same shallow valleys, the same bitter winds, the same sparse grass, the same absence of cultivated fields.

Many of the animals of Central Asia have an exceptionally extended range, for the conditions and food plants on which they depend are found, without interruption, over vast areas of country.

For the furred animals (mammals) the Himalayan range forms a firm frontier between two distinct faunas. Those of the Tibetan plateau have their relatives to the north, not to the south. Antelopes, sheep, rodents and many more creatures of the plateau resemble those living on the steppes and mountains farther north, not those in India to the south.

At either end of the main Himalayan chain, there is a merging of the populations, but where the mountains are

massive and continuous there is practically no mingling of the species.

On the Chinese frontier in the east, where the numerous great rivers run north and south, carving deep valleys through the mountains, there is continuous jungle forest right into the heart of the continent. This permits the northern and southern species of animals to link up. We shall see how the monkey population of the south has invaded eastern Tibet, and the tigers of Siberia and China have spread down into lowland India. This north-south traffic has been possible at the eastern end of the Himalayas.

It is the same in the extreme west, though the climate there is very different. At that end of the Himalayas, the dry hills of Kashmir rise gradually to the great heights of Ladakh and the the Hindu Kush. Here we find, not jungle animals, but more of the desert species, mingling across the mountains where the gradients are more gentle. The wild asses of the deserts of western Pakistan and Baluchistan, for instance, are closely related to those in Tibet, and the Chinkara gazelles of the desert country of north-west India and Baluchistan are very similar to those of Central Asia farther north. But along the 1,200 miles of vast unbroken mountains there seems to have been no movement of mammals for countless centuries.

Whether it is the actual altitude of the mountain barrier that has kept the species apart, or the very different conditions to north and south of the mountains, or the snow that fills the high passes, forming a region that provides no nourishment to a would-be immigrant, is not certain.

Probably all these factors have combined to prevent any north-south traffic among the land-bound animals.

There are a few exceptions to this rule. For instance, there

is a goat-like animal called the *tahr* which lives among the steepest crags and precipices of the Himalayas. The same type of country is found far away in the Nilgiri Hills in the extreme south of India, and there a slightly larger race of tahr—very closely related to those of the Himalayas—is found.

Far back in prehistoric times, these goats must have found the temperate climatic conditions they require right across the land from the north to the south. Then a slow change took place. The climate grew hotter, and the prehistoric tahr could not endure the lowland heat any more than its descendants can today, so it was forced towards the mountains. In this movement, the tahr population split up, some moving to the north, to the Himalayas, others into the mountains of southern India. Eventually the hot lowlands lay, impassable as a wide sea, between the northern and the southern branches of the tahr population.

Birds are, by their nature, much freer in movement than the mammals. They live in a three-dimensional world and mere height does not affect them.

Someone taking a photograph in the Himalayas for scientific purposes found, quite by accident, that he had photographed some geese in flight over the mountains. He was able to calculate their height, which was about 29,000 feet, almost five and a half miles, above sea level. They were probably on a migration flight, and one end of their journey would have been down in the Ganges valley not far above sea level. If we, who are mere mammals, underwent a sudden change of altitude from near sea level to anything approaching that height, we should certainly be laid low by mountain sickness, and be quite incapable of any physical exertion for a considerable time.

Numerous species of birds migrate every year from the high plateau where they spend the summer—their breeding season—to lowland India where they winter, in the same way that other species migrate from the tropics to breed in the Arctic tundra. The two types of migration are really very similar, for in Tibet, in the summer, conditions are practically the same as those in the Arctic.

To take an example, the grey plover, in making a journey every year from the Gulf Coast of North America to some place within the Arctic circle travels well over 2,000 miles. The demoiselle crane, on the other hand, flying from its winter quarters in the north of India over the Himalayas to



Demoiselle crane on migration

its breeding grounds farther north, has already reached those same arctic conditions after a journey of some 200 miles. At the same time the crane has risen over three miles vertically, and it is by dint of this vertical rise that the bird achieves this change of conditions.

The sequence of vegetation seen on a long journey from the equator to the poles is largely repeated in miniature as one ascends a high mountain. At its base there may be tropical jungle forest, but as we ascend this forest changes its character. Broad-leaved evergreens give place to oaks and walnuts, then pines, followed by birch. After that the trees thin out and disappear—this is known as the tree line. There is a tree line in the arctic regions also, where the climate becomes too cold for trees to grow.

Above the tree line there is grass, which decreases as the lichens increase. Then, if the mountain is high enough, there is a region of eternal snow, corresponding with the snow-caps at the north and south poles. This begins at the snow line.

Each of these zones of vegetation on a mountain has a distinct population of animals, just as the corresponding geographic regions of the world do.

In Tibet practically the whole of the country is above the tree line. One would normally expect it to be above the the snow line, too, and covered with perpetual snow and ice. The snow line in the Swiss Alps is at about 9,000 feet, in winter the snow covers the mountains to a much lower level, but above that the snow never melts, even in summer. In Tibet the land up to about 19,000 feet is free from snow. The dryness of the climate together with its position closer to the equator make the snow line there very much higher.

North of Tibet the various plateaus are not as high and, although they are farther from the equator and might be expected to have colder climates, the conditions there—though certainly harsh enough—are less arctic than in Tibet. The reason for this is that the lower altitude reduces the harshness of the climate. It is only much farther north, in the north of Siberia, that such arctic conditions exist—this is the true Arctic tundra itself.

The lands between Tibet and the northern limits of Central Asia are part forest, part desert and part bare, grassy steppe-land. The forest regions are mainly in the north and east, especially in mountainous areas. In the very heart of Asia, the largest land-mass in the world, are the regions of the desert. Here the moisture-bearing winds cannot penetrate, and the rainfall is so slight that we find trackless wastes of sand and rock, broken only here and there by salt marshes supporting a thin sprinkling of tamarisk shrubs, with, very occasionally, a green oasis. The main area of true desert is the Gobi Desert.

This desert region has become more arid and barren in the past few centuries, as the climate of the region has become drier than previously—a process that seems to be continuing even today. The world's climate is never static and, though its changes are extremely slow, the recent events are recorded in history, and the earlier ones can be discovered by archeologists.

Between the two extremes of dense forest and lifeless desert, there are vast areas too dry for forests, but not too dry for grass: these are steppes. The steppes range from semi-desert to rich, grassy prairie land—monotonous treeless plains, the home of nomadic herdsmen with their flocks of sheep and ponies, the

home, also, of many birds and mammals of exceptional interest.

These wild inhabitants of the steppes, forests and desert, and of the great heights, are the main subjects of this book.

2

Yaks

The people of the high plateau of Tibet feel a deep pity for all Europeans and Americans who have no yaks, for they cannot believe that a good life can be possible without these great, solemn beasts.

Certainly they themselves would be in sad straits without their yaks, which provide them with meat, milk, transport, fuel, tent-cloth—in fact, almost everything they need.

The yak is a great, lumbering animal. With its head held low on massive, high shoulders, and its short, stout legs, the yak might be chosen by artists to typify ponderous strength. Its head is long and has a flat forehead which gives its whole face a caved-in, mournful expression—an expression exaggerated by the very high-set eyes. Its hoofs are large and round, and set on very short pasterns, while its horns—large in the bulls, but smaller in the cows—sweep out sideways from its head, then turn upward and forward.

However, the most striking characteristic of the yak at first sight is its long coat. Short and smooth on the shoulders, back,

and most of the head, the coat is very long, dense and shaggy below a line running about halfway down the flanks. In winter each hair in this great, tousled fringe is about two feet long. It extends from the tail right along to the throat, and the animal's legs are practically lost from sight. There is a particularly thick tuft on the throat, and another on the tail.

Yak's tails are used as ornaments in Tibet; they float from high poles in front of the entrances to the monasteries—Tibet contains many Buddhist monasteries—and also from the tall tent poles of many wealthy nomads. Yak's tails are also exported to India where they are used as fly whisks known as *chowris*. The white ones are the most valued for this purpose.

If you see one of these white *chowris*, or photographs of yaks other than black, you may be sure they are from domesticated animals, bred and owned by the Tibetans or some nearby people. They may be roan, roan and white, or even pure white, or they may have white patches on a coat of the normal black; these are variations due to domestication and a great deal of cross-breeding with ordinary cattle over the past centuries.

These cross-bred yaks are rather small and sometimes hornless, and can exist at lower altitudes than the pure-bred animals. They are better able to endure the heat of the lower slopes of the mountains, for instance the valley of Kashmir. Pure-bred yaks are kept by some of the Tartar tribes of the country to the north of Kashmir. Compared with the smaller, domestic animals, these great beasts are very wild and unruly.

These pure-bred animals are large and dark like the truly wild yaks which still exist in the more remote areas of Tibet and the surrounding mountains. Wild yaks are of a brownish-black all over, sometimes showing rust patches on their flanks

and backs, as though their coats had been scorched. When they grow very old, they may turn grey on the head and neck, but this is not at all like the piebald blotching seen in the domestic breed.

The wild bulls are magnificent animals, sometimes standing a full six feet at the shoulder; their great horns may reach a length of thirty inches when measured along the curve. The full-grown bulls either lead a solitary life, or gather in groups of three or four, and seem to remain in the same locality year in and year out. They will climb to the top of some enormous rock, where they have a good view of the surrounding country, and lie there for hours at a time, knowing that they will from there have a warning of the approach of danger.

Cow yaks move about a great deal more than the bulls, and probably make regular annual migrations. They congregate in herds of up to a hundred, which include calves and the young, immature bulls.

The yak is sometimes called the "grunting ox," the reason being that the only sound it makes is a grunt, very much like that of a pig.

Yaks dislike heat but can endure intense cold. They cannot be taken below a height of 7,000 feet on the southern side of the Himalayas, since the humid heat there is too much for them. But they thrive on the cold, dry plateau land at 14,000 to 20,000 feet above sea level. They will lie from choice on the ice of the glaciers, and wallow in the ice-cold water that melts from them, and their long, dense coats make them quite impervious to the cruel mountain winds.

Their food consists mainly of the dry, wiry grass that grows in those lofty regions. The wild yaks crop it at night and again early in the morning, then they move higher up the mountains

to rest and chew the cud among the bare rocks. In winter, they do not descend to lower altitudes, as many mountain animals do, but seek out those places where the raging winds have cleared the ground of snow, for there they can find their food exposed. In the worst weather, they eke out a livelihood by licking the lichens from the rocks; but in especially severe winters many die of starvation; or, weak with hunger, fall victim to wild dogs or wolves.

Yaks surpass even mules in their supreme sense of balance and their sure-footedness. Yak calves are amazingly agile and nimble. They gambol like lambs, and climb and romp among the rocks—the more steep and hazardous their playground, the happier they are. This infant rock romping is a prelude and training for the serious business of negotiating difficult and dangerous places in their adult life.

Full-grown yaks move with complete assurance in the most hazardous places—on icy rocks, or loose shifting scree. They seem to delight in scrambling about among the great boulders that are piled high at the former melting places of many great glaciers. Such glaciers carry with them, on their slow descent, a load of stones and boulders that have rolled down from the heights above. When, in due time, they reach the warmer air of the lower altitudes, the ice melts, and its load of boulders—some of them enormous—come to rest in a great pile at that point. In time, some slight change in the climate may cause a glacier to melt away at a point higher up its course; but the pile of boulders, called a moraine, remains to tell of its previous melting point, and to provide a perfect playground for the skittish yak calves.

Glaciers and their moraines are a regular part of the scenery of the high mountains, just as they are of the Arctic regions.

This is only one of the many features that the very high regions of Central Asia have in common with the Arctic. There are the same fierce winds and bitter frosts in winter, the same short summers, hot by day, the same sparse herbage and lack of trees. Both regions have many summer visitors among the birds, which come to nest and rear their young, and then depart and leave the land nearly empty of life, except for a few hardy specimens which can endure the grim days of winter. It is not surprising, then, that the furred inhabitants of the two regions should have a great deal in common—this is certainly the case of the yak of Central Asia and the musk ox of the Arctic, two species that brave the cruel winter weather in their own widely-separated regions.

These two species are not closely related, for all their similarity. The musk ox, though called an ox, is related more to the sheep, than to the cattle. Yet how like a yak it is, with its bulky form and lumbering manner, its strong, short legs and upturned horns, and above all, its thick coat of long, shaggy hair falling nearly to the ground.

These two species, living far apart and unconnected, have both become adapted to the same conditions, finding the same solutions, during their long evolution, to the same problems. When different animals, quite independently, come to resemble each other closely, it is called *convergence*.

It is not only in their outward form that the two species resemble each other. They can both find enough food to maintain their great bulk in a kind of country that seems scarcely able to support a mouse, subsisting on lichens when normal herbage fails; and they both endure the harshest of winters in the most exposed places, disdaining to migrate to warmer districts when the worst weather sets in.



Bull yak and wolf

Before the coming of firearms, wild yaks were very plentiful on the high plateaus—herds of a thousand or more have been observed in years past. Now, however, they only survive in those districts that are least accessible, and how much longer this will continue is uncertain. Soon an interesting animal may be wiped out by thoughtless, indiscriminate hunting, and only the small domestic yaks left, as unworthy representatives of a once-noble species.

The wild yak's hope of survival lies in the character of the country it frequents and its keen sense of smell. Warning of danger carried on the wind is picked up at once, and in those high places the wind is not only very strong but also changeable. Hunters say that it is almost impossible to approach a herd of yaks undetected, for some freak eddy of wind will always give them warning of the hunters' presence. The yak herd then makes off at a steady canter, and only turns and stands if overtaken by a swifter foe. Knowing this, the hunters sometimes use large dogs who outrun the yaks and bring them to bay until the hunters arrive. The open nature of the country is another thing to the yaks' advantage, for no one can reach them without being visible from a great distance. There may, therefore, yet be hope for the survival of the wild yaks.

The hunters go off into the lonely places to shoot yaks only in the summer—to do so in winter would be disastrous. Even in the summer these expeditions are fraught with dangers, and if misfortune overtakes the hunters no one can come to their aid. They are superstitious men, and go in fear of the "Spirits of the Mountains", who they believe may punish them with all kinds of misfortune. To appease these "Spirits" they pile up a cairn of stones at the highest point of every mountain pass they cross. These cairns grow taller as the years

go by, for each hunter picks up a stone and adds it to the heap as he goes by; none would dare to cross the pass without doing so.

Apart from human hunters, the yak's chief enemies are wolves and wild dogs. These hunt in packs, and are very persistent and dangerous, especially when desperate with hunger in severe weather. The courage and hardiness of the yaks is maintained by this constant danger, for it is those members of a herd which cannot keep up their strength under harsh conditions that are pulled down and killed. In this way, the weaklings are constantly being weeded out, and only those that are hardy live on to produce new generations.

Wolves and wild dogs are also a constant menace to the herds of domestic yaks, and protecting them is the perpetual concern of their owners. At times of special danger the Tibetan nomads guard their herds all night, even in the worst winter weather.

The nomads of the high plateau, though they may own many hardy sheep and long-haired goats, depend above all on their yaks. Their flesh is sliced and dried in the sun, then eaten raw, their milk is very rich, their hair provides wool for blankets and tents, and for making the tough ropes so necessary to a wandering people for many purposes, their droppings when dried, and even their bones, serve as fuel in a land too high for trees to grow. Yak dung burns with a bright blue flame and gives a great deal of heat. There is always a pile of yak dung in every Tibetan encampment, it is often heaped up to form a wall as a windbreak round the tents.

Yaks are ridden, and also used as pack animals, carrying the tents and other possessions of their owners on their strong, straight backs. While on a journey they are very lazy and wilful,

and insist on lying down to chew the cud, or stopping to graze by the wayside. It is essential that they should do so; for, although their pace is deplorably slow—only about ten miles a day—they find their own provender as they go and, if need be, can travel for days without any food at all. Ponies and mules travel a great deal faster, but they cannot find food as they go along, and have to carry their fodder as well as their normal loads. For this reason yaks are a more serviceable means of transport, however slow they may be.

The yak's incredible sure-footedness, too, makes it invaluable, especially over steep and treacherous ground. Roads in those remote parts are merely tracks, full of pits and jutting



Domestic yaks

rocks. The rivers are seldom bridged, and the high passes may be several feet deep in snow. In places the roads are just narrow cliff ledges, perhaps coated with ice or greasy mud, with a sheer drop on one side into the chasm below; but the stolid yaks are not worried by such dangers.

Oddly enough yaks never seem to be able to judge the width of their loads. If their path lies between tall rocks they are not intelligent enough to wait for each other to pass through in single file. They all try to go through in a bunch, with the result that their loads are jammed together and broken. Then the whole expedition must come to a halt while the loads are repaired and secured once more. But falls and breakages are everyday occurrences in the life of the Tibetan nomads, and when the repairs are completed the caravan proceeds on its slow way once more.

3

Camels

There is a story in Turkestan which parents tell to their children, just as they themselves were told. So it has been passed down through the centuries.

The story tells how a great sandstorm once struck the rich valley of Taklamakan. On and on the storm raged, and the sand poured down, obliterating the roads and paths, filling the water channels, and burying homes of the people until everything was lost in a wilderness of sand. All the people of Taklamakan perished in that great storm, and all the animals they possessed—except for the camels, who were specially adapted to withstand such sandstorms. They took themselves off into the desert of Sinkiang where their descendants live to this day.

Whether there is any truth in this ancient tale, or whether it originated in the fertile imagination of some storyteller, who can tell? Certainly the wide valley of Taklamakan is a barren desert today, and the remains of forgotten cities have been discovered there beneath the sand. And, certainly, there are still wild camels in the desert of Sinkiang.

These are not the one-humped Arabian camels of the Arab countries away to the west, but the two-humped Bactrian camels of Central Asia. Bactria is the old name for the district around Samarkand, in the extreme south of Russia. These Bactrian camels have been bred and used by men right across the dry region to the north of the high plateau of Tibet for nearly three thousand years.

When we think of a desert we usually picture miles of hot dry sand, blazing sunshine and a sky of intense blue, heat haze and mirage, and perhaps a group of date-palms here and there. Such are the deserts of North Africa and Arabia; but the desert regions of Central Asia are not like that. The sand is there, it is true—for instance in the Gobi Desert in Mongolia—and sometimes, in summer, it can be very hot by day; but a much more typical picture would be one of frost and bitter, raging winds.

In some parts, in the Gobi and Taklamakan for instance, there is true, completely barren, desert; but over most of the area it is only semi-desert or dry steppe. This steppe land is too dry for cultivation, and the periods of drought are long enough and frequent enough to make vegetation sparse, limited to certain drought-resisting species of grass and other plants.

These northern deserts lie in a region which one would normally expect to have sufficient rain to provide grassy prairie land. The existence of deserts here is due to the presence of very high ground and vast mountain ranges immediately to the south. These lie between the inland districts and the ocean, preventing the moisture-laden ocean winds from penetrating into the heart of the continent.

Where the mountains receive enough rain, or, more often,

snow, to form rivers and streams, these flow down towards the plains; their water evaporates more quickly than they can replace it, and, instead of flowing on to reach the sea, the streams peter out in the valley bottoms, where their last vestige of moisture finally evaporates. These rivers carry with them, dissolved in the water, salt and other chemicals, extracted from the rocks from which they have come. When the water evaporates, vast areas of glistening crystals remain on the surface of the ground. Wherever there are lingering lakes and pools, these are so salty that the water is quite undrinkable, except by certain desert animals—including camels.

So it is in the valleys, with their salt pools and sparse, salty vegetation, that the wild camels are usually to be found. These Bactrian camels can go without water for several days, if need be, but not for such long periods as their cousins, the Arabian camels. Therefore they do not often stray far out into the parched land away from their water supply, except when there has been a fall of snow. Then, with snow on the ground to provide them with water to drink, they are free to roam far out into the desert.

These wild camels are very shy and wary, and this, together with their ability to travel swiftly across the loose, shifting sand of the desert, makes it very difficult to approach them. No horse can overtake them for their wide, spreading feet are perfectly suited to just such soft going. Yet the Bactrian camel's feet are harder and smaller than those of its Arabian cousins; for its home country contains a good deal of hard rock, as well as soft yielding sand, and its feet need to be adapted for both hard and soft surfaces. In the same way, its shorter legs and stockier build give it better balance and greater confidence when travelling in steep, rocky places.

Until quite recently, it has been impossible to tell whether there are still in existence herds of the original wild camels from which the domestic kinds have been produced. This is partly because camels have been changed by domestication less than most other animals. Camels can easily revert to a wild state and resume the life led by their wild ancestors, having retained the great powers of endurance for which they are valued.

Now, however, we can say with certainty that there are truly wild camels, as distinct from those descended from domestic animals that have become wild, which are known as feral animals. These original wild camels have been filmed, and one of them has been captured and taken to the zoo in Peking, in China. The animals are clearly distinct from the domestic camel, being more lightly-built, with longer legs,



A camel and calf

smaller humps, and a winter coat shorter than that of their domesticated relatives.

The domestic camels, in fact, often give the impression of having far greater bulk and weight than they really have. This is especially true in winter, when their coat is long and dense, as it needs to be to withstand the harsh, bitter climate of Central Asia. In the spring, this great mass of hair comes away in matted lumps, which hang from the animal for a long while before falling off. The camels are then almost naked in some places, and in others have great dangling masses of wool, giving them the appearance of old discarded mattresses.

By midsummer, the winter coat is completely gone; and then for a while the great beasts look strangely slender and elegant, until their new coat begins to grow, rich and dense once more, to be thick and long by the time the bitter winter winds begin to blow. The camels' coat is longest on the top of the head and on the throat and shoulders.

Seeing the great beasts striding across the dry wastes of Central Asia sedately and majestically, one behind the other, we might assume that there is not a vestige of wildness in them, but this is misleading. Camels are, in fact, very wilful and temperamental, and may take fright and stampede without warning. An unfamiliar sight or sound, a clanking object in the load they are carrying or a flapping saddle cloth, may turn an orderly, slow-moving caravan into a screaming, heaving mass of chaos. Each of the great beasts will then be bucking and careering about, frantically striving to rid itself of its load and pack saddle, and break away across the countryside, leaving the scene of the disaster looking like a battlefield.

To avoid such incidents—the broken cases and spilled contents, the splintered pack saddles and the hours, even days,

lost in rounding up the animals that have broken loose—it is customary for those camels who are about to set out on a journey to be deprived of food for a period before their departure. If they are well rested and too well fed they are more likely to be rebellious, and short rations are believed to reduce the risk of disasters in the early stages of the journey. After a few days of plodding across the desert the camels settle down to the routine of their long march, striding stolidly in single file, the nose ring of one secured by a length of rope to the pack saddle of the one ahead. One man can then control a string of twelve to twenty animals without difficulty.

The pace of a camel caravan is slow; an average speed of two-and-a-half miles an hour is considered good. But when an area of good grazing is reached, after a stretch of barren desert has been crossed, it is often necessary to allow several days for the camels to rest and restore their strength. This reduces the average daily speed considerably. By modern standards, this mode of transport is intolerably slow, and today motor transport is surplanting the ancient camel caravan.

However, when time is not important, the camel is a most economical form of transport. He can maintain his steady stride day after day on the most sparse rations, living largely off the country as he goes, and finding nourishment in desert plants that most other animals would not touch. He willingly drinks the bitter water of the desert pools, and can survive without water and food beyond the limits of other animals. He will trudge on under the merciless blaze of the summer sun, and sleep unprotected in the bitterest winter night. When a blinding sandstorm sweeps down, he controls his slit-like nostrils to keep out the driving particles, and waits for it to pass.

Such a sandstorm comes suddenly, advancing like a great wall of airborne sand across the desert. As it approaches, the roar of the wind that causes it grows louder and louder. When it arrives the sky grows dark and the air is filled with particles of sand, striking the face and hands with stinging force. Tents are blown away or split into tatters, and it is difficult to keep a firm footing in the tearing wind. The sand particles which fill the air form a dense fog, blotting out the view of things quite close at hand. Movement is impossible, and all that a traveller can do is cower in the lee of a crouching camel and wait for the ordeal to pass. Such storms are a frequent hazard in some desert areas in Asia.

Because of its great endurance and moderate requirements, the camel has been the mainstay of transport in those regions for many centuries. It is an ancient tradition for travellers with their baggage and merchants with their merchandise to assemble at certain places and there collect the camels they require for their journey. As the day of departure approaches, the preparations, leisurely at first, are made with increasing speed and urgency. Pack saddles are fitted and loads allotted to the individual camels, each according to the animal's strength and condition.

On the appointed day, the great caravan is assembled. Each string of ten to twenty camels is brought together and the animals are saddled and loaded, in a hubbub of shouting from the men and protesting shrieks and grunts from the camels, who do not hesitate to complain vocally. Then, after hours of apparent confusion, the orderly procession gets under way, and the caravan assumes its shape, each string of camels in its appropriate station, and the march begins.

The camel is called the "Ship of the Desert", and such



A camel caravan

departure is very like the beginning of a voyage—a voyage across a wide sea of sand. A great caravan is like an ocean liner, and the merchants are the passengers and the camel drivers the crew. Everything must depend on the fitness and endurance of the camels; for if they die the liner is wrecked, and what happens to the crew and passengers then?

If such a disaster occurs it is usually starvation and lack of water that brings it about. This is bound to happen in some completely waterless area—small hope for the human members of the caravan then!

Such large caravans have often consisted of a hundred men or more, and perhaps a thousand camels—the larger the number the better, as bandit tribes infest the desert routes, and there is safety only in numbers. On the other hand, there is a limit to the food and water available for the camels on the route, and this to some extent limits the size of the caravan; for everything—even the lives of the travellers themselves—depends on keeping the camels fit and in good condition.

To the Mongolian camel driver the camels are everything. He depends upon them entirely and cherishes them. A camel thief is the worst of criminals—his punishment is death. This is not surprising, for theirs is a hard life in a hard land, and to deprive a man of his camels may be to inflict on him a slow death. When far from human habitation the men often sleep out in the open with the camels, to be on hand should they be attacked by wolves.

If all goes well, the camels in a caravan reach their destination in good condition, but disasters sometimes occur. After a long, tiring stage a well-known water-hole may be found to have dried up. Then a forced march is vital to reach the next source of water on the route. Sandstorms may halt the journey.

A series of such mishaps may accumulate into a disaster. One after another the camels halt, kneel down and are beaten until they rise and move on again. But in the end no beating will move them—they are finished and must be left behind. Loads are redistributed among the stronger animals who, in turn, become exhausted. This is how the desert can defeat the best-organized caravan. The desert routes are signposted with the bones of camels, picked clean by vultures and bleached by sun and frost.

Yet, somewhere, over that desolate horizon there are baby camels clumsily romping around their tall mothers, as they quietly graze in some camel's paradise of thorny bushes and bitter, salty water.

So the eternal cycle of death and birth goes on.

4

Sheep and Goats

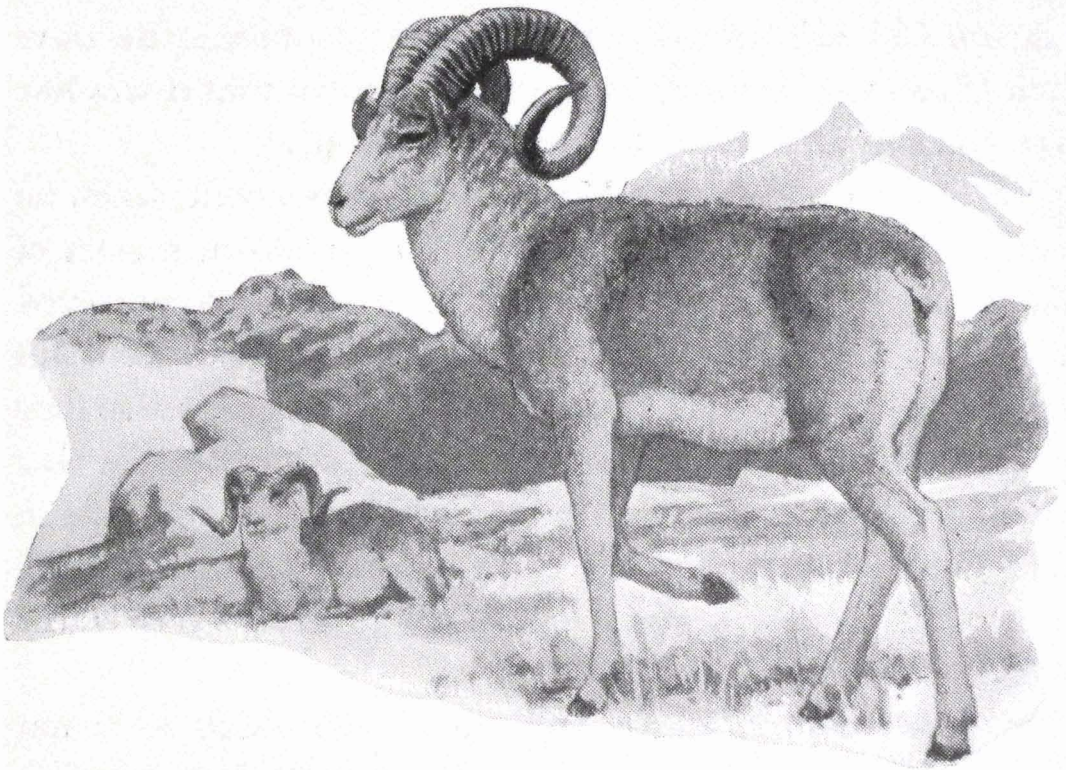
We all have heard about the great traveller, Marco Polo, and how he left his home in Venice and travelled right across Asia to far-off China. That was in the thirteenth century, in the days when China was so distant and so little known that it was like some place in a fairy tale to people in Europe.

One of the wonders that Marco Polo wrote about, when he recorded his journey, was the previously-unknown species of wild sheep of the mountains of Central Asia, which he passed on his way to China. These are the Pamir sheep which still bear his name, for their full Latin name is *Ovis ammon poli* so they are often called Marco Polo sheep. In this Latin name the *Ovis* (sheep) indicates the genus, *ammon* is the species, the argali, while *poli* (“of Polo”) is the race, or sub-species. Only the genus, *Ovis*, should begin with a capital letter—this is the zoologists’ code.

From the time of Marco Polo, the Pamir sheep were not heard of for a long time; in fact six centuries passed before European naturalists were able to observe and study them.

Our own domestic sheep have long, thick, woolly fleece, and are often found living healthily in the lowlands, right down at sea level. In these two respects they are quite unlike their wild relatives, for during some 8,000 years the domestic kinds have been developed to suit man's needs.

Wild sheep have very thick, but comparatively short coats, and mostly inhabit the great heights. However, they are grazing animals, and require grass to eat, so they are usually found on the high mountain terraces, above the tree line, where outcrops of bare rock alternate with stretches of pasture. Wild goats, on the other hand, will eat any kind of herbage, and like to nibble at the shrubs and mixed vegetation that grow on rocky crags and precipices.



Marco Polo sheep

Wild sheep and goats are very similar, and it is not easy to distinguish between them. The true sheep, however, are marked by distinctive glands on the feet and face, and have conspicuous dark pits below the inner corner of the eyes; while among the goats the males have beards and a strong, goatly smell.

The Marco Polo sheep is one of the races or sub-species of the argali, and is closely related to the bighorn sheep of North America and the extreme east of Asia. It exceeds these and all the other races of argali in the great size of the spirally-twisted horns carried by the rams. These curl in a complete circle and then swing boldly outward, and may reach a length of seventy-five inches when measured along the curve. On their outer edge they are boldly wrinkled. These enormous horns are so heavy that the argali's neck has to be remarkably strong to support them, and when the animals lie down to rest they often lay them on the ground in order to be relieved of their great weight. The ewes have much smaller horns, directed upward and slightly backward.

Argalis of one race or another are to be found from the Himalayas northward across Tibet and on into northern Mongolia, the south of Siberia and Turkestan. They are the largest of all the wild sheep—a full-grown ram standing a good four feet at the shoulder—about the size of a donkey. Their coat is a soft brownish-grey, lighter below than above—the same grey, in fact, as the rock boulders among which they often lie to chew the cud. The argalis then look so much like the rocks themselves that they are almost invisible until they get to their feet and move away.

When they are alarmed, argalis will bunch together, stamping their front feet on the ground in warning, just as rabbits do with their hind feet; though the sheep do it as a warning to their enemy, not to their friends. For a while they stand and observe their foe, but suddenly one will take flight: and, upon this signal, the whole band swings around and canters away in long, graceful strides with heads held high. Having covered some distance, their curiosity will often get the better of discretion, and they will all stop to look back the way they have come.

In November the mating season brings the rams and ewes together, after living apart during the spring and summer. Then the rams fight desperately for possession of the ewes, charging each other head on so that the clash of their huge horns can be heard from a great distance in the silence of the mountains. Or they will charge alongside each other attempting to make a sideways stab with the cruel points of their horns.

Winter is a grim time for these animals. Food is scarce, and in an exceptionally hard winter many die of starvation. When spring comes they look for the new growth that appears all along the line of the melting snow.

In May and June, when it is time for the lambs to be born, the ewes seek out the most secluded valleys at a great height, for there grazing can be found at that time of the year, after the snow has gone. There they can find the greatest safety for their new-born lambs. Like all young lambs these are charming, playful little creatures, with coats a good deal darker than their parents'.

The other wild sheep of Central Asia is the urial. This is a

smaller animal than the argali, whose range it overlaps, being found from northern Tibet, through Ladak and the mountains to the north and west of Kashmir, and on into Afghanistan and Persia. The urials found in the high plateau regions in the north-eastern parts of this area are larger than those further to the south and east, and stand about three feet at the shoulder. They are often called the *sha*, the name given to these animals by the inhabitants of Ladakh. The smaller race, the true urial, is some four inches less in height.

The various races of urial vary from reddish-brown to fawn, and become greyer in winter. The underparts and the tail and rump are whitish. The rams have a dark patch behind the shoulder and a mane of long hair on the sides of the neck and throat, though often this almost disappears when the winter coat is shed in the spring. Their large horns, twenty to thirty inches long, vary, too, in the way they curve, but are always deeply wrinkled along the outer edge. The horns of the ewes are short and slender, and almost straight.

Urials are unusually versatile in the way they can adapt their way of life to very different kinds of country. Provided there is a certain amount of grazing in broad, treeless areas, they are equally at home in the bleak plateau lands, high above the tree line, and in the land much lower down below the forest belt. They also do well in the Punjab, in west Pakistan, on the scrub-covered hills and in the barren, near-desert ranges of Baluchistan. There are few species which can prosper in such very varied kinds of country.

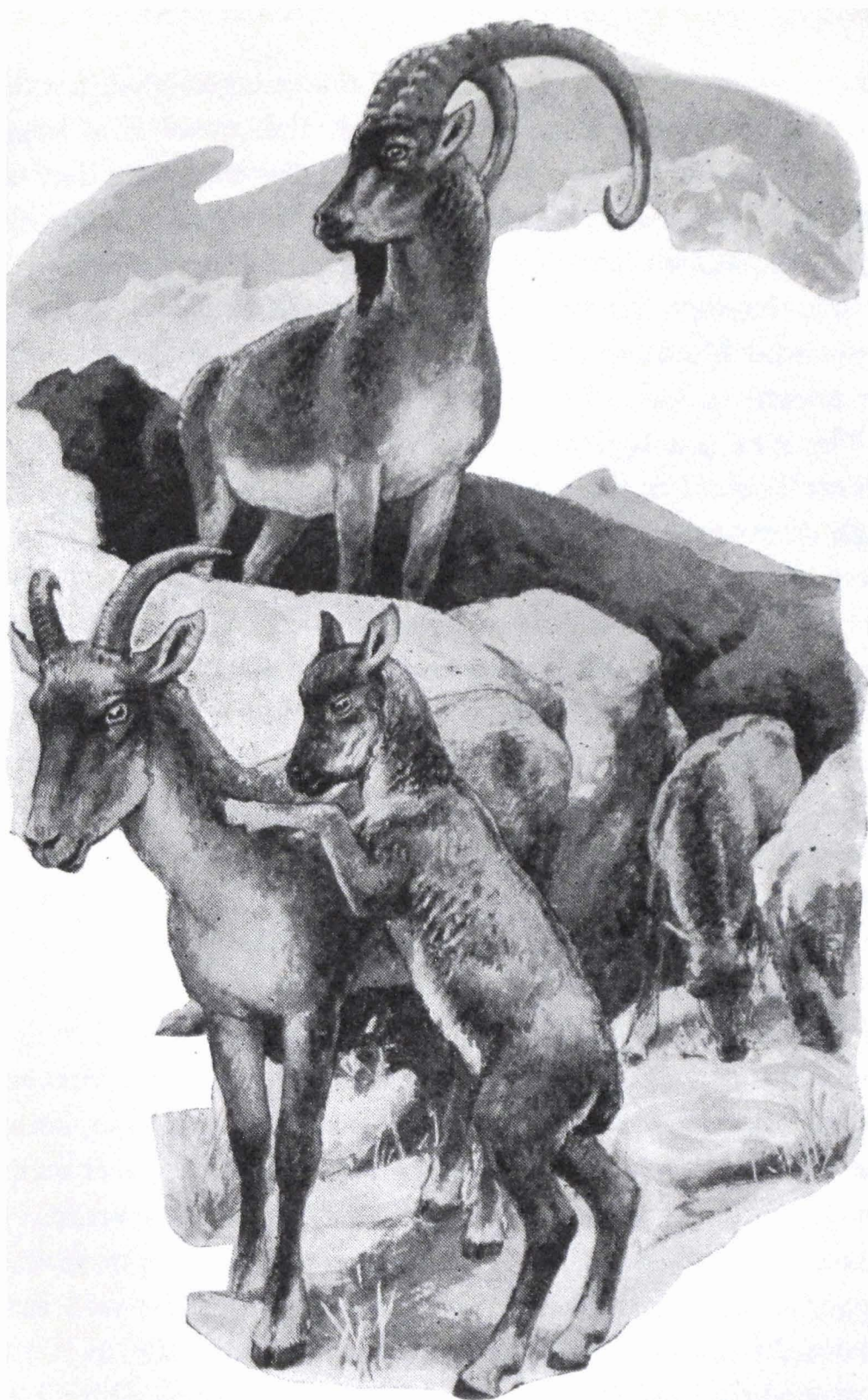
True sheep that they are, the urials do not choose the precipitous crags for their home, though they are wonderfully swift and sure-footed when they need to negotiate such steep, precarious places.

Like most animals inhabiting open, treeless country, the urials have remarkably keen senses. Their eyesight, hearing, and scent are all keyed to give them timely warning of approaching danger, for there is nowhere to hide. When one member of a herd becomes anxious or alarmed it will utter the shrill, whistling call which is their warning signal. Then all the other members will be instantly alerted. Urial seldom utter the bleating noise that we usually think of as the noise made by sheep.

In the autumn, which is the urial's mating time, those rams who are strong and bold enough collect their ewes—three or four each. But after a few weeks this rutting season is over, and the rams and ewes separate and live apart. The lambs are born, one or two to each ewe, in spring or early summer according to the conditions in each area. Nature decrees that the ewes should have their lambs in the season when food is most plentiful—this is later on the high plateau to the northeast than on the lower slopes in the south and west of the urial's range.

One of the most typical of the wild goats is the ibex. These sturdy animals are found on most high mountain ranges from the Pyrenees to Mongolia, and south to Ethiopia, each isolated range having its own local race. The kind found in the Himalayas, and the mountains farther north as far as the Altai range, is the largest and noblest of them all.

Ibex herds are found in the highest parts of the mountains, and seldom descend to the lower slopes to find food even in the hardest winters. Instead they seek out the steep slopes where strong mountain winds blow the ground clear of snow.



Ibex

They can endure the bitter cold of the great heights, for they have a dense undercoat of soft wool. Ibex wool is of unsurpassed softness and warmth, and it is for this that they are most often hunted. The wool is used by the mountain people for lining shawls and for making stockings and gloves. The longer, harsher hairs of the outer coat are used for making ropes and blankets, while the skin provides the best leather for boots.

The ibex is a typical goat in its shape, and the males have beards like other goats. Their coats vary a great deal from dark brown to yellowish-white. Sometimes the underparts are markedly lighter. As a rule the winter coat is lighter than the summer, no doubt a means of concealment for an animal that winters in such high, snow-covered places.

The most remarkable thing about the ibex, however, is the enormous size of the great, scimitar-shaped horns carried by the males, those of the females being much smaller. The largest horns are often a good deal longer than the height of the animal that carries them. Horns nearly five feet long have been known, whereas the height at the shoulder of a well-grown male ibex is a little over three feet.

Like so many mountain animals, the ibex herds feed mainly at dawn and dusk. During the middle part of the day they rest among the steepest crags higher up the mountainside, sometimes travelling a considerable distance before they feel secure enough to lie down and chew the cud. Even then sentries—usually females—keep a sharp look-out for approaching danger, their keen eyes searching the slopes below and their noses sniffing the wind. If they detect something to alarm them a shrill whistling cry sends the whole flock at reckless speed up to the shelter of the steepest crags.

Strangely enough these wary animals take little notice of the sound of firearms, it seems that the crash of falling rocks and avalanches so often shatters the uncanny silence of the mountains that they take loud and sudden noises as everyday occurrences, and do not attach any immediate importance to them. However, even the sure-footed ibex is in danger from the sudden avalanche, for how can they escape when thousands of tons of snow suddenly plunge down from the heights above them?

The markhor, with his magnificent, spirally-twisted horns, is another wild goat inhabiting the south-western part of Central Asia. About the same size as the ibex, it has its home in the mountains surrounding the valley of Kashmir, eastward into the Himalayas and north to the Hindu Kush. Its very distinctive horns vary a good deal from one locality to another. Some being a straight, tightly-twisted corkscrew, others forming a bold, spiral curve.

In winter, the male markhors appear to be heavier and stouter than they really are, for then the great mane and beard, which cover the shoulders and throat, hang down nearly to the knees. Even the females, who are only about half the size of the males, have slight beards. In spite of the animal's bulky appearance the markhor's coat is without the dense, soft underlayer of the ibex, so the markhors must descend, in the worst winter weather, to the lower slopes of the mountain. In some districts these lower feeding grounds are covered with pine and birch forests, elsewhere they are bare and rocky; but always the markhors frequent the steepest and most inaccessible places.

5

Monkeys in the Snow

One day in 1951 two Englishmen, Eric Shipton and Michael Ward, and a guide, a Sherpa named Sen Tensing, were on a snow-covered glacier in the Himalayas. They were examining and photographing some unusual footprints in the snow—footprints like those made by naked human feet, but larger and of enormous width. What kind of animal could have made such strange footprints? They seemed to belong to no known species.

Sen Tensing, the Sherpa, who like the rest of his people had lived all his life among these vast mountains, told how he had once seen a rare snowman. He described this creature to his English companions as being man-sized, walking upright and, except for its face, covered with reddish hair, and with the skull coming to a point at the top.

Stories of such “snowmen” have long been known in many parts of Central Asia, some simple and sober, like that of Sen Tensing, others confused and mingled with fantastic legends of magic and the supernatural. The Tanguts of Tibet speak

of a strange creature called a *hun-gouriosku* "man-beast"; with the Mongols it is an *almus* "wild man". The Sherpas of the Himalayas name it a *yeti*, or *metch-kangmi*. *Kangmi* means "snowman", and *metch*, "disgusting" or "ragged". When this name was first heard by British explorers many years ago it was translated "abominable", and this elusive creature has remained the "abominable snowman" ever since.

It was not only the natives of these places who claimed to have seen the yetis; European explorers, also, have told of meetings with the snowman. Here a group of them ransacking an abandoned camp, there a single individual coming from a cave and disappearing over the edge of a precipice. Then, again, a yeti child killed by a javelin trap set by the mountain people for killing wild animals. First hand accounts were numerous, and certain characteristics were mentioned again and again—the upright walk with knees slightly bent, the reddish hair covering the body, and the powerful, muscular build.

What were these shy creatures of the high places, were they men or beasts?

Many theories were put forward. Some believed that they were members of a sect of holy men, who had renounced the wearing of clothes and other comforts of civilization, in order to live, alone and naked, a life of prayer and meditation. Others claimed that the yeti were bears, seen for a moment standing upright on their hind legs, as bears often do. This suggestion seemed to be finally disposed of when Eric Shipton's photographs of the yeti's footprints had been published, for bear tracks were distinctly different in various points.

Another suggestion—not as unlikely as it might appear at first glance—was that the yeti was, in fact, a large monkey.

In spite of the fact that we always think of monkeys as belonging to hot, tropical forests, there are certain kinds of monkeys that frequent the Himalayan mountains to a height of 12,000 feet, and some of them are quite big enough to look man-sized in a poor light.

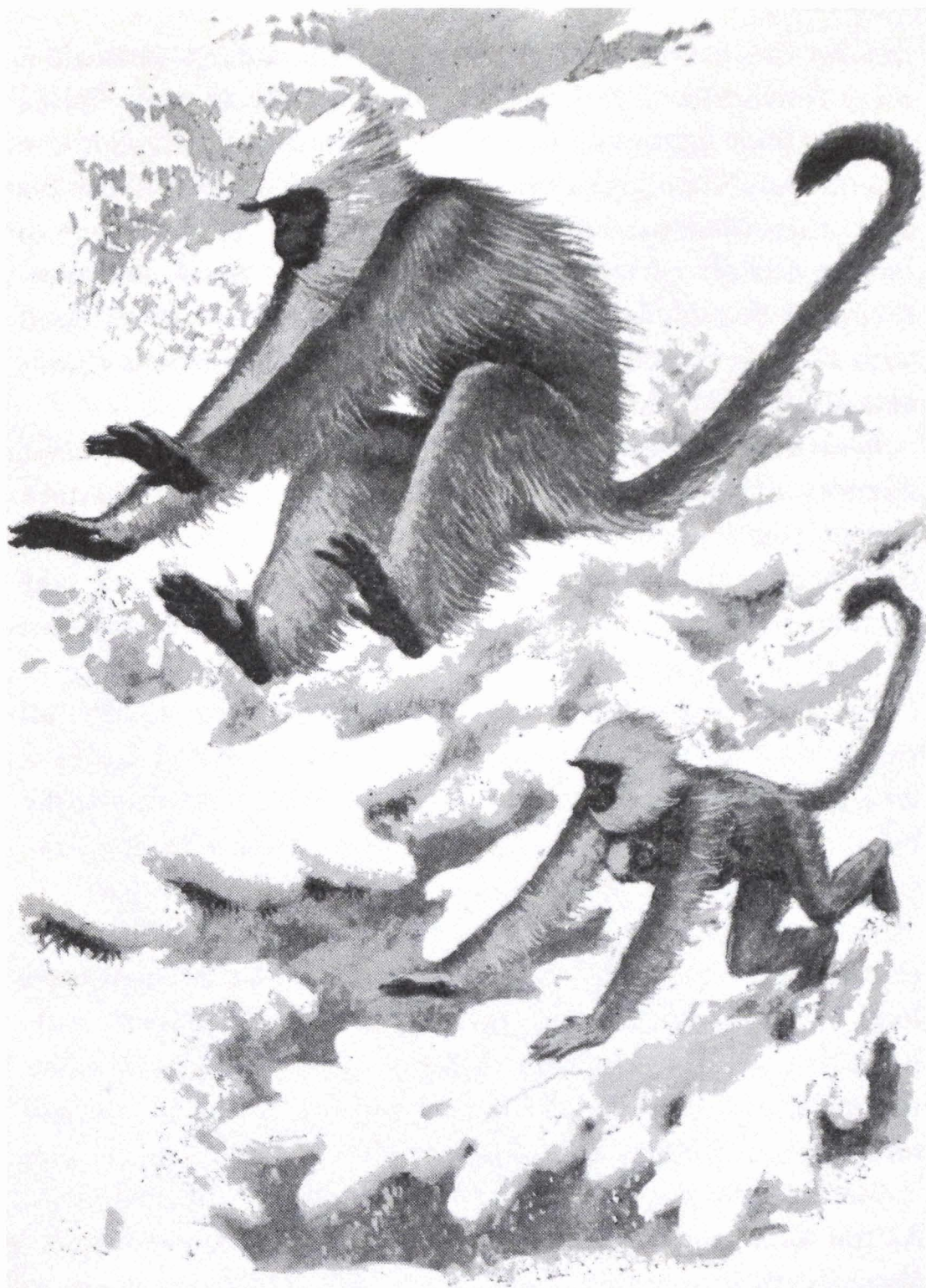
The most remarkable of these mountain monkeys is the Himalayan langur. There are various kinds of langur monkey in India and south-east Asia, and on the islands of Sumatra, Borneo, and Ceylon. They are all long-limbed and slender with very long tails; their hind legs are longer than their arms, and they have no cheek pouches. Another distinguishing feature is a row of long, stiff hairs which project above the eyes, appearing when seen from the side, like exaggerated artificial eyelashes.

The best known langurs are the *hanuman monkeys* of northern India—the sacred monkeys of the Hindus—who are allowed to raid and plunder villages at will. The Hindus believe that it is wrong to harm them, let alone kill them.

Himalayan langurs are a local, northern race of this well-known species. They are rather large animals; when seated they may reach a height of two to two and a half feet, and their tails are often over three feet long. Their thick fur is a sober greyish-brown in the body and limbs, fading to near-white on the top of the head. The face and ears are coal black.

These monkeys live in troops, sometimes large, sometimes quite small, composed of adult males and females, and their young ones. Each of these troops constitutes a family or a small tribe, living sociably among themselves in a close-knit society, their members being very loyal to each other.

They are very vigorous and active, bounding and scrambling



Himalayan langurs

among the branches of trees, and often taking prodigious leaps from branch to branch, and from tree to tree. Babies cling to their mother's fur as they career recklessly high above the ground. These mountain dwellers have longer and thicker coats than their cousins in the hot lowlands, for they have to endure a bitter climate, living, as they do, as much as twelve-thousand feet above sea level, where the trees are covered with snow for much of the year. The long fur on their cheeks almost hides their small ears.

It seems that each troop of langur monkeys claims a specific territory as its own. They are said to return each night to a certain tree in which it is their custom to sleep. There is a certain amount of bickering and quarrelling as they all take up their positions at dusk among the higher branches, well out of reach of the larger beasts of prey.

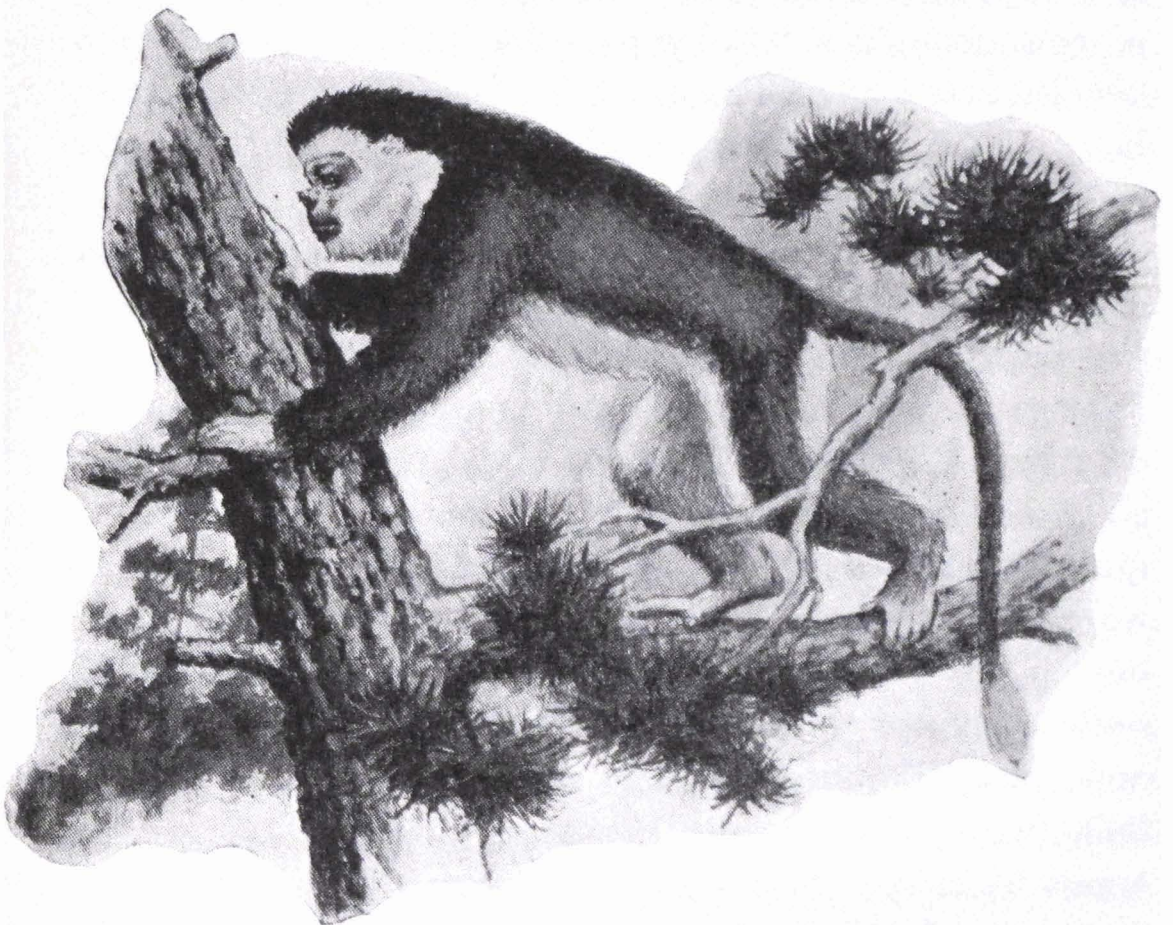
Each troop jealously guards its own territory against all rival troops. In the event of an invasion a pitched battle is fought. Such battles are said to be so savagely fought among the branches that there may be a number of corpses lying on the ground by the time the victory is finally decided.

These animals are very vocal and make various sounds to express different moods. When happy and excited they utter loud whooping cries; but their gruff guttural alarm calls indicate that they are angry or afraid. These calls, when continued for a long time, usually give warning of the presence of some prowling killer, such as a leopard.

Close relatives of the langurs are the snub-nosed monkeys. As the name suggests, these animals are characterized by an absurdly short, pointed nose, turned up at a steep angle so that its tip is level with their eyes. This gives them a grotesque, gnome-like appearance when seen from the side. In the race

that inhabits the high forests of western China and eastern Tibet—the orange snub-nosed monkey—this ridiculous profile is compensated for, in the males, by their very striking and attractive colouring. The back and the top of the head are greyish-black, while the underparts, the surroundings of the face, and the limbs are a beautiful red-gold. The face itself is bluish, with rich brown eyes. The females are less striking in a coat of grey and white.

These monkeys are nearly as large in the body as the Himalayan langurs, but they have shorter, sturdier limbs and tails. They are able to endure the bitter winters of their native



Snub-nosed monkey

mountains where they range to a height of 10,000 feet above sea level.

To return, now, to the yeti, the "abominable snowman", could one of these large langur monkeys, standing for moment on its hind feet, have been mistaken for a hairy, wild man? It is just possible: but what of its very long tail?

One or two descriptions of snowmen have included tails, but these descriptions in various ways seemed unreliable. Not one of the more reliable observers has ever mentioned that the yeti had a long tail; and some of them had every opportunity of observing this important feature. It seems unlikely that all of them would have failed to notice the tail when they were so detailed about other things. No, it seems that the Himalayan langurs cannot provide an explanation of the legend of the yeti.

However, there are monkeys in some of these mountain districts that have less conspicuous tails. Let us see whether one of these might have been mistaken for a wild snowman.

There is the rhesus monkey, for instance, the commonest monkey in northern India, living mainly on the ground and often seen in large troops. They are mischievous but usually quite harmless, except for the older males who can be savage when annoyed. In colouring they tally somewhat with many descriptions of the yeti: the thick, rather short fur is mainly buffish-grey but with a decidedly orange tinge on the rump and thighs. The face and ears are soft pink. A large, heavily built variety inhabits the Himalayas and the Tibet-China border country. These animals are known to remain there throughout the bitter winter weather at a height of 8,000 feet,

where the mountains are covered with dense pine forests. In Kashmir they are found at a height of 13,000 feet.

In some respects one would think that this large mountain race of the rhesus monkey might possibly have originated the legend of the yeti; but even these have tails which, though not very long, could scarcely be missed.

There is another monkey in those parts, however, with a tail so small that it is often, quite wrongly, called an ape—this is the stump-tailed monkey.

The common stump-tailed monkey is a long-haired species found in south-east Asia. It is a rather large monkey with reddish-brown fur, fading to yellowish-white below and darkening to nearly black on its back. Its face is bright red. The tail is so small that it is almost invisible. This monkey is a close relative of the Barbary ape of north-west Africa, so well known to visitors to the rock of Gibraltar. Although it has no tail at all, the Barbary ape is a true monkey, not one of the apes.

There is a race of the common stump-tailed monkey which inhabits the mountain forests on the borders of Tibet and China in Central Asia. Very little is known of these animals, for the country they frequent is not only difficult to reach, but extremely rough and steep, and very difficult to move about in, if it is reached. These monkeys are said to be considerably larger than their relatives in the hot jungles farther to the south.

There have sometimes been tales of the existence of a large species of ape in those northern regions—tales which were never confirmed. Probably these animals are not true anthropoid apes, like the gorilla and the orang-utan, but simply large specimens of the stump-tailed monkey. And it is just con-

ceivable that the same creatures may have been mistaken, at times, for wild, hairy men and have thus given rise to the legend of the yeti.

However, there still remains the evidence of the giant footprints, found and photographed on that snow-covered glacier in 1951. No mere monkey could have made such large tracks. Compared with the footprint of the largest gorilla they are equally long and very much wider.

The true nature of the mysterious yeti will probably be revealed one day; but for the present it remains a half-legendary figure, leading its secret life in its mountain fastness. When the truth is known, it may be written down in the natural history books, or in the books on anthropology. We must wait and see.

6

The Home of Wild Horses

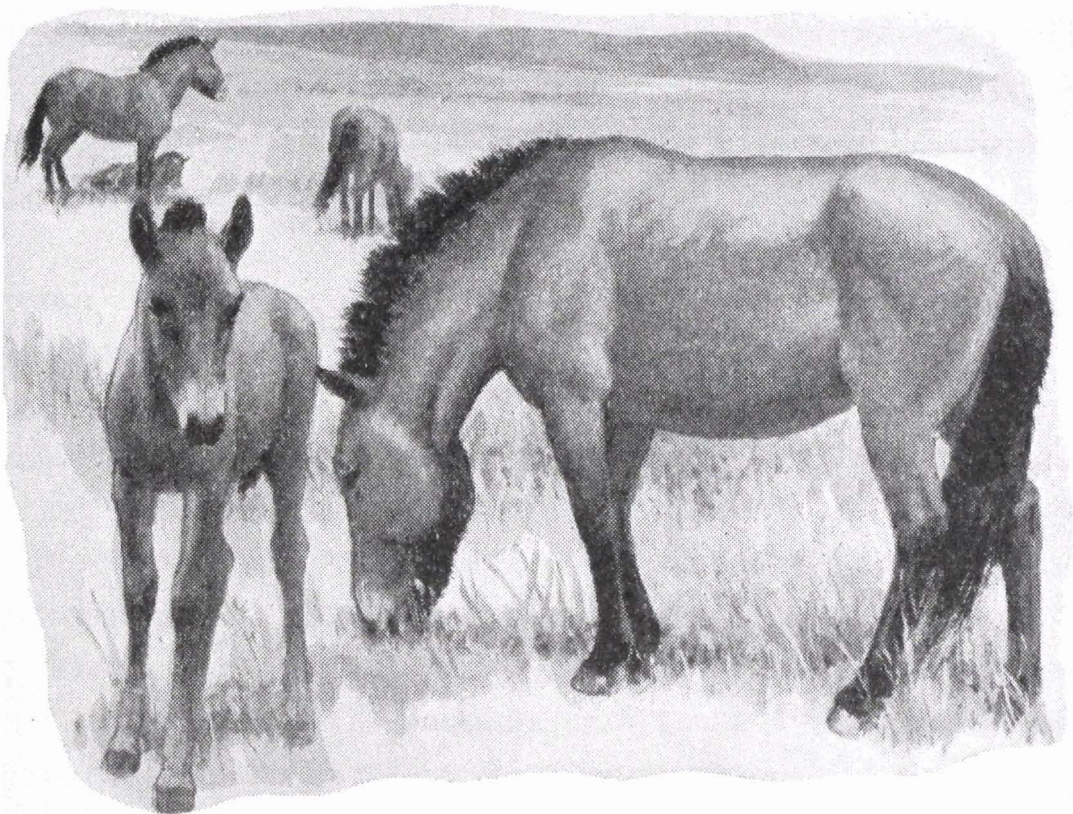
The home of the wild horse is on the grassy steppes and prairies. There are herds of horses living wild in various parts of the world—in Australia, for instance, and North and South America. But only in Central Asia are there horses in a truly wild state. The others are all feral herds, descended from animals that were once domesticated.

Centuries ago, when truly wild horses were much more common than they are today, there were two—possibly three—distinct races. European horses, from the huge shires to tiny Shetland ponies, are mainly descended from a western race, the tarpan. Until about three hundred years ago there were herds of wild tarpans to be found in eastern Europe; but the stallions used to lure away the domestic mares, which did not suit their owners, who finally succeeded in exterminating the tarpans. Now there only remains the eastern race, the Mongolian wild horses, some six hundred of which still roam free in the steppeland along the frontier of Mongolia and Sinkiang. Another name for these animals is Przewalski's horse

named from the famous explorer who first brought information about them to Europe.

These horses have, of course, always been known to the nomadic peoples of Mongolia. For centuries they have been capturing the wild foals to interbreed with their own domestic horses, in order to obtain increased hardiness and stamina.

The Mongolian wild horse is really a pony: it is only about thirteen hands high, a stockily-built animal, very similar to the wild horses so vividly pictured on the walls of caves in Europe by the men of the Old Stone Age, some thirty-thousand years ago. It is a sturdy animal, with slender legs and small, round hoofs. The mane is stiff and upstanding—not limp and falling like that of our own domestic horse—and it stops short



Mongolian wild horses

on the top of the head, without a forelock. Down the middle of the back there is a dark line, clearly visible in the short summer coat, and sometimes another line, less distinct, across the shoulders, and yet other lines on the legs. The face is long, without the distinctive hollow below the eyes, seen in the domestic horse.

The wild horse's coat is a bright, orangy-yellow in winter, and greyer in summer, growing darker towards the feet and under the jaw. Its muzzle is light, like that of an English Exmoor pony, and its lips are black. The summer coat is sleek and shiny, while in winter these little horses are protected by a deep, dense coat that makes them look much more clumsy. They need this long, shaggy coat as a protection against the bitter frosts and raging winds of the steppes in winter time.

In the summer, the horses roam in small herds—several mares with their young, and their lord and master, a mature stallion. As soon as the young colts are mature, the stallion who rules their herd drives them away, for he will tolerate no other stallion near his mares. They must then roam alone until they grow strong enough to challenge an older stallion for possession of his mares.

When a young stallion has reached his full strength, he takes up his position on one of the low hillocks that rise above the general level of the steppes. There he will stand for hours at a time, on the look-out for the approach of a herd of his own kind. When he sees one in the distance he will canter up to do battle, neighing his challenge, which the older stallion, in possession of the herd, is quick to accept.

They then fight with teeth and hoofs, and much neighing and screaming. Such fights between rival stallions are very savage and may last for hours, until at last one of them has

had enough punishment and admits defeat, leaving his rival in possession. So the herds change masters, as the younger stallions gain their full strength and the strength of the older ones declines. During these combats, the mares, who will be the prizes for the victor, stand by, completely indifferent to the outcome of the contest; and they meekly submit to the victor when a decision is reached. An aged defeated stallion usually wanders alone when he can no longer defend his herd of mares.

When winter comes, with snow and deadly frosts, this is a time of great hardship for the wild horses. Lakes and pools are frozen, and water is scarce; the pasture, too, is poor and horses grow thin and weak. Only the strongest and hardiest can survive a really severe winter, for the wolves soon pull down those that are slow and unable to keep up with the herd. Thus nature is always weeding out the weaklings, retaining only those that are strong, and so maintaining the fitness of the species.

When snow lies on the ground, the wild horses scrape it away with their hooves, to reach the dried-up winter herbage beneath. Then the various herds will join up, all rivalry forgotten, until there is an army of horses on the march, not southward towards the sun and warmth, but northward, to a region where the snow is deeper still, for with it they can quench their thirst.

At that time, when the wolves and wild dogs are desperate with hunger, the wild horses need all their great speed and stamina to escape from these, their greatest enemies. To enable them to detect any danger while grazing, the herds of horses always move up-wind; in this way their keen, sensitive nostrils give them warning of what lies ahead.

There is no concealment whatever on the steppes for an animal as large as a horse, but the sheltered hollows often contain areas of low scrub which may conceal lurking wolves.

The greatest danger for wild horses is the occurrence of a sudden thaw, followed by a period of severe frost; for then the upper surface of the snow will melt and quickly freeze again to form a hard sheet of ice, too hard for the horses to break with their hoofs. They will then be faced with starvation.

When spring comes with ample rainfall and a quick melting of snow and ice; a short period of blossoming follows, and there is lush grazing on the steppes. This is a brief time of plenty for those horses that have survived the dangers and hardships of the winter, and surprisingly quickly they regain their condition, before the long drought of summer parches their grazing-grounds once more.

For many centuries Mongolian nomads have been capturing and rearing the wild foals, and have bred an extremely hardy type of pony with great endurance. They keep large herds of these ponies and use them for riding and as beasts of burden. Pony breeding is a large part of their business, and many of these Mongolian ponies are exported, mainly to China.

Because of this capturing of wild foals to add stamina to domestic ponies, and the constant hunting of wild horses for food, these interesting animals are in danger of extinction unless means of protecting them are found quickly.

When we think of wild asses we should forget about the meek little donkeys we know. The wild ass in its native land is a proud, spirited animal, and full of courage. In speed and endurance it is unsurpassed, especially over rough and stony



Wild asses

ground. No single horseman, however well mounted, can overtake these animals when in good condition; and it is amazing how well they can remain fit in the most barren country and a cruel climate. Those who have seen them in a wild state speak of the wild asses with admiration, and they have always been a symbol of freedom and independence in their native lands. This is described in the Bible, where, in one instance we read: "Who hath loosed the bands of wild asses? Whose house I have made the wilderness (the desert) and the barren land his dwelling. He scorneth the multitude of the city, neither regardeth (obeys) he the crying of the driver. The range of the mountains is his pasture and he searcheth after every green thing." This, of course, is not the wild ass of Central Asia but a closely-related race farther to the west.

There are several races of wild ass in Asia, and a separate species in Africa. The kind found in Central Asia is the kiang (or kulan) of Tibet and the high steppeland farther to the north. In the most remote parts these animals are still quite numerous, and they roam, usually in parties of three to five, sometimes in herds of forty or more. In western Tibet they live at a height of over 14,000 feet, their thick, woolly winter coats enabling them to endure the harsh conditions found at those great heights.

The kiang is much larger than the domestic donkey, standing about thirteen hands at the shoulder. The coat is usually a rich reddish-brown above; the underparts and legs are nearly white. Down the middle of the back there is a narrow black line. Its ears are shorter than those of a domestic donkey, and its hoofs wider, more like those of a horse. But its voice is like that of a donkey, and has been described as a "shrieking bray".

The normal food of the wild ass, over the greater part of its range is the wiry, steppeland grass, which grows monotonously, mile after mile, unbroken by any other kind of vegetation. But on the highest plateau of all, in Tibet itself this gives place to a variety of woody plants. The wild asses like especially the sweet-smelling purple artemesia.

Like wild horses, the kiang stallions fight each other fiercely for possession of the mares. Foals are born in the summer, from June to August. When quite new-born their coats are a light yellow which melts easily into the general tint of the parched summer grasses, and conceals the foals as they lie there helpless, from the prying eyes of wolves and vultures. However, their time of helplessness is very short, and they are soon on their feet and running with the herd. It is said that, while the foals are young, a whole herd of wild asses will reduce its speed, when fleeing from danger, so that the foals shall not be left behind.

In former times wild asses were far more plentiful than they are in these days of firearms. Marco Polo, the Venetian, who described his crossing of the "Wilderness of Estingol" in the year 1273 said of it, "there are neither dwellings nor pastures. In summer, one may certainly see human beings, but in the winter the cold is too severe. One also encounters wild animals, with wild asses in great numbers."

Today, unfortunately, we can hardly say that wild asses are found in such great numbers. They are less wary than most other animals of those parts, and will let horsemen ride among them, cantering beside them apparently quite unperturbed. They are also extremely inquisitive, and if they see some unfamiliar object they cannot resist the temptation of coming up quite close to investigate. This lack of caution makes them

very vulnerable. Many are shot for the sake of their flesh and hides; and the foals, when they are still quite small, are ridden down by relays of horsemen until they collapse from exhaustion. Then they are caught, tied up and sold, mostly to India, as beasts of burden.

7

The Predators

In the dictionary the word *predatory* is defined as “preying on others”; so the predatory animals form a very large group indeed—animals of many kinds and of all sizes.

The predators include all flesh-eaters which kill their own prey and are not scavengers. Scavengers are those which eat the flesh of animals already dead. Among the predators we find tiny animals which are killers, just as much as the better-known, larger ones, such as lions and wolves. They include, for instance, the little fluttering, two-and-a-half-inch mouse-eared bats found from the Himalayas to Siberia, and also the shrew, that tiny ball of ferocity no bigger than the end of a man’s thumb. So, too, is the red fox of Tibet, the lynx of the Himalayas, the beach marten and the Himalayan weasel and many other killers of the steppes and mountains; but all these are merely animals that are really more typical of other regions.

In the same way the great, deep-coated leopards of western China and southern Siberia—the most sumptuously-furred

of all the leopards—are only a local race of an animal found right across southern Asia and Central Africa. Their fur, to suit a cold, snowy climate, is deep and dense, and has a creamy-grey ground, not the rich orange-tawny of the typical leopard.

The wolves, too, that are such a constant menace to the wild sheep and antelopes of the high plateau, are a long-furred, powerful race of the northern wolf that once was found all round the world in the snowy, northern forests—they belong to a *circumpolar* species. No one would say that they are not important among the animals of Central Asia, but they are not at all peculiar to that area alone.

Among the smaller predators, however, there is one that especially belongs to the steppes and deserts, and the bleak moorlands of Mongolia and Tibet. This is an inconspicuous relative of the wild cats of northern Europe—the kind also found in the Highlands of Scotland; it is known as Pallas' cat or the manul.

About the same size as our own domestic cat, the Pallas' cat is found from the Himalayas to Siberia, living largely on the tailless hares of those regions, known as pikas.

The small, silvery-grey Pallas' cat is particularly remarkable for the fact that it is especially adapted for its life of stealthy hunting in a land without concealing vegetation—an improvement, if you like, on the other wild cats, at least for this bare kind of country.

The European wild cat normally lives in forested country, though the destruction of forests has forced it to live in such comparatively treeless places as the Scottish Highlands. It is really a small predator adapted to hunting in a land with plenty of concealing foliage, since even the Scottish mountains

are covered, in many places, with a fairly deep growth of heather.

Not so the steppes and high plateau of Central Asia, the home of the Pallas' cat. There, a thin tuft of grass or a low outcrop of rock is often the only form of concealment available, and a small predator like a wild cat is hard put to get within striking distance of its prey, without being observed. Successful hunting there depends on seeing and hearing without being seen or heard.

The process of evolution, by natural selection, has produced an animal excellently adapted for successful hunting in this kind of country. The Pallas' cat is a creature perfectly shaped to creep up, with scarcely any cover, to its wary prey. The large, domed forehead and upstanding, expressive ears of the normal wild cat are reduced to an almost grotesque lowness and flatness in the Pallas' cat. The forehead slopes away, straight back from above the eyes, and the very broad, low ears are set wide apart and low down on its head. The result is that this stealthy hunter's eyes are on the highest part of its head, and it can keep its short ears pricked while exposing the least possible area to warn the keen eyes of its would-be victim.

A normal wild cat, if it wants to remain unobserved in an exposed position must lower its ears and this unavoidably reduces its ability to listen. The Pallas' cat, on the other hand, can keep its short ears keenly pricked, and still remain inconspicuous.

This is an excellent example of evolution at work. Many Pallas' kittens inevitably fail to survive their first year. The ones that do survive are those best-suited to hunting in their bare homeland—those with the lowest forehead and the shortest ears. These survivors become the parents of further

generations. Their strange, almost grotesque low contour is inherited by their offspring, who again are likely to survive in proportion to the lowness of their head and ears.

Much larger and nobler than the Pallas' cat is its distant relative and fellow countryman, the snow leopard or ounce.

This is not just a mountain race of the true leopard, though similar in size and appearance. It is quite a separate species, found only in Central Asia, and usually not below a height of about 6,000 feet. Its food consists of the flesh of such mountain animals as wild sheep and ibex, augmented with marmots and other small rodents. To some extent, its prey make vertical migrations with the seasons, moving down to lower levels in winter, and up again in the spring as the snow melts higher and higher. The snow leopard goes where its food is to be found. Midsummer finds it, in the Himalayas, some 18,000 feet above sea level.

Compared with the true leopard of the lowlands, the snow leopard is a more placid, less savage animal, much more heavily furred, with a very long tail, like a great furry rope, and enormous paws. Its skull is more arched and there are other minor differences, not easy to observe. Its forehead, from eye to ear, is rather short, the same peculiarity in a very modified form as we have seen in the Pallas' cat, and probably serving the same purpose.

The snow leopard's coat is long and dense, and is soft grey, with the dark rosettes on the back and flanks rather blurred and broken by the depth of the fur. This wonderful coat is much prized in the fur markets of the world.

A snow leopard would not attack a man. Before now it has



Snow leopard

been known for a hunter to catch and bind one of these great cats without receiving any injury to himself. These beautiful animals are much coveted by the mountain hunters, but the heights they frequent are their protection. In many areas they are safe in their mountain homes, the home also of the avalanche and the fierce mountain winds close to the edge of the snows.

Those people who know the tiger from those found in India and Burma think of them as belonging to the hot lowlands; but it seems probable that they are relative newcomers in those tropical lands. Of course they have been common there for many centuries, long before Europeans first visited Asia. A thousand years is a comparatively short period in the lifetime of a species.

Tigers are known to suffer a great deal from the excessive heat they experience in India. During the hottest part of the day they seek out the shadiest places in which to lie, and they spend much of the time wading and swimming in the cooling water of the rivers and irrigation canals. They are really much more at home in colder countries farther north, such as China, Mongolia and southern Siberia, and this region is probably their true ancestral home. From there, long ago, they appear to have invaded the hot lands to the south, an invasion that may still be taking place. It is said that they have appeared recently in districts where they have been hitherto unknown.

The lion is often called the king of beasts and in regal bearing he is supreme, but the tiger is really a more powerful animal. The tigers of Siberia in the cold north are the largest and most powerful of all the tigers—one quarter as large again as the Indian tigers. They are thus the largest of all the cat tribe, and

look even larger and heavier than they are because of their deep coat of long, dense fur, greyer and lighter than that of the tropical kind.

Up in those northern lands, the winters are very severe and the Siberian tigers certainly need their thick, woolly coats. Snow lies on the ground there for months on end, weighing down the branches of the pine trees and drifting deep in the hollows of the land; but the tigers find no difficulty in enduring this intense cold. In fact they suffer far less from the northern cold than their Indian relatives do from the southern heat. This in itself seems to support the theory that the tiger was originally a northern species and is only now adapting itself to the climate of the hot lands it has invaded away to the south.



Northern tiger

Lists of animals of Central Asia include a number of very interesting smaller wild cats which range northward into this region, though belonging more strictly to India and south-east Asia. Largest of these is the clouded leopard, a mountain-dwelling species, rather like a short-legged leopard, but with large, close-packed rings of dark in place of the smaller rosettes and spots of the normal leopard. Each ring contains an area of fur slightly darker than the narrower ground seen between the rings.

These beautiful, soft markings may be any shade from grey to rich yellowish-brown.

A peculiarity of the clouded leopard is the great size of its upper canine teeth, adapted for killing deer and other animals a good deal larger than itself, which it hunts in the mountain evergreen forests from Nepal to south China. These teeth are the nearest approach in any existing animal to the huge tusks of the sabre-toothed tiger of prehistoric times.

Much smaller than the clouded leopard is the beautiful leopard cat, which is like a slender, miniature leopard. The species is found from India up into the forest regions of western China and beyond. About the same size is the desert cat, which frequents dry, treeless country from North Africa to India and from there right across the steppes of Central Asia, living mainly on small rodents. The marbled cat and the golden cat too, both have their home in the Malayan region, and extend their range into the eastern Himalayas and the forested south-eastern corner of Tibet, the jungle home of the serow and the takin.

However, if we turn from the cats to the dogs there is one species that without any doubt belongs to Central Asia, though it is one of those exceptional animals found equally to

the north and south of the Himalayan range. This is the red dog, called in India the dhole.

The northern race is known right across Central Asia, through Tibet and Mongolia to the Altai Mountains in Siberia. These wild dogs are even more dreaded than the snow leopards and tigers of those regions, for they hunt in packs with a deadly persistence, following their selected prey mainly by scent. The packs are composed of a family, or perhaps a group of families, co-operating for the sake of better hunting. Their leader is a powerful male, the ruler of the group. They follow their selected victim in a tireless, loping canter—unhurried and somewhat lumbering, but they have such endurance and perseverance that in the end their victim becomes exhausted and can be pulled down and killed. These wild dogs never attack man, but this can hardly be from lack of courage, for they have been known to drive even leopards and tigers from their kill.

Generally wolf-like in appearance, the red dog has rather shorter legs, more rounded ears, and a more pronounced bulge on its forehead. Its rather long bushy coat is usually a foxy red, but it varies both with the season and in the individual. The underside and the inner side of the limbs are always lighter than the back, and the tail rather fox-like. These animals are the terror of both the wild sheep of Tibet, and the wild asses of the steppelands.

8

Misfits

When zoologists disagree among themselves it is usually about those animals that are so closely related that it is almost impossible to determine whether they form distinct species.

The argali sheep of Tibet, for instance, are so very similar to the Pamir sheep (Marco Polo sheep), farther to the north, most zoologists now place them together as two races of a single species. But what of their close relatives, the bighorn sheep of North America, should these, too, be placed in the same species? This is a little more difficult. In the case of the urial, on the other hand, there is no doubt at all; here is a different kind of animal, which clearly forms a distinct species on its own.

In the course of evolution the argali and the urial parted company so long ago that they have had time to develop, into quite distinct kinds of animal. However, they resemble each other sufficiently to place both in the same genus, the sheep group.

There are others, however, that seem to have left the main

stream of evolution very early, before the main groupings of their kindred had been established and fixed. They give us tantalizing hints as to the course that evolution must have taken in the far distant past, but usually only hints.

One such animal is the bharal, often called the "blue sheep" of Tibet. This small grazing animal—we will not call it a sheep—is found over the greater part of the bare Tibetan plateau, roaming in herds of eight to fifty or more. It is an animal which keeps to the great heights, staying well above the tree line at a height of 11,000 feet—in the summer at 14,000 feet or more.

What is perplexing about this animal is that in some respects it appears to be a perfectly normal wild sheep, and in others a normal goat. One would suppose that, when the prehistoric sheep and goats each developed their own peculiar characteristics, and parted company to form two distinct groups, the bharal did not join either group, but continued on a course of evolution between the two.

Like the sheep, the bharal prefers to graze on open, level pastures, feeding and resting alternately, and frequently lying down to rest. But, like the goats, it is a superb climber and, when in danger, seeks safety in steep, precipitous places.

The horns do not have the circular, spiral turn so typical of a ram, but are more like those of a goat, curving first outward, then down and back. The male bharals are without beards or the strong smell of a male goat, yet they are also without the face glands below the eye so typical of sheep. Moreover these animals will not interbreed with domestic sheep, whereas the normal sheep will. So here, it seems, we have a species that has certain claims to be classed as both sheep and goat, but is, in fact, neither, and must be placed midway between the two.

Bharals' coats are rather striking—brownish-grey above, with a slate-blue tinge which accounts for the name "blue sheep", and whitish below and on the inner side of the limbs; there is also a distinctive white patch on the knees. Along the flanks, separating the light belly from the darker back there is a strong dark line. In the males the front of the face, too, is dark, and so are the outer sides of the limbs.

In spite of these strong markings, which look so vivid at close range, the bharals blend into the rocky landscape of their moorland home perfectly. It is almost impossible to detect them when they lie down to rest among the grey outcrops of rock and the boulders that lie strewn on the high pastures in many places.

Bharals are predominantly animals of the Tibetan plateau. Although they are also found to the south of the main Himalayan range, it is always above the tree line, for they never enter forest or scrub at any time.

Another animal that does not fit precisely with any of the main groups is the tahr. We have already met it as one of the few species found in the Himalayas and also far to the south, in the Nilgiri Hills.

The tahrs form a strong contrast to the bharals. More distinctly goat-like in many ways, they frequent the steepest, most precipitous parts of the mountain ranges with towering cliffs and steep slopes of rock where there is dense scrub and forest. But, whereas the bharals never enter the forest and never go below the tree line, the tahrs never go above it, and never above about 11,000 feet—but keep within reach of concealing foliage at all times. They will venture out into the



Tahr

forest clearings to graze, but only cautiously. The older males are never found there by day—only at dawn and dusk.

The true wild goats will take to steep crags and precipices readily when driven by fear, but the tahrs prefer them at all times, making their way with absolute certainty where it would seem impossible for any living thing to find a foothold. In winter, which is the tahrs' mating time, the males fight fiercely for possession of the females. These desperate duels often take place on cliffs and precipices, and they end with one of the combatants crashing to his death among the crags. Many tahrs are killed in this way.

In most respects, tahrs resemble the true goats, in their feeding habits, for instance, and the kind of country they frequent; but in certain points of anatomy they are quite distinct, and in the absence of beards in the males.

Their horns are rather short and backward-curving, and their coats are short and smooth on the face and legs, but long and shaggy on the neck and body. The older males have a long mane on their shoulders falling to below the knees. In colour, the tahrs vary a good deal. The older males are normally rather dark—often reddish and nearly black on the face and the front of the limbs, and a line running down the middle of the back. The females and younger males are a lighter brown, while the babies' coats are quite pale.

The Himalayan tahr is found in the Pir Pinjal mountains, to the west of Kashmir, and eastward along the Himalayas as far as Sikkim. Another race is isolated in southern India, and a third far away to the west, in Arabia. These three races are separated by wide stretches of low-lying country, which isolate them from each other completely, and so they can never reunite.

We now come to a group of strange animals who fit into none of the main groups. They seem to form a link between the goats and the antelopes, having some of the characteristics of each; for this reason they are sometimes called the goat-antelopes. There are five kinds of goat-antelope all told, three in Central Asia, another, the chamois, in Europe, and the fifth is an American species, the Rocky Mountain goat.

One of the Asiatic goat-antelopes is the goral, a small, gentle goat-like animal, with short, black horns and no beard. Its hair is coarse and not very long, though it forms a slight crest along the back of the neck.

There are four kinds of goral, each one restricted to its own area, and each differing from the others in certain respects. Those of the western part of the Himalayas are the grey gorals, also called the Himalayan gorals; but the eastern Himalayas have their own kind, the brown goral, which has a black strip down the middle of its back. The Burmese goral differs from the others in having a longer tail and some orange-yellow on its throat; it is found from northern Burma to western China and along the eastern border of Tibet. Farther north we meet the northern or Manchurian goral, which extends into Siberia. As we would expect it has a thicker, heavier coat than those further south.

Gorals are found in varied kinds of surroundings and at different altitudes. They are equally at home on open, grassy hillsides and in mountain forests with many rocks and cliffs; and they can be found as low as 3,000 feet in the Himalayan foothills, or sometimes as high as 14,000 feet in the main range itself.

When one goral is seen, it is almost certain that there will be others not far away. When a goral is alarmed it utters a loud,

warning hiss, which is immediately repeated by all the other members of the group who will be feeding nearby. In cloudy weather they will feed at all times of the day, but when it is bright and sunny only at dawn and dusk.

The serow is a larger animal than the goral, with a long coat, thicker neck, and short sturdy legs. It is an ungainly-looking animal, with a habit of standing with legs straddled wide and its head held low. Its head, too, is far from beautiful: the eyes are set close under the small horns, while the large, rather ugly ears are placed far back, thus the horns are closer to the eyes than to the ears, giving a rather grotesque appearance.

However, in spite of its ungainliness, the serow is surprisingly



Serow and wild dogs

active and nimble when galloping and leaping among steep rocks; for it lives among the thickly-wooded gorges, where many great boulders and caves give it shelter in bad weather. When alarmed the serow will utter a strange, whistling scream, as it dashes for shelter among the rocks. It is a rather solitary animal, and even when several form a party they are usually well scattered—not feeding close together.

Although the serow is such a shy, timid animal it can be dangerous if cornered. A male serow has been known to charge a hunter who has shot its mate; and these animals will face and fight a pack of wild dogs, which are their greatest enemies. Victory in these contests does not always go to the dogs, for a serow and a wild dog have been found lying dead side by side, each having mortally wounded the other.

Serow vary a great deal in colour from nearly black to rusty-red. Often the head, neck and shoulders are dark, the rest of the body passing from grey to reddish on the rump, and nearly white on the underparts. This great variation might be expected, for the serow have a very wide range; they are found in the forested levels of the Himalayas, and eastward into China, and from there southward into the Malay Peninsula and on the island of Sumatra—this, of course, is far to the south of Central Asia. There are other races farther off still, in Japan and Formosa.

We now come to the last and strangest of the goat-antelopes of Central Asia, though it is sometimes placed in a category by itself. This is the clumsy-looking takin, which looks more like a small ox than either a goat or an antelope. In fact the Chinese call these animals *yeh niu*, which means “wild cattle.”



Takin

The takin is a rather large animal, about the size of a donkey, with a heavy body, short legs and a very thick neck. Its shoulders are high and its back humped, sloping steeply down to its short furry tail. Its large head has a peculiar bulging profile, with the eyes set high up, close to the horns. In the males the horns are set close together at their base, like those of a buffalo or musk ox. They first turn outwards to the sides, then upward and backward; those of the females are smaller and thinner.

The takins' coats vary a great deal from very dark brown to a golden yellow; or, occasionally, reddish. The young calves are dark at first, becoming lighter as they mature, while the females are generally greyer than the males.

Takins are found in the rainy eastern end of the Himalayas and in the nearby western part of China. There they frequent the steepest and most thickly-wooded places, especially where there is dense bamboo and rhododendron jungle. They are very seldom seen, as they spend the greater part of the day in the shelter of thick jungle, only coming out to feed in the evening. In the summer, they are sometimes found in herds up to three-hundred or more, but in winter they remain in small parties. These animals are so shy and wary, and the country they live in so difficult to reach, that very little is known about the habits of these strange, uncouth creatures.

9

Forest Tusks

Tusks immediately bring to mind elephants, as in these animals tusks reach their greatest development.

Herds of wild elephants are found on the lower slopes of the Himalayas; in the bamboo forests of Burma they regularly climb to a height of 10,000 feet, while farther west in Sikkim their tracks have been seen in the snow fully 12,000 feet above sea level. This might justify a claim that these great, wise beasts should be included among the animals of Central Asia, since these high forest zones of the Himalayas have a climate more akin to the high plateau in the north, than to the lowlands in the south. Yet the greater part of the range of the Indian elephant comes in India, Burma and the tropical countries farther to the south.

Stories of elephant herds discovered farther north, where China meets Tibet, might one day turn out to be true, for if elephants are prepared to wander into the snows of Sikkim, they could certainly find the jungles they like in Szechwan. Then, perhaps they might be claimed as Central Asian

animals; but in the meantime we must content ourselves with less remarkable tusks than those of the noble elephant.

The most noteworthy of the tusked animals found in Central Asia is the wild boar—the same species that was once common in the forests of Britain centuries ago. There was a time when the range of the wild boar extended in the west as far as Ireland, and from there eastward across the whole of northern Europe and most of Asia, wherever there were large areas of forest to support it. But here, in the west, it has been so hunted and harassed that there are now comparatively few places in Europe where boars still exist. At the eastern end of its range, however, it is still fairly common, all the way to the Altai Mountains of Western Mongolia. There, the bare steppes give way to forests of pine, fir and larch, which are very much to the wild boar's liking.

A wild boar's tusks are not in any way comparable with those of an elephant; they scarcely protrude beyond the lips even in the males. Nonetheless, they must not be considered as unimportant. These tusks are the normal canine teeth, which are large and pointed in carnivorous animals like cats and dogs, but enlarged, in the large boars, to anything up to a foot in length, including the root of the tooth. Sows also possess tusks, but on a smaller scale.

The tusks in the upper jaw, instead of growing downward in the normal way, turn sharply upward so that their points are growing parallel with those in the lower jaw. The upper pair are polished smooth by their constant friction with the lower pair, which in turn are sharpened to a razor-sharp edge. If, through some unfortunate accident, one of these tusks is broken, the other, having nothing to rub against, grows indefinitely. At best, this is a big handicap to the injured animal—at worst,



Wild sow and litter

it will kill it, for the curving tusk eventually meets the skull and pierces it.

A boar can inflict appalling damage with its tusks, ripping upward with the whole force of its powerful neck. Though it normally avoids contact with man, if it is molested or surprised it will attack without warning, for boars are very irascible animals. In a courageous, aggressive animal, like a mature wild boar, fear and anger usually operate together and the courage of this animal is enormous. It will hurl itself with complete recklessness at an enemy, fighting with its murderous tusks, literally to the death. A full-grown boar has been known to take on a tiger much larger than itself—the tiger is the boar's hereditary enemy in Central Asia. Sometimes the tiger has had the worst of these duels, and even been killed, ripped to pieces by those razor-sharp tusks.

In districts where they are often hunted wild boars are mainly nocturnal, spending the day lying concealed in dense thickets, and feeding mostly at dawn and dusk. In these circumstances their presence in the area can usually be known by the evidence of their nightly foraging. There will be large areas in the forest with the soil turned up, where the animals have rooted around with their snouts for the tubers and roots which form their main diet. But this is not their only food, for boars are omnivorous animals, and nothing which they can eat comes amiss. Though they do not often kill other animals for their flesh, they are happy to eat the flesh of animals already dead—they are in fact, scavengers and will eat any kind of carrion.

An adult boar is about four feet long and stands about three feet high at the shoulder. The profile of its face is straight, not concave as in most domestic pigs, which are its descendants.

Its long mobile snout, ends in the typical flat disk in which the nostrils are set.

A boar's coat is of stiff bristles, brown, black and dull olive, with a woolly underfur below, which varies in density in proportion to the severity of the climate in which the animal lives. The three shades combine to produce an over-all grey, though there is a little white on the throat and around the mouth; the edges of the ears also are white. The bristles on the neck form a crest, which rises when the animal is angry or excited.

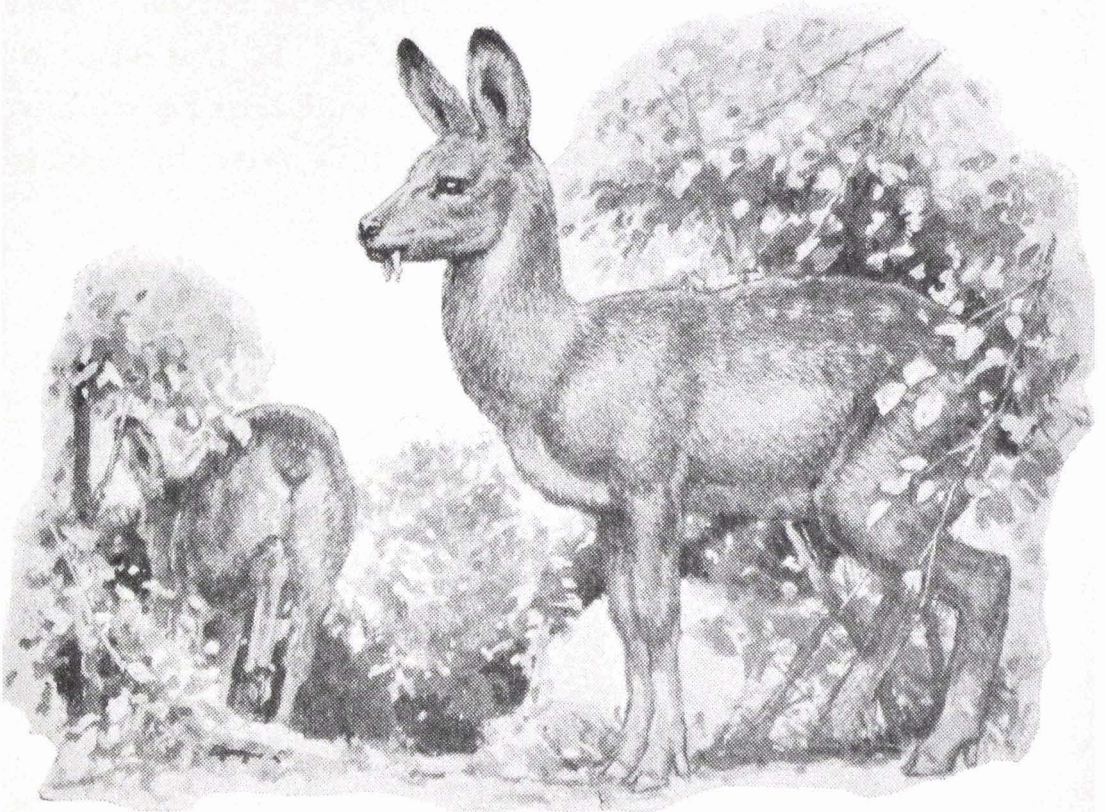
The young wild boars—there are from three to twelve in a litter—are marked with dark stripes, which run lengthwise along their bodies. There may be two litters in a year. If all these piglets lived the forests would soon be overpopulated with these animals, but they have numerous enemies—and many young boars are lost every year. They are also liable to be killed by strange epidemics which strike the boar population every few years. When the epidemics have gone the forests seem to have very few wild boars left.

The musk deer is another tusked animal which is found in mountain forests throughout Central Asia, but it is very different from the wild boar.

This stocky little deer, barely twenty inches high, carries tusks in its upper jaw. They project downward some way below the mouth. These tusks, like those of the wild boar, are the pointed canine teeth that we are used to seeing well-developed in members of the cat and dog tribes, but not in a small deer that is completely vegetarian, its food consisting of grass, leaves and lichens.

Little is known of the habits of these animals, for they are very timid and secretive, living almost all the time in thick cover in the birch forests, which form a zone on the mountains, above the level of the pines. Presumably their tusks must be used as weapons when the bucks fight each other for possession of the does during the breeding season. Musk deer are completely without the antlers which are the normal weapons of deer in their combats.

There is something rabbit-like about the build of the musk deer with its small head and neck, its rather arched back, and its hindquarters higher than its shoulders. The small tail is lost from view in the long fur which surrounds it, and the furry rabbit-like ears are very large, as they are in most deer



Musk deer

which inhabit thick woodland: for them it is hearing rather than eyesight that gives warning of approaching danger. In many small details of its anatomy the musk deer differs from the other species of deer, its closest relatives.

Most deer have, on the surface of their bodies, glands which give off a distinctive scent. These are usually on the face, below the eye, and on the feet, where they lay a trail wherever the animals walk. These glands provide a form of communication among the deer, and are often exceptionally powerful during the mating season, when the males are collecting harems of females for themselves. In the case of those deer who live in open country it is the eyesight that plays the most important part in communication; but those, including the musk deer, who frequent thick woodland need very powerful scent glands.

The musk deer is exceptionally well-equipped with scent glands—and gets its name from the musk gland of the males, situated beneath the skin of the belly. During the mating season this musk gland gives off an exceptionally powerful scent, which is believed to guide the females to their mate. It is this gland and its strange scent that has, for centuries, been the downfall of this little animal; for, although it is quite unpleasant when fresh, when the gland is removed and dried it gives off the pleasant scent called musk, which is much sought after in China for a perfume and for medicine. For the sake of this musk gland these deer have been hunted a good deal more than other species of the same size, and their numbers are much reduced in consequence. Today, however, a synthetic substitute for this natural musk has come onto the market; so perhaps, at last, these interesting little animals will be allowed to live in peace.

Musk deer do not live in large herds, but in small family parties, dominated by the buck. They often frequent steep mountain slopes with a good deal of smooth, hard rock and sometimes, deep snow. In this type of country they are remarkably sure-footed, and very reckless and headlong in their movements. Musk deer have feet that enable them to move safely and swiftly in difficult country. The hoofs are long and pointed and, in addition to the two normal toes possessed by all cloven-hoofed animals, the two small ones, behind the main toes, are exceptionally long. Zoologists call them the lateral hoofs. Most of the deer have only tiny vestiges of those two dwarf toes, as they have no use for them; but others like the reindeer and moose, which need to move on soft snow, have them large and well-developed in order to spread their weight, and the musk deer is one of these.

The coat of the musk deer, also, is adapted to a life in the snowy forests at a height of anything up to fourteen-thousand feet. The hairs are coarse and thick, and brittle like those of the reindeer; one could almost describe these animals as being "thatched", not furred. The hair is usually a rich, dark brown, specked with a lighter grey, in imitation of the dappling of the sunshine as it filters through the birch leaves on to the soil and rock below.

10

The Sole Walkers

Central Europe is the home of several kinds of bear. As in North America there are two main kinds—black bears and brown bears; but these terms are misleading, as the colour is not the determining factor, and some brown bears in this region are almost black.

As a rule black bears are the smaller of the two. They climb readily and skilfully in trees and prefer a woodland home. Brown bears are clumsier and more ponderous, living and feeding mainly on the ground.

There are a number of local races of these brown bears in Central Asia, differing from each other mainly in their size and colour; but their colour also varies with the changing seasons and with the individual, and also with age.

Of these local races the best known to Europeans is the red bear of the Himalayas, sometimes called the “Isabelline Bear” from its Latin name, *Ursus arctos isabellinus*, which refers to its yellowish-grey coat. Normally its coat is lighter than that of the brown bears of Europe and America: its winter coat

has been described as “a beautiful silver-tipped cinnamon colour.” In the summer the coat is shorter and browner, but in winter it grows long and luxuriant, with a dense underwool to give protection against the bitter cold of the mountain weather.

The Himalayan race is somewhat smaller than the American brown bear; so also are the blue bears of Tibet. This name comes from the frosting of pale grey over their dense coats of blackish-brown hair, the light tips of the hairs giving a silvery-



Red bear with cubs

bluish sheen to the coat, though in some cases the hairs are tipped with yellow, which produces a golden sheen.

Much larger are the Manchurian bears which inhabit not only Manchuria, but northern Mongolia and parts of northern China. These great bears are only exceptionally large brown bears just as the grizzlies of North America, too, are a large form of the brown bear. Actually the only part of the Manchurian bear's coat that is brown is the nose: all the rest is black except for a small white patch on the throat or neck. Like the American grizzly the Manchurian bear appears to be growing scarcer over much of its range.

As with all bears, the red bears of the Himalayas are rather solitary animals. The males live alone except during the mating season, and the females have only their own young ones with them. When four or five bears are seen together, this is always a female with her cubs. Perhaps two of these are from this year's litter, and one or two from last year's, for young bears take several years to mature, and stay with their mothers until they are nearly full-grown.

In springtime, these bears are to be found mostly in the forests of birch or deodar on the lower slopes of the mountains. But as summer approaches, and the ice thaws on the lakes, and the snow melts on the mountain slopes, the bears leave the trees and follow the melting snow upward. They graze the new-growing grass like cattle, and turn great rocks over with their mighty forepaws to get the insects hiding underneath. By midsummer, they will have reached the great heights above which the hard-packed snow never melts, then, with the approach of autumn, they must descend again to the lower, forested levels once more.

There they feast on the ripe forest fruits, and sometimes

raid orchards for peaches, apricots and mulberries: they are especially fond of walnuts. They also raid the villager's cultivated ground to steal the crops—maize or buckwheat. These brown bears are not at home among the branches of trees and, although they sometimes climb to get food, they usually eat the fruit they find on the ground. At this time of year, the bears spend much time digging up large areas on the mountain sides in their search for roots and tubers.

These bears are not usually dangerous to humans, as they avoid men and only attack if surprised or cornered, or to defend their young. They do not often kill large animals for food, though some form the bad habit of killing the sheep, goats and even ponies that have been driven up to the high pastures for the summer. On the other hand the bears are diligent in digging up the smaller inhabitants—the voles and marmots—from their burrows. They are enormously powerful and have little to fear from other animals. Man is really their only enemy.

When winter comes, with its frost and snow and bitter winds, there is little food for such large animals as bears. They grow enormously fat during the good times of late summer and autumn; but when the really severe weather sets in, the female bears creep away into some snug retreat such as a hollow, fallen tree or small cave. There they go into a deep sleep. In this way they use up scarcely any energy, and the fat stored up on their bodies is sufficient to keep them alive until spring brings warmth and growth to the mountains once again. Male bears do not always sleep the whole winter through.

It is during this winter sleep that the bear cubs are born—tiny, naked, and helpless—but they are warm and safe with their furry mother in her winter retreat, often with the snow

piled high above them. They are blind for about four weeks, but they grow at a prodigious rate; and by the time their mother breaks a pathway through the melting snow they are round, furry balls of energy, romping, quarrelling, fighting each other and poking their inquiring noses into every cranny. Then, for nearly two years, their devoted mother cares for them, teaches them and defends them fearlessly, for female bears are among the most devoted parents in the world.

The species of black bear found in Central Asia is larger than the American black bear. We know it as the Himalayan bear. It is also sometimes called the moon bear, for its Latin name, *Selenarctos*, comes from *Selene*, "the moon".

The Himalayan bear is found from Persia, in the west, all along the Himalayan range and on into South China and beyond. Over most of this area it is very much a forest-dwelling species, seldom going on to the bare pastures above the tree line, as the brown bear does. On the rainy, southern side of the mountains the forest grows to a height of 12,000 feet in many places, and there the Himalayan bear can be found in the summer.

When winter comes, this bear either hides away in some snug den and goes into a deep sleep, or it descends to the lower slopes and foothills of the mountains, where the cold is less severe and more food is available. This amounts to a migration, but not, like most migrations, entailing a long journey to some distant land; this is a vertical migration from the arctic climate of the great heights to the warmer, more genial conditions lower down. Many mountain species make these vertical migrations.

In the bare, barren country in the extreme west of its range, the Himalayan bear has had to abandon its normal way of life.

Here there are no forests, and it has adapted itself to living in an almost treeless land.

The coat of the Himalayan bear is smooth and shiny, and jet black except for the muzzle—which is yellow or buff—and a bold V-shaped white mark on its chest. In winter, it grows a kind of cape of long hair on its shoulders, which gives it a hump-backed look as it walks. The ears are large and prominent, and the face short and square.

This bear, though it is roughly the same size as the red bear, is a less clumsy, more active animal, quite at home among the branches of trees and a very skilled climber. Its diet is mainly vegetarian—chestnuts, acorns, roots and berries, varied with ants and other insects. It is especially fond of honey, and very diligent at digging out the honeycomb of the small bees which build their nests in hollow trees. At the end of summer, it will raid the cornfields and orchards of the villagers, and sometimes kill their animals when at pasture.

Living, as it often does, in places frequented by humans, it can sometimes be a danger to men, especially in districts where it is much hunted. Then it can be very bad-tempered. Its senses of sight and hearing, though keener than those of the brown bears, are not very good—only its nose is a reliable guide. When approached up-wind, it may be taken unawares, and in its fear and surprise it is liable to attack without warning. Then, with a blow from its long, black claws or a crushing grab with its powerful jaws, it can do appalling damage. Many villagers are severely mauled every year, or even killed. However if the bear has ample warning of the approach of humans, it will usually take avoiding action, sometimes rolling itself up into a ball and rolling head-over-heels downhill in order to make a speedy getaway.

Unlike most other animals, bears walk on the soles of their feet—they are *plantigrades*, “sole-walkers”. Badgers, wolverines and coatis are *plantigrades*—so, too, are the raccoons.

In the Himalayan region there is an interesting relative of the raccoons—furry, cat-sized, long tailed—the lesser panda or red cat-bear, so called from the flaming chestnut-red of its fur. Like a cat, it can draw its claws back though not completely out of sight, it also hisses like a cat when alarmed. Its legs are black, and its face white, with a dark stripe curving down from the outer corner of each eye.

The lesser panda frequents the forest zone of the mountains, living mainly in the trees, and eating leaves and forest fruits, which it finds at night. During the day, it sleeps curled up in the topmost branches of a tall tree, with its long, faintly-ringed tail curled over its head, or it will lie along a stout branch with its head out of sight, tucked right in under its chest, between its front legs.

Lesser pandas are engaging little creatures and easily tamed; but far more remarkable and, for all its scarcity, better known is its large relative, the giant panda.

We all know the giant panda, at least from pictures. It has become so popular, wherever it has been seen in Europe and America, that its bulky, bear-like build and striking, piebald coat need no describing.

This strange and lovable animal has only been known to naturalists in Western countries for about a hundred years. At first, after its discovery by a French missionary, it was taken to be a new species of bear—the Chinese call it the *beishung*, “white bear”. Being so very bear-like it is difficult to believe that the giant panda is actually related to the raccoons, a fact



Giant pandas

proved by minor details of its structure which are not easily observed.

It seems strange that an animal as large as the giant panda could have remained unknown for so long, but if we consider the position and nature of the country it frequents, it is not so surprising after all.

The Chinese province of Szechwan, the main home of the giant panda, consists of a large, thickly-populated depression ringed by enormous mountains. The very fertile depression, known to Europeans as the Red Basin, is mountainous enough; but in comparison with the surrounding mountains it seems comparatively flat. To the west, especially, the ranges rise one beyond the other, close and high, and the narrow valleys between them are virtually canyons. The farthest ranges, over against the Tibetan frontier, vie in height with the mighty Himalayas themselves. It is in this close-packed mass of mountains that giant pandas are found.

To reach this area from the direction of the Red Basin in the east meant crossing ridge after ridge of the steepest mountains, and the deep canyons dividing them. Immediately after climbing one precipitous rock-wall, explorers had to descend another, then force their way through dense forest, to face a mountainous range even steeper and higher than the last. To make matters worse, along the floor of each canyon raged a torrent of water, and the only bridges were ropes of twisted bamboo.

To approach from the south meant a long journey through dense, unhealthy jungle inhabited by tribes often hostile to strangers. To the west lay the barren Plateau of Tibet, at that time forbidden to white men. To the north the wide deserts and steppelands of Mongolia, and beyond that the wastes of

remote Siberia. No wonder the giant panda remained so long unknown.

The few human habitations to be found in the mountains of Szechwan are mostly built on the very summit of some mountain ridge; where the ground is flat enough to be built on. The valley bottoms are liable to sudden flooding after some distant storm. Travellers in this region may have to spend many hours looking for a piece of level ground large enough to allow them to pitch a small tent.

The forests are of fir and pine, with giant rhododendrons and, in many places, bamboo. Bamboo is a kind of giant grass which reaches a height of ten to fifteen feet, and grows so thickly that no other green plant can compete with it. These bamboo jungles are deeply carpeted with dead bamboo leaves and broken twigs, their wiry stems grow so close together that travellers must cut paths through them in order to pass. In many places the only paths are the tunnels through the bamboos made by the takins, bears, leopards, and serows as they move about, and of course by the giant pandas themselves.

The leaves of the bamboo, and especially the tender summer shoots, are the principal food of the giant panda. Bamboo fibres are exceptionally tough, and the pandas have very large molar teeth for grinding them up and enormously strong jaw muscles. It is the wideness of the bones to which these muscles are attached that gives the panda's face such breadth. They also include fish and small animals in their diet. This was not known when pandas were first kept in zoos, and they did not thrive at first on a wholly bamboo-leaf diet; but when some flesh food was added their condition improved at once. Their feet, too, are especially adapted for holding the bamboo stems, and they bend them down so that they can quietly browse off

them while sitting back on their haunches. Pandas have no thumbs to grip against the other toes—only apes and monkeys, and man himself have these—but they do have a very useful substitute, a large knob on the inner edge of the main pad of the front paw. By bending the toes inwards towards this knob they can use it as we use our thumb.

Pandas usually come out to feed at sundown. During the day, in warm weather they sleep curled up high in the branches of some tall tree, and, in winter, hidden away in a cave or hollow tree. If no such shelter is available they creep into the thickest clump of bamboo stems, and, by turning round and round, twist them into a kind of nest. Above them the snow may be lying deep on the top of the bamboos, weighing them down and forming a low, white ceiling to the panda's darkened, twilight world.

Most of the human inhabitants of the Szechwan mountains are descended from the primitive race which occupied the whole land before the Chinese moved in from the east. Some tribes frequently hunt giant pandas, using large dogs trained to follow their scent through the dense forests and, when they catch up with them, to so harass and delay them that the hunters, who are battling their way through the undergrowth, can overtake them and finish them off.

But other tribes will never harm a giant panda, believing that to do so would bring them disastrous bad luck. This superstition may be due to the fact that a baby panda, when in pain, cries almost like a human baby.

11

Antelopes and Deer

Antelopes bring to mind a picture of the hot savannas of Africa, with groups of gnus or springbok, their sleek, smooth hides gleaming in the sunshine. These are, indeed, typical antelopes in typical antelope country. But some species of antelope are far from typical, because they live under exceptional conditions.

One of these exceptional antelopes is the chiru, which inhabits the highest, coldest area of Tibet, a huge tract of bleak, dry plateau land crossed by range after range of bare mountains. This area is hot by day during the short summer season, and bitterly cold in the winter. Even in August there is frost at night, and at midwinter the weather is truly arctic, with biting, raging winds and a hard frost day after day and night after night, for the altitude is between 12,000 and 18,000 feet above sea level. Who would expect to find such country inhabited by antelopes?

Even so, the hardy chiru is found there, and remains there throughout the year, protected from the harsh weather by

its thick, woolly coat which might almost be called a fleece. There is no sleek sheen here, as we see in the tropical, lowland antelopes of Africa, and those of nearby India; but a rough, harsh pelt with no hint of glossiness.

This fleecy coat is white below and light fawn above; in the males this shades to a dark brown, nearly black, on the face and on the front of the legs.

The chiru is one of the antelopes with horns carried only by the males—the females are without them. Their horns rise from the head close together and are very long—nearly as long as the height of the animal that carries them, which is thirty inches. They are black and closely ringed, and almost straight, with only a hint of the “lyre curve” so often seen in the horns of antelopes.

It is sometimes claimed that the chiru is the animal that gave rise to the fabled unicorn—that when seen in profile it may have appeared to have only one horn.

These high-altitude antelopes are tall and slender—almost gaunt in build, with a long neck and slender legs, and they possess one remarkable and grotesque characteristic—their peculiar swollen muzzle. This swollen muzzle contains two large cavities, one on the inside of each nostril.

Naturalists have always been puzzled by these strange nasal cavities and wondered what their purpose can be. The most likely reason for their presence seems to be connected with the extreme height at which the chiru lives. At those great altitudes, the air is extremely thin, much thinner than we know it nearer to sea level; and these nasal cavities probably help their owners in some way to make more efficient use of this thin air, and so give them greater energy and endurance.

The chiru are usually found in small parties of three or

four. For most of the year the males live quite alone. However, they sometimes congregate in large herds in order to take advantage of the rich grazing in some special locality.

They graze in the early morning, after which they make for some high, exposed place where they rest during the middle of the day, with sentinels posted to look out for approaching danger. Like many defenceless animals normally frequenting bare mountainous country, the chiru have exceptionally good eyesight, as well as very keen senses of smell and hearing. They depend as much on sight as on the other two senses to give warning of danger.

When they lie down to rest, the chiru are in the habit of digging out a shallow pit in some sandy place; in this they can lie, protected from the keen mountain wind. There they spend the day, descending, as the sun sets, to their grazing grounds once more.

The chiru has a relative, the saiga, also living in Central Asia, but it is doubtful if they ever meet, for the saiga inhabits the open steppes away to the north-west—its main homeland being the large area known as the Kirghiz Steppe, which extends westward right across to the Russian frontier.

The saiga is slightly smaller than the chiru, and even more ungainly and grotesque. Its stocky body is carried on very slender legs, while the rather short neck supports a head rarely equalled in its ludicrously clumsy appearance; for the Saiga has a great swollen nose that might almost rank as a proboscis. From just below the eye the entire front part of the face is exaggerated in size, right down to the large, round nostrils which are directed forward and overhang the mouth.

This great bulging snout is like an exaggeration of that of



Saiga

the chiru, but it almost **certainly** serves a different purpose. Where the chiru has to contend with the very thin air of the great heights, the saiga, its lowland cousin, is exposed to another hardship—the dust storms that are a frequent occurrence on the dry steppes. These eddying dust storms will occur without warning, and the saiga's swollen nose appears to contain a built-in dust-filter to enable the animal to breathe while the storms rage.

This is another species of antelope in which the horns, of an unusual amber-yellow, are carried only by the males. Its rough summer coat, too, is also yellowish, and matches the dry soil and bleached grass of the summer steppe. In winter the even thicker, rougher coat is nearly white—deep and dense. The ears are round and furry, front and back, an adaptation to a climate with winters bitterly cold. In this they resemble those of the reindeer living much farther to the north.

Saiga antelopes, males and females, keep together in herds. It is said that there are always sentries on the look-out wherever these antelopes are feeding or sleeping. In winter, the herds are usually small, and then the animals keep to the southern area of the steppes; but as summer approaches they drift northward and assemble in larger herds. There was a time when these herds were sometimes enormous, and the saiga was to be found then much farther to the west, right across to Poland in Central Europe.

Now the saiga is found only as far west as the extreme south-east of Russia and even there its numbers are sadly reduced.

The reason for this dramatic change of fortune is probably two fold; the steady encroachment by human settlements and

agriculture on the wild, unfenced country which the saiga requires and the fact that accurate firearms are now in the possession of those who hunt it. There is a mistaken belief in China that the saiga's horns have valuable medicinal properties and a high price is paid for them—and consequently the people of the steppes are tempted to hunt these timid, inoffensive animals. Today they are completely protected by law, in the hope that their numbers may increase once more, and they may be saved from extinction. Experiments are being made in keeping them as domestic animals—experiments that have so far been successful.

Another group of animals, typical of the dry steppes and the desert regions are the gazelles, which contrast strongly with the grotesque saigas.

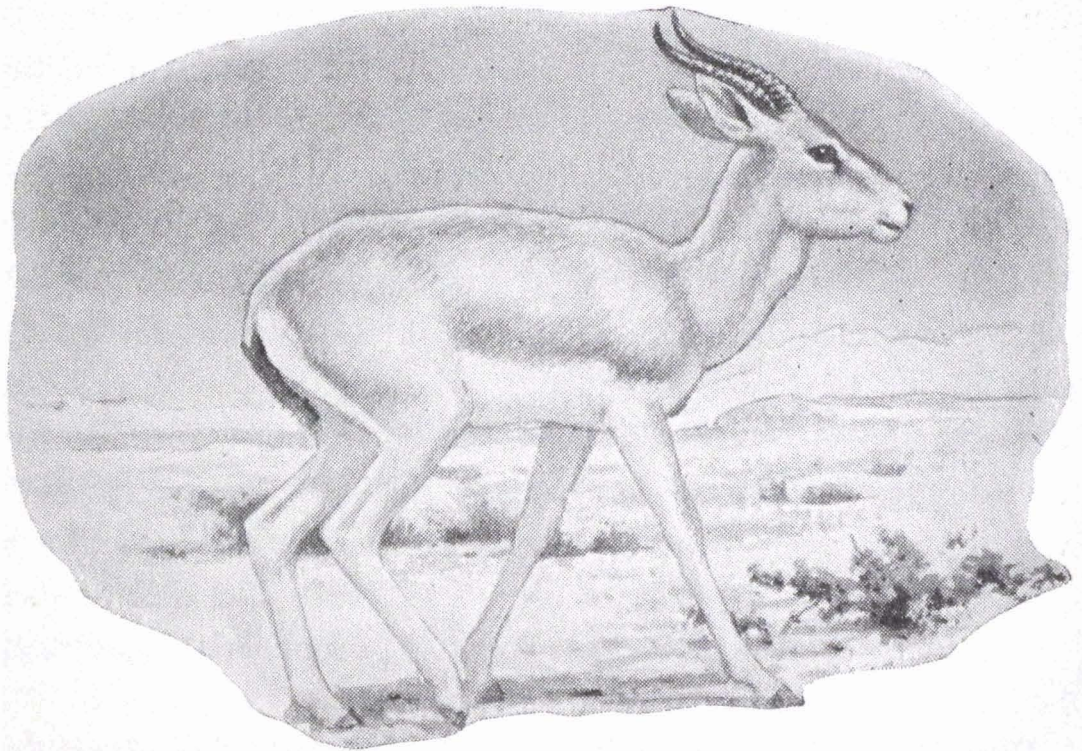
The gazelles are the daintiest and most graceful of the antelopes. Their slender legs and neck, and their large, wistful eyes give them an elegance and appeal that endear them to everyone who knows them. They keep away from what little foliage cover there might be in the dry regions they inhabit, relying entirely on their alertness and their speed for safety, and fearing that such animals as wild dogs may be lurking in the low thickets. Thickets are found in certain places even in the desert, mainly in the dried-up beds of watercourses, which are carved out by the rare, torrential rains.

The gazelle's movements are so graceful and dainty that the animals seem hardly to touch the ground with their tiny hooves, seeming to float rather than run.

There are three species of gazelle in Central Asia. One is the Persian gazelle, found not only in Persia, but further towards

the north-east as well, as far as Mongolia. It is called the goitred gazelle, on account of the strangely swollen throat which appears during the breeding season—*goitre* being an illness in humans which causes a swelling of the throat. As in all the gazelles of Central Asia the slender lyre-shaped horns are carried only by the males; whereas in most gazelles the females also have horns. A very similar animal is the Mongolian gazelle, which also has the same swelling on its throat.

The third, the Tibetan gazelle, as we should expect from its very lofty, windswept home on the high plateau, has a much longer winter coat than the other two species. In keeping with the rocky, moorland nature of its surroundings, its coat is slate-grey in summer, and nearly white in winter—there is a



Goitred gazelle

patch of pure white around the tail which is very conspicuous when seen against the contrasting darkness of the summer coat, but it is lost against the surrounding whiteness in winter.

Where the dry, featureless steppes and desert give place to woodland, the antelopes and gazelles give place to deer, for though some deer may frequent the treeless moorlands, they are basically forest animals.

Besides the strange little musk deer which has developed tusks, not antlers; there are other species of more typical deer in Central Asia.

The British red deer and the American wapiti belong to a large group of species, all very similar, which form a chain right across Europe and Asia and on into North America. There are several of these in Central Asia. Each species has its own distinguishing characteristics, but all live very much in the same way. Of these the Tien Shan stag, of the Altai and Tien Shan ranges is so like the wapiti of North America that the species are practically identical.

These are all typical deer, the stags shedding their antlers every year and growing new ones during the spring and summer. While these new antlers are growing, they are covered with skin and short velvety fur—the stags are then said to be “in velvet”. But, at the end of the summer, this “velvet” dries up and is rubbed off, and the full-grown antlers are then hard and bare, ready for the ceaseless battling that takes place during the mating season. Then, as winter approaches the forests echo with the calling (belling) of the stags as they challenge each other to combat, and the clashing of antlers as they fight.

Few stags are killed, or even wounded, in these duels. The rivals, having roared their challenge, approach each other with lowered antlers. Slowly circling, they each wait for a moment when one is off balance, then the antlers meet with a clash. They draw back once more, soon to charge head-on again. These duels are more trials of strength than attempts to kill each other, and in due course the weaker of the two concedes victory to his rival and makes off, leaving the party of hinds as a trophy for the victor.

The baby deer, born in late spring or early summer, are dappled with white on a fawn ground. This dappled coat provides an excellent camouflage while the new-born calf is still tottery and helpless. It is then hidden by its mother in the undergrowth where it lies perfectly still and almost invisible. But it is soon strong enough to run and leap, and follow her wherever she goes.

In Britain the red deer, because of the destruction of the forests, have been compelled to live on the open moorlands and are small in consequence; but their cousins on the mainland of Europe and Asia are mostly true forest dwellers, and are large, noble animals, the size of a sixteen-hand horse (about five-and-a-half feet), often with enormous antlers.

A much smaller deer, inhabiting forest and moorland alike, is the roe, found right across Europe and Asia but not in America. Unlike the wapiti group, the roe deer do not assemble in large herds, and are mostly found, like the musk deer, in small family parties. However the male roe deer are even more pugnacious, during the rut, than the stags of the wapiti group. Their antlers, though small, are deadly weapons, and if their fights, too, are mainly trials of strength and audacity, they can inflict terrible wounds, and their conflicts are some-

times to the death. In Central Asia the roe deer are found mainly in mountainous areas in the north, though in November, when those areas have become covered with snow, these little deer migrate southwards, the various families coming together and forming large herds as they go.

12

The Little Ones

The great mountain ranges of Asia have many large and impressive animals, and a number of these frequent the higher regions, close to the snow line. The ibex, for instance, with its great scimitar horns and the lordly snow-leopard and others are found very high indeed; but the world's altitude record is held by an inconspicuous and secretive little rodent, rather like a miniature, short-eared rabbit—the pika.

The highest recorded of any mountain dweller is the Mount Everest pika which exists all the year round in the Himalayas at a height of nearly three and a half miles above sea level. There are numerous other species of pika between the northern frontier of India and the extreme north of Siberia, and others in North America. They differ from each other mainly in colour and size.

Moisture and heat are the pika's enemies; they inhabit dry, cold places. Such conditions are present only in the Arctic regions and in high mountains. In the Arctic it is cold even in the lowlands; consequently the northern pikas are found

nearly to sea level. But nearer to the equator, where the lowland climate is hot, they live in the highest mountains. For these southern pikas the mountain ranges are something like islands, and the surrounding hot lowlands are an impassable barrier. Thus one species of pika is isolated from the others which has resulted in the existence of many local species. Each species is adapted to the particular conditions existing on its own mountain "island".

These different species have many characteristics in common: they are compact, stocky little animals with round heads, short ears and no visible tails, remarkably like the mountain cavies of South America. Though these cavies are rodents too, they



Pikas

are not very closely related to the pikas, but here we have a case where, in adapting themselves to similar conditions, two unrelated species have come to resemble each other closely, for the high Andes mountains provide the same cold desert conditions as exist in those of Central Asia.

Many rodents which inhabit cold countries get safely through the lean days of winter by hibernating—going into such a deep coma that they need no food—but not so the hardy pikas. These are prudent little creatures and they lay in stores of food to enable them to remain active throughout the winter. Their principle food is the wiry grass that exists here and there right up to the snow line. Towards the end of the summer season, the pikas are engaged in their own form of haymaking, collecting bundles of dry grass and stacking it away under overhanging rocks. At that season, these little haystacks begin to appear everywhere in the high mountains, and though the pikas themselves keep out of sight it is quite clear that they cannot be far away.

Fortunately for the pikas, their skins are of little value on the fur market. Fur hunters could easily trace their hiding places by the telltale stacks of hay, but pikas are not worth the trouble of catching. However, in some districts, the fur hunters play a very mean trick on the little pikas. They collect their stacks of hay and feed it to their horses, leaving the pikas without provisions to help them through the winter, with a likelihood of starving to death in the long months when their world is covered deep in snow. Unlike so many mountain rodents, the pikas appear to remain throughout the winter in the great heights where their food stores are. They neither hibernate nor migrate down to the forest zone where food is still available.

If the pikas are not hunted by humans they have many

other enemies. They are in constant danger from the stealthy Pallas' cat, the weasel and the corsac fox, and even the larger wolves do not find them beneath contempt. Eagles and hawks may swoop down on them from the sky at any time, and in the north the great snowy owl, on its silent wings, is a winter menace.

Pikas are about mainly by day, and usually rest at night under or between the loose rocks in the mountains, or, if they live on the open steppes, deep in their burrows. They are a welcome entertainment to mountaineers who come upon them during their exhausting expeditions.

On the approach of a human intruder, the pikas scuttle away to some hiding place among the rocks; but if the intruder sits down and remains silent, an inquiring round nose appears, only to vanish again like lightning. But the pikas cannot restrain their curiosity for long, and they soon peep out again, now here, now there, but whether they are the same or different animals, it is impossible to tell. By degrees, as confidence grows, the appearances last longer. Then, if the intruder makes no move, the pikas will return to their jerky romping, around and over the piled rocks, making unexpected leaps from one boulder to another, suddenly vanishing, to reappear as suddenly in quite a different place.

Occasionally the pikas, will pause to investigate more closely, with nose, eyes and ears, as to what manner of strange visitor this is. Their timid curiosity and engaging ways never fail to intrigue the weary mountaineers, who always speak of these small creatures with affection.

The pikas of the rock-strewn steppes are given a remarkable sure-footedness by their compact, well-balanced build. Their feet are especially adapted to deft movements on smooth and

icy rocks, for the soles of their feet are covered with stiff hairs to give them grip.

Pikas of every kind, are very vocal animals, and in this, as in other ways, they are very elusive. Their strange chirping or whistling cries seem to come now from this side, now from that, for the pika is a ventriloquist and can throw his voice. From these cries, frequently uttered, he gets his other name of calling hare.

Another small rodent, the jerboa, is a very different animal from the pika.

Jerboas are animals of the desert or dry steppeland, where by day they live in deep burrows. They are able to dig burrows in places with sandy or clay soil, using their strong front feet for the purpose. They come out at sunset to feed on grasses, and any seeds, berries or leaves that they can find, varying their diet with insects and the eggs and nestlings of steppe larks. Their own naked, helpless young they hide away in nesting chambers deep underground in their complicated burrows. These have many tunnels radiating from a central chamber. One of these tunnels leads up to a point just below the surface of the ground, some distance from the entrance burrow. This is the jerboas' escape hatch. When they are in danger from some enemy while down in their burrows, it takes them no time to break out through the last few inches of soil separating the end of this escape tunnel from the open air. Once through, they make off to safety from this quite unexpected exit.

Out in the open they have every chance of making a successful escape, for their speed is sensational. Their very



Ferrets

short front legs, though serviceable enough for digging, are much too short to be of any use for speedy movement. This is left to their enormously long, slender hind legs. These long hind legs they move alternately, like most other mammals, when creeping about slowly; but when jerboas are in a hurry their legs work together, giving them prodigious bounds. It is claimed that a rider on a good horse cannot keep up with a healthy, adult jerboa, though its head and body together are only some seven inches long. Their slender, tufted tails are a good deal longer.

At night, the jerboas seem to move more like low-flying birds than mammals, skimming soundlessly over the sand dunes, using their long tails as a balancing device. Their fur is the shade of the sand itself and white below, thus destroying all appearance of bulk. It is often only their shadow than can be seen, racing across the sand—the animal itself is invisible.

When they are not moving about, the jerboas use their long tail as a third leg to form a tripod while they feed themselves daintily with their front paws.

Unlike the pikas, jerboas survive the winter by hibernation in the colder regions of their range. In the most severe climates, this hibernation period lasts from early September to late April—almost two-thirds of the whole year.

The small mammals of the steppes and mountains are so numerous that it is only possible to describe a few. Which are we to choose? It could be the Sikkim vole of the highest forested zones of the Himalayas, or the grey-tailed hares of the Tibetan Plateau, the burrowing susliks, short-tailed cousins of the gophers of the western states in America, or the

bamboo rats of the forests of western China, which plug their burrow entrances with earth.

One of the most typical of all the animals of Central Asia is the marmot—close relative of the American woodchuck—of which there are numerous species between Siberia and the Himalayas.

The marmots frequent barren, open country with great extremes of summer heat and winter cold. In the north of their range, they find such conditions close to sea level, but in the south they must keep to the high mountains and plateaus.

However, the marmots survive the winter by means of hibernation, whereas the smaller, hardier pikas remain active beneath the snow throughout the bitterest winter weather. During their months of hibernation, the marmots crowd together down in the main sleeping chambers of their burrows, lying huddled together in a deep bed of dry grass.

In the warmer half of the year they can be seen during daylight—they are not nocturnal like the jerboas—when they make short foraging expeditions some little distance from the entrance to their burrows. At the slightest suspicion of danger, they scurry back and sit up, stiff and erect, to take cautious stock of the situation. If their suspicions are confirmed and they decide that they are, indeed, in danger, they suddenly dive headlong into the entrance with a loud, whistling scream. This sends all the other marmots in the area racing for shelter, for members of a marmot colony are often very numerous and their burrows then cover large areas of ground—veritable marmot cities with labyrinths of subterranean streets.

In many places, the marmot's worst enemies are bears, who dig down into their burrows and destroy the whole

family. The strange thing is the marmots seem to know the persistence and perseverance of the bear. They know that once he has begun to dig out a certain marmot family he will continue until he has succeeded in doing so. While this small local tragedy is being enacted, the other marmot families go about their normal business without being in the least alarmed for they know they are pretty safe as long as the bear is busy with his present task.

Wolves, too, will try to surprise marmots when they are out and some distance from their burrows, but, unlike the bears they have no ambition to dig them out, and, once underground the marmots are safe enough. Eagles are a great danger, for they swoop silently from above. The first sound the marmots hear is the swish of the great wings as the eagle uses them at the last moment to reduce the speed of his plunge to earth. By then it is usually too late for the helpless rodent to attempt to reach the entrance of his burrow.

Although marmots have very large, keen-edged cutting (incisor) teeth of a peculiar orange-red they are no good against such large, powerful enemies as bears or wolves.

13

Stronghold of Eagles

Birds are, by their nature, far more mobile than mammals. Two wings are a swifter, more effortless form of transport than four legs, and birds as a rule have a wider range than the mammals. This is particularly the case in the northern hemisphere, and for an obvious reason.

Whereas the southern hemisphere contains far more sea than land, restricting the land birds to certain widely separated land areas, the northern hemisphere is mainly land, and there they are free to roam, unhindered by wide oceans, most of the way round the world. In the Arctic regions the three continents of Europe, Asia and America form a practically continuous land area. The Bering Straits, separating Asia from America, are no obstacle, and the North Atlantic is the only wide stretch of ocean. Many Arctic birds are therefore circumpolar, that is, they are found all around the (north) pole.

In the latitude of Central Asia, farther to the south, the Pacific Ocean is almost as wide as the Atlantic, but even then

there is a stretch of almost unbroken land from Ireland in the west to Japan in the East, and conditions right across this area are much the same. There are ranges of high mountains, and wide, open plains, with many forested areas. It is only natural that the bird population should be as continuous as the climatic conditions.

For this reason most of the birds of Central Asia are basically the same as those around London or Madrid, and even New York or Vancouver, though each locality has its own local race.

The swallows that announce the coming of spring in England do the same in Turkestan, and the moorhen flicking its white tail on the rivers in the Altai Mountains is basically the same bird as the American gallinule. Many European birds have their exact counterparts in Central Asia—barn owls, wrens, wagtails, coal tits, ringdoves, lapwings and many more are found right across from ocean to ocean. And if their plumage or proportions change with the locality, their habits as a rule remain the same. The skylark, with swift-beating wings high in the sky, showering the countryside with its delicious song, delights the nomadic herdsmen of Mongolia and the English shepherd alike. The horned larks inhabit the steppes of Asia just as they do the American prairies. The magpie flaunts its striking plumage in the forests of western Mongolia and also in the western United States. To describe the way of life of many of the birds of Central Asia would be to describe those that most of us are familiar with.

However there is an important difference—Central Asia is far less thickly-populated than most of Europe and much of North America. It possesses no industrial areas and very little agriculture, and consequently the wild life is less inter-

ferred with than elsewhere. Many species that disappeared long ago in more intensively developed regions are still found in Central Asia. Some of the largest and most remarkable of the birds of these latitudes, and in particular some of the largest birds of prey, are those which elsewhere have come into direct competition with human interests, and have been wiped out.

One of these is the golden eagle, the noblest of all the eagle tribe. Though everyone admires the beauty of these majestic birds they are detested by farmers, especially sheep farmers. Golden eagles are unlucky enough to have a taste for the flesh of young lambs, and because of this they have been persecuted wherever sheep are kept. Thickly-populated countries like England and much of North America are not big enough for the golden eagle and man, and the bird is allowed to exist in Scotland only because the foresters find it useful in keeping down pests which destroy young trees. In the empty wastes of Central Asia, however, this great eagle can live almost undisturbed.

Here, in the interior of Asia it is not at all golden, for it is without the tawny mantle of long neck feathers, gleaming a rich gold in certain lights, which gave this bird its name in the British Isles—the extreme west of its range. Away in the mountains of Asia, however, it is even larger than in Britain and Europe.

There, among the crags and precipices of the Tien Shan range and the Hindu Kush these eagles find just the conditions they like. For their nesting places they choose inaccessible ledges on tall cliffs. They are long-lived birds and a pair will return to the same nesting place year after year. Every spring they repair the old nest and bring more sticks to add to those

of previous years, until a well-established nest may be as much as six feet across and seven feet high. In the flat, featureless steppeland these eagles cannot find such cliff ledges, and make do with low cliffs on the banks of rivers. The female is mainly responsible for sitting on the eggs, while the male is most active in feeding the chicks.

Golden eagles often hunt in pairs. In certain parts of Asia they kill many hares; one eagle will follow close behind its swift prey, but a hare will turn and double back in order to throw off its pursuer. Whenever the hare does this the other eagle, flying above and to one side, is ready to swoop in and take up the pursuit. In this way they foil all the hare's attempts to break free. Besides hares, they also kill many marmots and other small rodents.

Among the nomads of Central Asia hawking is a regular form of sport, as it was centuries ago in England and elsewhere. Golden eagles, as well as smaller hawks, are trained and used for this sport. To handle one of these great birds is not without danger, and they are kept hooded when not feeding or actually flown after game. The hoods fit over the head and eyes.

Before departing on a hunting expedition the handler puts on a thick gauntlet glove which covers his right wrist. This is a necessary precaution because an eagle's talons are designed to bring swift death to the quarry, and their murderous points can do serious damage. Mounting his pony, the handler rides, with his eagle on his wrist, to some point where small animals or large birds are known to exist. A special saddle is used for these expeditions, having a wooden prop fixed to it, which the rider grasps with his right hand. This takes the weight of the great bird on his wrist. When a suitable quarry is



Nomad with trained eagle

found the eagle is unhooded and set free to fly in pursuit and kill it.

Another eagle found mainly to the north of the high plateau is the steppe eagle. As its name suggests, it roams the bare steppes, though it leaves this region at the end of the summer to winter in India and other districts in the south. The rivers and lakes on the plateaus and steppes are the haunt of Pallas' fishing eagle. This does not plunge right into deep water for the fish it catches, as the smaller osprey does, but gets them mostly from the shallows, though it will vary its diet with reptiles or any water bird that is injured or ill, and therefore helpless. This fishing eagle is a close relative of the bald eagle, the national emblem of the United States.

A group of large birds of prey are known in Europe as buzzards and in America as hawks, they include the red-tailed hawk and similar birds. These, too, have been driven from many districts, both in Europe and America, because farmers and sportsmen have not realized how useful they are in keeping down rodent pests, especially rats. In the high-altitude regions of Asia this group is represented by the upland buzzard. A bird of the great heights, as its name suggests; it mainly frequents the mountain slopes and plateaus, where it lives chiefly on rodents up to the size of a rabbit. Like all buzzards, it is a persistent hunter, but its rather clumsy, lumbering build does not permit it to be very dashing or skilful in hunting.

Far from clumsy and lumbering is the lammergeyer or bearded vulture, which is one of the supreme masters of flight. Now no longer found in numbers in the Swiss Alps and other mountainous parts of Europe, where it was once plentiful, the bird has found a safe refuge in the heights of Central Asia. At the western end of its range, in Europe, where it has been persecuted for centuries, it has been known as a very timid, wary bird; but strangely enough, away in Asia, it is remarkably bold and confiding, often coming down into villages and encampments to steal remains of food that may have been thrown out. The lammergeyer is a scavenger like all vultures.

It has a peculiar fancy for bones, and when other vultures—the black vultures or the griffon vulture—have gorged themselves, the lammergeyer moves in. It swallows small bones whole, but carries those that are too big to be swallowed high up into the air. It then lets them fall from a great height into some flat area of rocks. It may repeat this performance several times before the bone is shattered into fragments small



Eagle owl and fawn

enough to be swallowed. The lammergeyer is often called the "bone breaker" or the "leg breaker".

This bird is the most slender and graceful of all the vultures. It is thrilling to watch as it soars and wheels among the cliffs and crags that it loves, using the up-currents that are so frequent in those places, to rise and swoop in effortless flight. The wing-span of the lammergeyer reaches ten feet from tip to tip.

There are dozens of smaller hawks and falcons in the heart of Asia, and various species of owl—too many to tell of here. But one of the owls is so remarkable that it must not be left out—this is the largest of all owls, the eagle owl. In the region of Tibet it reaches its greatest size, being well over two feet long. It kills hares, young fawns and pheasants, as well as many small birds and rodents.

The eagle owl is a most aggressive bird and looks even more ferocious than it really is, with its enormous orange-yellow eyes seeming to blaze with hatred and anger at any intruder. When annoyed or afraid, it will half spread and drop its wings in a great fan, and fluff up all its beautifully barred and flecked feathers until it appears to be a great deal larger than it actually is. It will then put on a most impressive show of fury by hissing and snapping its beak and, with its great eyes blazing, rushes forward in a most menacing way. This performance, however, is mainly bluff, for the great owl will often stop suddenly and make off. Yet, surprisingly, it is claimed that, when contesting ownership of its kill with a golden eagle, the eagle owl has been known to win the contest.

14

Birds of the Mountains and Steppes

In the depth of winter, the high plateau seems like a dead land. Those few hardy species of mammals and birds that brave the winter there are striving to survive. The lakes lie deathly still under their thick covering of ice, and the rivers flow, morose and sullen, below their steep, cliff-like banks. The whole land waits for the ordeal to pass—waits for the spring.

But under this frozen mask, waiting for the warmth to return again to the feeble sunshine, for the ice to leave the water clear and the snow to melt on the mountains, there is life.

When the brief period of plenty comes once more it is the joyous signal for the migrants to return, and the mountain air knows again the beat of their wings. Then the redstart and the shrike, the blue robin and the rubythroat wing their way north. The wheatear and the sand grouse make for their nesting grounds in the desert beyond the mountains. The waterfowl—widgeon, teal, pochard, gadwall, and many more—bring new bustling life to the rivers and lakes, now clear of ice; and with all these come the fierce predators who depend

on them, and on the rodents—now no longer hibernating—for food for their chicks.

Northward, too, fly the bar-headed geese, so called from the two conspicuous black bars across the perfect whiteness of their heads. They pass high over the Himalayas to the lakes, marshes and rivers among the mountains and on the high plateaus in the heart of Asia. They are called mountain geese, for they nest nowhere below 6,000 feet and frequently at 15,000 feet or more.

Flocks of these geese, numbering up to twenty, cross the Himalayas and fan out to their habitual nesting places. They fly in perfect wedge formation. The leader, forming the point of the wedge, provides a slipstream which the others following to right and left take advantage of—a wearing task. As they make their swift way northward, leaving peak after peak behind them, the leader will drop back and his place is immediately taken by the bird next behind him. After another four minutes or so the new leader in turn vacates his post to the next in the line. So all the members of the flock, by silent understanding, each take their turn at forming a spearhead for their fellows.

Once on their breeding grounds the work of nest building begins. Nests may be situated on the safety of small islands offshore in mountain lakes, or out on wide marshes, or, more often, where the rivers flow below steep cliffs. There, at the cliff top, the geese lay their eggs in a shallow hollow high above the water.

The young goslings leave the nest as soon as they are hatched and, from then on, live with their mother in some sheltered, reedy place at the water's edge. Those hatched out on the brink of a high cliff have a perilous journey down to the

water below. The female goose anxiously superintends this expedition; often the tiny goslings roll head over heels a good part of the way, but they have no weight and are very rarely injured by their fall. Soon the whole brood is reunited in the attentive mother's care.

At the end of summer, bar-headed geese begin to shed their feathers quickly and are then "grounded" until the new wing feathers are grown enough to support their weight. While they are incapacitated in this way they are very timid and secretive, taking every possible means of keeping out of danger.

Yet, normally, these birds are surprisingly unwary, and very inquisitive. Their great curiosity is often their undoing, for they cannot resist coming up to investigate any new, unfamiliar object and such an object may be a man with a gun. They are also very loyal birds, and if one of a pair is shot the other will not leave the place, but flies round looking for its mate, all too often to be shot itself.

Before the winter covers the mountain lakes with ice once more, the bar-headed geese spread their wings and fly south to raid the cultivated riverside fields of lowland India, where they remain during the winter. Then, too, the other migrants fly southward leaving the great heights to those few who can endure the cruel winter there.

On the bare, grassy steppes to the north of Tibet, one of the largest of all flying birds, the great bustard is found. Probably, it is the heaviest of all the flying birds. Many large birds are capable of short bursts of flight, but the great bustard, for all its thirty pounds of weight, flies strongly and high, with



Great bustards

slow, purposeful beating of its great wings which stretch a full eight feet from tip to tip.

Though the great bustard is such a powerful flyer it often prefers to run from danger, for it is, above all, a walking bird. If it believes it has not been observed, it will crouch down and lie quite still in the grass, and its plumage, of mottled buff, grey, white and black, melts miraculously into the dry, steppeland landscape.

When walking sedately and deliberately through the grass, pecking now at a grain or green shoot, now at an insect or small rodent, it is a bulky and conspicuous object in the uninterrupted expanse of the steppes. This is even more so when, from time to time, its head goes up to a height of nearly four feet, as it gazes into the distance with its far seeing eyes, looking attentively for the approach of danger. At these moments its thick, ropelike neck and the conspicuous white bristles below its short, curved beak, identify the male bustard very clearly.

In days gone-by, the great bustard was a native of the more open farmland in England and Western European countries; but its ample flesh is appetizing, and its size makes it an easy target, and it disappeared in these parts over a hundred years ago. Even in its present refuge in the heart of Asia it is becoming rare, with the coming of more accurate firearms. Strangely enough, though extremely timid and wary when approached by a man on foot, these birds have no fear of a mounted man; and, as the steppe-dwellers practically spend their life on horseback, this often puts the great bustard in danger.

During their mating season in May, the male bustards become extremely aggressive, sometimes losing all their normal timidity and actually coming up to attack a man. At this time of year it performs a strange courtship ritual for the benefit

of the females. Spreading and drooping its great wings and bringing its tail up and forward, it suddenly appears to turn its plumage inside out, displaying all the gleaming white feathers to their maximum, at the same time inflating a peculiar air sac on its throat. This is done through a small hole for that purpose under the tongue.

Bustard chicks are among the most precocious of all young birds. As soon as they are hatched they leave the nest, which is just a hollow in the ground. They are already covered with down and thoroughly capable of running about. They can fly quite strongly when six weeks old.

Many people probably assume that pheasants are natives of Britain, or even of America, but this is not so. However firmly they may be established in various parts of the world, they came originally from Asia—many of them from Central Asia.

The Latin name of the common pheasant is *Phasianus colchicus*. *Colchicus* means “of Colchis”, an old name for a country to the east of the Black Sea. The Latin *phasianus* came originally from the Greek, *phasianornis*. *Ornis* is Greek for “bird”, and *Phasis* is a river in Colchis. Ancient legends tell how the Argonauts sailed from Greece all the way to Colchis to seek the “Golden Fleece”, and brought back with it some pheasants (“Birds of Phasis”).

Whoever it was who first obtained pheasants—and it was probably from the area around Colchis—they were well known in Italy in Roman times, and it was probably the Romans who brought them to Britain.

Pheasants really came into their own when firearms made shooting a popular form of sport. They were then preserved

and bred for sport, and the original western form of the common pheasant was augmented with ring-necked or Mongolian pheasants from beyond Colchis (not, however, from Mongolia, in spite of the name), which interbred with the original black-necked pheasants of the Romans.

Pheasants are particularly dear to sportsmen because of their characteristic short, rocketing flight when frightened. They cannot maintain a prolonged flight, as their flight muscles soon become exhausted, but their habit of suddenly exploding into the air in an arching course gives a reasonable but brief chance to the marksman.

Nearly 200 years ago, pheasants were taken from England across to North America where they soon established themselves.

In their original home in Asia, the common pheasant frequents open forests, scrublands and grass steppes, and even the oases in the deserts—in a wide strip of country to the north of Tibet, right across Central Asia.

The common pheasant is certainly a gay, striking-looking bird, but there are others even more superb. One is the golden pheasant, resplendent in red, gold, blue and black, and Lady Amhurst's pheasant in green, red, blue, and gold, with a kind of miniature cape of white feathers edged with black, which can be fanned out in the courting display. The blood pheasant, with its head of black, crimson and coral red, is another; it moves with the seasons up and down the mountains, so that it can keep just below the snow—high in summer and low in winter.

But perhaps the most sumptuously arrayed of all the pheasants are the four species of monal pheasants, found in the loftiest forests of the Himalayas, close to the snow line. They

lead a secret life in dense undergrowth in some of the most inaccessible places of the world, among rock-strewn gorges and precipices.

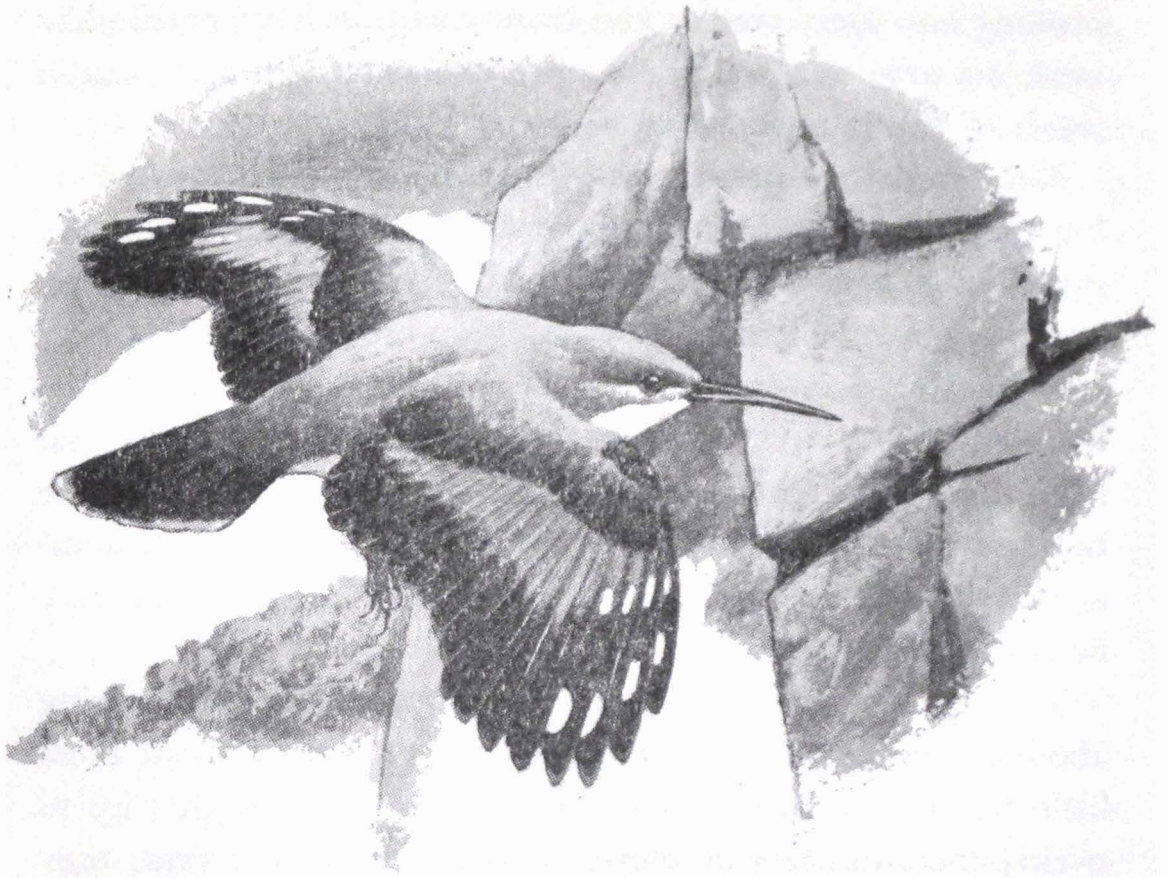
These breath-taking birds seem to be clothed, not in feathers, but in burnished metal, bright metallic green on the head, neck, and the base of the tail, the wings gleam in metallic purple with black flight feathers, the rump is white and the tail cinnamon chestnut. On the head, in three of the species, is a plume of long, nodding feathers, while around the eyes the bare skin is bright blue.

When one of these amazing birds suddenly takes fright on some steep, wooded slope, it literally hurls itself—like a blazing rocket—straight out into the void. Its outspread wings gleam in the sunlight, then with folded wings it plunges down headlong into the chasm below—a truly unforgettable sight.

A pheasant may make a long, plunging flight like this down a steep, wooded slope, just skimming the treetops. But there are many tall cliffs in those mountains, sheer walls of rock dropping vertically hundreds of feet. Such rock cliffs are plentiful enough to have a species of bird all of their own—the wall creeper.

The name of wall creeper, was given to this small bird because, in very severe weather, it comes down to the lower slopes of the mountains where there are human dwellings. There, the only cliffs it can find are the stone walls of houses. When the weather improves it then returns to the higher elevations.

A bird like the bustard walks, feeds and nests on the horizontal surface of the flat grasslands—its world is a horizontal one. But the wall creeper seeks out just those exceptional



Wall creeper

places where the surface of the world becomes vertical, and this strange species prefers a vertical world. Its life is spent creeping about on those tall rock cliffs, from time to time helping its movements with a brief flick of the wings. This allows a dazzling glimpse of the bird's striking patterning of scarlet, black and white, so strangely contrasting with the sober grey and white of the rest of its plumage.

The wall creeper is sometimes nicknamed the "butterfly bird", because its wings are rounded, and its flight is peculiarly hesitant and wavering—it looks like a large, gay butterfly when in flight, but in fact it seldom flies far, for most of its time is spent searching for insects and spiders on the precipices,

probing into every crevice and cranny with its long, needle-like beak. Its nest, too, is hidden away in a deep rock cleft, out of reach of hawks and owls.

Mountaineers climbing high in the Himalayas, and believing that they have left all life far below them, are sometimes surprised to hear a soft little bird song repeated around them, and then to see small, mottled, grey-brown birds hopping and running over the rock scree or flitting from boulder to boulder. These are accentors, close relatives of the modest little English hedge sparrow. They are bold, confiding little birds, not at all shy, and will come close around the mountaineers as they eat their lunch, to feed on any crumbs that may be dropped.

The name, accentor, has rather a grand and pompous ring about it, but there is nothing grand or pompous about these little birds who, in summer frequent the great heights up to twenty-thousand feet or more. At that time of the year, they find sufficient seeds and insects to satisfy their modest needs, and in winter they move lower down to obtain small berries to add to their diet.

The accentors build neat little cup-shaped nests among the loose stones of the rock screes. The male and female take equal turns in incubating the pale, greenish-blue eggs, and they frequently have two broods each summer. The young chicks often leave the nest long before they can fly, and are seen in their softly-spotted plumage scattered around among the rocks, being fed with insects or seeds by their diligent parents. The fledglings seem strangely innocent and vulnerable amid the cruel grandeur of those gigantic mountains.

It seems fitting to end this book with these hardy little inhabitants of those high plateaus and great mountain ranges—

the mighty Himalayas and others nearly as high—small living things that have probed out into one of the most inhospitable regions in the world, and adapted themselves to an existence even under those harsh conditions. This must be the constant theme of any account of the animals of Central Asia.

Scientific Names

ANIMAL

Accentor, Himalayan
 Bear, blue
 Himalayan
 Manchurian
 red
 Bharal
 Boar, wild
 Bustard, great
 Buzzard, upland
 Camel, Bactrian
 Cat, clouded leopard
 desert
 golden
 leopard
 Pallas'
 marbled
 Chiru
 Crane, demoiselle
 Deer, musk
 roe
 Tien Shan
 Dog, red (wild)
 Eagle, golden
 Pallas' fishing
 steppe
 Fox, corsec
 Gazelle, Mongolian
 Persian
 Tibetan
 Goose, barheaded
 Goral
 Hare, grey-tailed
 Hawk, red-tailed
 Horse, Mongolian wild
 Ibex (of Central Asia)

SCIENTIFIC NAME

Prunella himalayana
Ursus arctos pruinosus
Selinarctos thibetanus
Ursus arctos lasiotus
Ursus arctos isabellinus
Pseudois nahoar
Sus scorfa
Otis tardus
Buteo hemilasius
Camelus bactrianus
Neofelis nebulosa
Felis margarita
Profelis temmenckii
Felis bengalensis
Otocolobus manul
Pardofelis marmorata
Pantherops hodgsoni
Anthropoides virgo
Moschus moschiferus
Capreoleus capreolus
Cervus elaphus songaricus
Cuon alpinus
Aquila chrysaetos
Haliaeetus leucoryphus
Aquila rapex
Vulpes corsac
Gazella gutturosa
Gazella gazella subgutturosa
Gazella pecticaudata
Anser indicus
Nemorhaedus
Lepus oiostolus
Buteo jamaicensis
Equus caballus przewalskii
Capra sibirica

Jerboa	<i>Euchoreutes naso</i>
Kiang	<i>Equus hemionus</i>
Leopard	<i>Panthera pardus</i>
Leopard, snow	<i>Uncia uncia</i>
Markhor	<i>Capra falconeri</i>
Marmot	<i>Marmota</i>
Monkey, common stump-tailed	<i>Lyssodes speciosa</i>
Himalayan langur	<i>Presbytis entellus</i>
orange snub-nosed	<i>Rhinopithecus roxellanae</i>
rhesus	<i>Macaca mulatta</i>
Ounce— <i>see</i> snow leopard	
Owl, eagle	<i>Bubo bubo</i>
great snowy	<i>Nyctea</i>
Panda, giant	<i>Ailuropoda melanoluca</i>
lesser	<i>Ailurus fulgens</i>
Pheasant, blood	<i>Ithaginis cruentus</i>
common (black-necked and Mongolian)	<i>Phasianus colchicus</i>
golden	<i>Chrysolophus pictus</i>
Lady Amherst's	<i>Chrysolophus amherstiae</i>
monal	<i>Lophophorus</i>
Pika	<i>Ochotona</i>
Pika, Mount Everest	<i>Ochotona wollastoni</i>
Rat, bamboo	<i>Rhizomys</i>
Saiga	<i>Saiga tartarica</i>
Serow	<i>Capricornis</i>
Sheep, Marco Polo (Pamir)	<i>Ovis amon poli</i>
Suslik	<i>Citellus citellus</i>
Tahr	<i>Hemitragus</i>
Takin	<i>Budorcas taxicolor</i>
Tiger	<i>Panthera tigris</i>
Urial	<i>Ovis vignei</i>
Vole, Sikkim	<i>Pitymys sikimensis</i>
Vulture, bearded or lammergeyer	<i>Gypaitus barbatus</i>
black (Asiatic)	<i>Aegyptius monachus</i>
griffon	<i>Gyps fulvus</i>
Wall creeper	<i>Tichodroma muraria</i>
Wolf	<i>Canis lupus</i>
Yak	<i>Peophagus grunniens</i>

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