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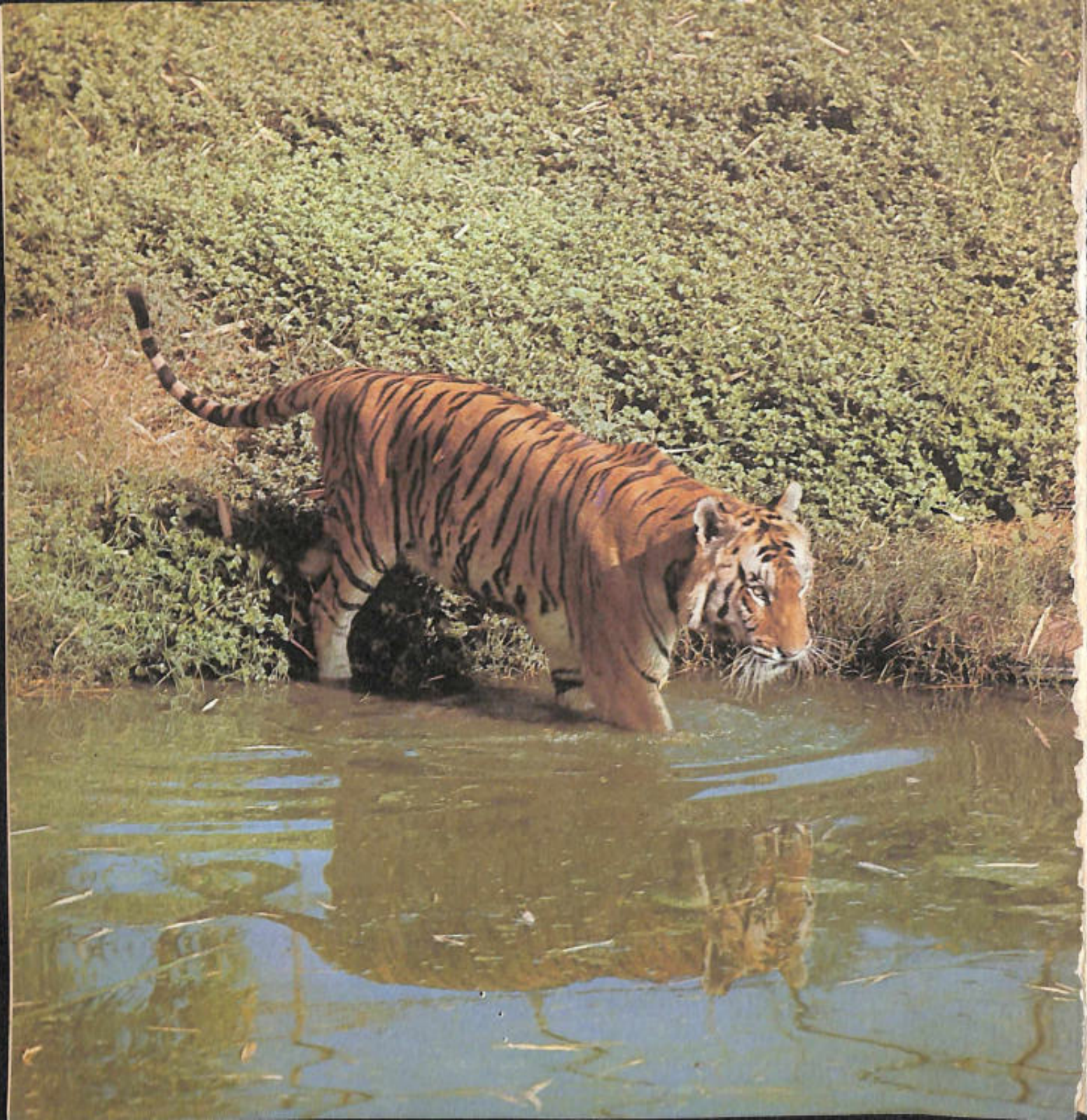
*P. D. Stracey*  
(P. D. STRACEY)



The World of Animals

# TIGERS

*Editor:* Winwood Reade



THE WORLD OF ANIMALS

# TIGERS

P. D. TRACEY



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## Editor's Preface

Future zoologists who look back at the twentieth century may well regard it as the start of a revolutionary period in the history of man's attitude to wildlife. The life of an animal in the wild is at last coming to be regarded as of intrinsic value and not solely as an adjunct of man. This change is as startling in its own way as the change in man's attitude to the machine two centuries ago. Just as some industries were slow to feel the effects of the industrial revolution, some species of wildlife are slow in coming under the influence of the conservation revolution, partly on account of their geographic location. If you compare the amount of knowledge gained about the life history of such species as the African lion and the African elephant – the subject of two previous books in this series – with the lack of hard information about the life of tigers in India, the discrepancy is startling.

The lion and the elephant are examples of species which are already benefiting from the revolution. The tiger, by contrast, is still suffering to a large extent from the nineteenth century attitude of sportsmen who saw it merely as a potential trophy for their own aggrandisement. This is not surprising when one realizes that the wildlife of India's forests was regarded as the prerogative of European sportsmen and Indian princes until the 1940's.

Immediately after India gained independence wildlife suffered a temporary setback due to its association with imperialism and, in the native states, with feudalistic repression. In 1952, however, the Indian Board of Wild Life was set up and since then public opinion has gradually begun to support the idea that wildlife is worth saving. This is very much to India's credit when one appreciates the urgent



necessity of finding ways of feeding the human population, a process which inevitably involves increasing the area of land under cultivation and reducing wildlife habitats.

The author of this book, Mr P.D.Stracey, has been described as 'one of Indian wildlife's most effective protagonists' and has been in the forefront of those who have come to recognise the need for studying wildlife objectively, as well as for increasing conservation measures and, above all, enforcing them. As he points out, unless man ceases to hunt the tiger for the thrill of the trophy, we may never know how it lives in the wild and without this knowledge conservation cannot be effective. The tiger is suffering not only from a shrinking habitat but from diminishing numbers of its natural prey species, thus forcing it to turn to domestic stock for food. When the interests of a wild animal bring it into conflict with man's interests, it is the latter who becomes the successful predator.

The tiger has already shown itself capable of adapting to a variety of habitats and to widely differing climates. No one can say that the tiger has not tried to meet changing conditions throughout its long history on the earth. It has been constantly on the move, retreating before the advance of man, but where can it go in the twentieth century to escape the effects of human settlement? Its back is already to the wall. We cannot hope to save it unless we can discover, in time, the conditions that are essential to its mode of life. Mr Stracey draws attention to the gaps in our knowledge, as well as supplying welcome information, but there is a great deal more that needs doing if the tiger is not to succumb to man – the most powerful predator the world has known.

Winwood Reade

# Panthera Tigris: An Introduction

The tiger is an animal peculiar to Asia, its ancestral home being north and central Asia, the northern part of what is now Soviet Russia. The earliest fossil remains were those of a sabre-toothed tiger from the Chigar caves of the New Siberian Islands in the Arctic, latitude  $70^{\circ}$  north. These have been assigned to the early Pleistocene period. This animal inhabited almost the whole of Eurasia and was the direct predecessor of the modern tiger.

The climate of northern Asia was once very different: there was a rich vegetation and animal life was abundant and varied. Many grass-eating animals such as elk, reindeer, bison and several of the larger antelopes roamed the forests and grasslands where they were preyed upon by tigers and other carnivores. With the changing climate and successive glaciations of the Ice Age most of these species disappeared or moved away to more suitable habitats, the tiger spreading to the eastern and central parts of the continent. The closely related lion originated further west and, at one time, spread all over central Europe, moving down through the Balkans into Greece and Asia Minor, and on to Africa. The two animals pursued different paths.

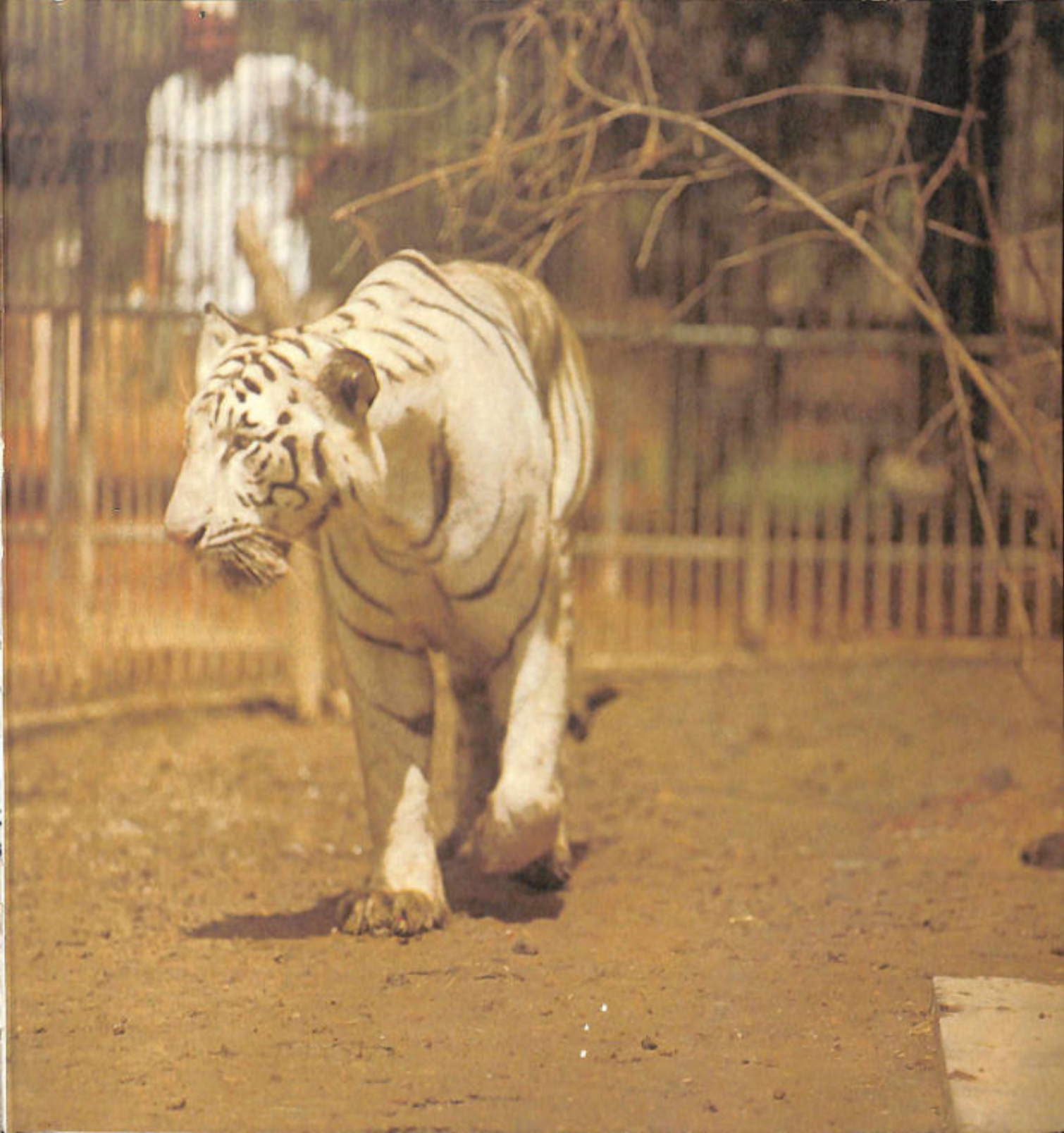
In its westward journey across Asia the tiger reached the eastern slopes of the Caucasus and the Elburz mountains from where it descended to Persia and Afghanistan. It spread eastwards to Manchuria and southwards to Korea, China and Indo-China. Fossil remains of later races have been found in China, North Korea, Java and India. The Indian remains,

probably of the late Pleistocene period, are rather fragmentary and were once confused with those of a lion. This is not surprising considering the similarity of the limb bones of the lion and the tiger.

This series of fossil finds roughly establishes the links in the route taken by the tiger in its migration to south-east Asia and then up through Malaya and Burma into India, its final home. It could not have reached India by any other route as the Sinkiang desert, the barren Tibetan plateau and the mighty Himalaya must have offered effective barriers to its direct southerly movement into India, just as the Hindu Kush mountains and the deserts of Persia and Baluchistan opposed its entry from the north-west.

Initially there were two races of tiger: the large, broad-footed Chinese-Siberian form and the equally large but slender-footed, Javan form. In the course of time the tiger has undergone a diminution in size as proved by fossil finds. A number of races have been recognised from various regions including those from Mongolia, Persia, India, China, Sumatra, Java and Bali. The modern tiger evolved to its present form about half a million years ago and – except for the Mongolian tiger which is out-sized and has a relatively lighter coat with fewer black stripes – there are only minor differences in size, colour and skin markings. For example the Javanese form has broken stripes while the Sumatran form has more continuous stripes. The fossils show a tendency for size to decrease as one goes southwards. The Indian tiger, for example, is larger than the Malayan and only slightly smaller than the northern races. The great difference in size between the Manchurian and the small Bali Island tigers can perhaps be explained by analogy with other island mammals such as the little Shetland pony and the Japanese Sika deer, and may be the result of restricted habitat. We cannot be certain what causes this decrease in size as between continental and island tigers. Diminution in size is generally taken to indicate that an animal is on its way to extinction, and it may be an ominous portent that six of the eight races of tiger have been listed among the vanishing mammals of the world.

Whatever its status, and wherever it is found, the tiger is now known scientifically as *Panthera tigris*. It was formerly classified with the true cats in the genus *Felis* but later



transferred to the genus *Panthera* (where it joined the lion, the leopard and the jaguar) following Owen's study of the hyoid bone of the larynx. In all members of the cat family, the hyoid bone is held close to the base of the skull by a series of short bones joined end to end. But in the lion, tiger, leopard and jaguar this series of bones is imperfectly ossified and largely replaced by a long elastic ligament. This ensures greater range of movement of the larynx and permits the more powerful intonation of the voice, which we know as roaring. These animals, on the other hand, cannot purr like true cats.

In Manchuria, tigers over twelve feet long were regularly shot by the old Russian hunters and one specimen of over thirteen feet was killed by Yankovsky with the aid of dogs. Skins of Ussurian tigers of immense size were recorded in 1893 at the Nijni Novgorod fair. Yet many of the Manchurian tigers did not measure more than the largest Indian tigers and this led to the belief that these very large animals might have been descendants of the vanished tigers of Siberia. It is also possible that they grew to immense size by selective breeding in the fabulous park maintained by some of the ancient Mongol emperors in the region of the present day city of Vladivostock. When the park was finally abandoned the tigers escaped and spread northwards to Sakhalin Island and southwards to Korea. Many must have been hunted down but, nevertheless, they probably contributed their share of large, élite individuals to the local races. It is noteworthy that Russian hunters around Vladivostock and in particular Yankovsky, most famous of them all, claimed that there were two kinds of tiger, one large and one small, in the area. It is fascinating to speculate on such fortuitous happenings as this. Coming to more recent times one wonders if the white tigers of India, now being bred in captivity, were to be released in sufficient numbers in the Rewa jungles, their natural home, whether a race of white tigers would prowl alongside animals of normal colour? Would they persist or would they eventually be replaced, through cross-breeding, by the more vigorous and adaptive 'red' tiger?

White tigers have been recorded in various parts of India for over a century and at least one live specimen was taken to England and exhibited about 1820. They have been known



for generations in the princely State of Rewa and the adjoining districts of the old Central Provinces, one of the great forest areas and shooting grounds of India, now considered to be the home of the white tigers.

In 1951 a tigress with three cubs, one of which was white, was located in Rewa State. The white cub was captured in a beat and the others were shot. This cub escaped but was recaptured and lodged in the Maharaja's summer palace. Mohan, as the cub was named, grew to be a magnificent specimen, massive as white tigers usually are, but from the very beginning he was very fierce and would not tolerate being looked at. Soon after the capture of this animal, the idea of breeding white tigers came to the Maharaja. A female cub of normal colour was caught in the same forests and kept with Mohan. In 1955 they mated and produced three cubs, all of normal colour. In 1958 Mohan was mated to one of his own daughters of this litter and, to the delight of everyone, a litter of four completely white cubs resulted. Two years later another mating between the same pair produced two white

Indian tiger – the type form

male cubs and one normal coloured female; again in 1962 two white cubs, a male and a female, were produced.

The interest of the Government of India was aroused and they came to an agreement with the Maharaja of Rewa under which they took Mohan and three of his white offspring for breeding purposes. The conditions were that the progeny should be shared equally with the Maharaja, the first female cub going to him, while he could dispose of his stock to the many zoos which were clamouring for white tigers. Breeding commenced on scientific lines at the Delhi Zoological Park where Raja was mated to his sister Rani, both the progeny of Mohan from the same all-white litter of 1958, and later at the Calcutta Zoological Gardens. In-breeding is necessary to

White tigers greeting each other



establish the white character, but too close a relationship brings loss of vigour. Therefore, in selecting the pairs the degree of whiteness and the anticipated loss of vigour must first be examined and balanced.

In December 1965, their third successive litter of white cubs was born to Raja and Rani at the Delhi Zoo. So far there has been no return to the original red form and it is anticipated that this breeding pair is likely to continue to produce white cubs in spite of some red genes being present in the female line. This has aroused speculation as to whether these white tigers should be regarded as a separate race.

A few years ago I had an excellent opportunity of seeing two races of tiger side by side. I was sitting next to the ring at the Russian State circus in Delhi, and watched the tigers go through their act. Three or four enormous, heavily built animals had fine, thick, pale coats and obviously came from Manchuria. They performed obediently with a lazy grace and with hardly a change of expression on their faces. A much smaller, darker animal was performing with them. It had prominent markings and a strangely rough coat with fur which seemed to be brushed up the wrong way. As it performed it snarled and cringed with fear, whether of the whip or its companions I could not say. I had never before seen such a miserable specimen of an adult tiger, even of a female which the animal undoubtedly was. At the end of the act I went up to the group of Russians who were putting the animals away and asked about the small tiger. I was told that it came from Bengal. If it really was an Indian tiger, which I doubt, they could surely have found a better specimen to exhibit in Delhi of all places. This animal was certainly not worthy of the title 'Royal' which was originally given to the Bengal tiger because of its size.

As well as differences in size and the comparative smallness of the southerly island tigers, there is the question of colour. S. H. Prater remarks that, with increase of temperature and humidity towards the equator, there is a deepening and intensification in general of the coloration of mammals and birds. The tiger and the leopard are no exception. While there may be considerable variation in colour and markings, and dark coloured individuals may be found side by side with lighter coloured animals in the same locality, the colour tones



The normal coloured tigress with her four white cubs

are progressively darker and richer the more southerly the latitude. The Balinese tiger is the darkest.

Dark colouration is due to the presence of excessive quantities of melanin which intensifies pigmentation. This reaches its peak in the case of the black leopard, or panther, where the ground colour is completely black and through which the spots show up faintly. Black panthers are common in Malaya. In India, they are found in the denser and more tropical moist forests, particularly those of Assam. It is not a distinct species as both black and normal cubs occur in the same litters. Melanism has been rarely and doubtfully recorded in Indian tigers; a black tiger was reported near Chittagong many years ago and another from Burma. The so-called 'blue tiger' of Fukien in South China, known to the Chinese as 'black devils', was probably a true case of melanism.

Albinism, the opposite condition to melanism, is due to the absence of pigment. It has been noted more frequently in dry

The bizarre beauty of the facial markings



than in moist areas. Complete albinism with the inability to face bright sunlight, as occurs in human beings, has hardly ever been reported in tigers – the only true albinos to be recorded were two cubs in Cooch Behar in 1922. But partially, or wholly, white tigers have been regularly recorded generally from the more arid areas of central India such as Rewa. Such cases are more correctly considered as sports than as true albinos. The background colour, instead of being a tawny red is a creamy white. The stripes do not stand out clearly and their colour seems to change from chocolate-brown to a reddish-black according to the reflected light. The eyes of white tigers are a beautiful icy, blue-green and do not display the sensitiveness to light usually associated with true albinos. That these animals appear to be larger and more massive than normal coloured tigers may be the result of their unusual appearance.

In the nineteenth century the tiger was found nearly all over the southern part of the present Soviet Union. It extended to the Trans Casusus in the west and to the lower reaches of the Amur river in Siberia in the east, up to the shores of the Tartar Strait. It is now extinct in many parts of this range and a few isolated pockets represent the last stronghold of this powerful and beautiful animal in the country of its origin. Today there are believed to be no more than fifty or sixty wild tigers alive in the whole of the Soviet Union, mostly from Ussuri bordering Manchuria. They are strictly protected; only a limited number of cubs may be captured annually for zoos.

In the far eastern territories of Russia, as the result of the intense colonisation at the beginning of the twentieth century, the number of tigers decreased rapidly and, in many places, disappeared completely. In Kazakhstan, where in the middle of the last century tigers were widespread, they vanished because of the 'felling of the woods along the rivers and frequent fires in the reed thickets near their watering places, during which they lost many kittens', as one Russian authority puts it. Tigers have been seen a few times in the Trans Caucasus, during the last decade in Azerbaijan and Armenia bordering Iran; a specimen was trapped as recently as 1956. For all practical purposes however the only tigers remaining in this part of the world are the few, reported to be not more

than a dozen, still surviving within Iran at the south-east corner of the Caspian Sea.

Generally, there has been a gradual retreat before man, an insidious process which was greatly accelerated after the invention of gunpowder and the development of modern rifles. In the adjoining Chinese portions of its range the tiger has also been persecuted for the allegedly medicinal properties of its organs. The Korean tigers were hunted for their skins; at one period a hundred and fifty skins per year were exported as tribute to China and Japan.

Within the last century and a half the tiger's distribution in north-eastern Asia has shrunk to a few isolated pockets in the far east: Manchuria, Korea and the Fukien coast of China. The range is no longer continuous. In south Korea it has been publicly announced that tigers are decreasing to the point of extermination. In Laos and Vietnam they are rarely seen. Zoologists also fear that the tiger will become extinct in Indonesia. Disturbance of wildlife habitats through modern methods of warfare, together with the spread of human settlements, mean that the tiger is on the way out. It may well be that it will survive only in India and Burma.

Taking India as a whole it is easy to describe it as tiger country, but the fact is that there are large areas now devoid of the type of cover which the tiger needs for its existence. Generally speaking the tiger requires heavy and extensive forest cover such as is found in the strip of country below the Himalaya, from the Punjab eastwards through the United Provinces: Nepal, Bihar, Bengal, Bhutan and into Assam. There are still a few tigers west of the Jamuna River but they are really the overflow from the United Provinces, the more familiar name of modern Uttar Pradesh, referred to as UP. This river may be regarded as the western limit of the tiger's range in the sub-Himalaya just as the Ganges may be regarded as the western limit of the range of the Indian elephant. In Rajasthan the tiger is holding its own south and east of the Aravalli, conditions north and west of that ancient and worn down mountain range being generally too arid and open for it. The tiger is found throughout Assam; in the whole of the Brahmaputra valley and the hills to the north and south bordering Burma; in parts of central and eastern peninsular India, including adjoining areas of the Eastern



Ghats; in the Western Ghats, southwards from Goa, including such ranges as the Nilgiris and Wynaad hills, and in the adjoining regions of the Mysore plateau. All this is tiger country, though even here there are gaps which have developed recently. The original uniform distribution has been considerably disturbed by clearance of forests for cultivation and human settlement.

The Indian race of the tiger is considered to be the type form. Moreover, India is popularly considered to be the home of the modern tiger, probably because of the British connection and the glamour surrounding the hunting of the animal. But bearing in mind the vast range once occupied by tigers, there must have been many more of them outside the boundaries of India than within. Even so, before the advent of the British and the introduction of firearms, there must have been an enormous number of tigers in the Indian sub-continent. The human population of India two hundred years ago was only a fraction of what it is today; cultivation and settlement were far less extensive. Forests and jungles, suitable for the tiger and its prey species, covered almost the whole land mass, except the more arid north-west and the open Deccan of the peninsula, where the lion and the cheetah were the ruling carnivores respectively.

The original, and in some respects the most typical, home of the Indian tiger is the broken country of the Siwaliks, often mistakenly confused with the outer Himalaya, and the swampy *terai* land fringing them to the south. The valleys between the Siwaliks and the Himalaya are ideal haunts for tigers. The whole ecological set-up with abundant prey species, cover and water, has been a paradise for both tiger and sportsman for hundreds of years. The tiger here can be called a creature of *sal* which clothes the gregarious stands interpressed with patches of grass, the result of annual fires which sweep through the forest in the dry season, bringing regeneration and fresh grazing for the tiger's prey: the sambar, spotted deer, swamp deer and barking deer.

From the Siwaliks the tiger ascends into the Himalaya up to six thousand feet or more, its original altitudinal limit being nearer ten thousand feet. In Sikkim, in the eastern Himalaya, it has been recorded as killing domestic stock at over twelve thousand feet. The altitudinal limit to its range in the

Himalaya is mainly dictated by the availability of suitable prey and adequate cover. Distribution of the tiger is also influenced by cold and snow though it can always escape the rigours of winter by moving down to lower levels. In recent times lack of adequate cover and food at the higher altitudes has confined the tiger to the Siwaliks and the bordering *terai*. Broad-leaved forests, which are the most suitable habitat of the tiger, have been reduced in area owing to the extension of cultivation and human settlement. Progressive destruction of deer and pig, upon which it feeds, has left no alternative except a retreat to lower elevations. Where the tiger persisted at higher elevations it was as a cattle-raider and man-eater. Corbett's famous tigers in the outer Himalaya were of this type and their descendants still carry on the same precarious existence.

Strangely enough, the tiger never reached Ceylon and the theory is that during its migration from the north to the south of India, it arrived too late to cross the bridge of land which once connected Ceylon with India. The fact that the sambar and the elephant – the tiger's companions in most of the other countries in its southern range – occur in Ceylon, shows what a late arrival the tiger made in India.

The tiger seems to have reached India about 5000 BC, from the east through what is now known as the Assam corridor. However there is no mention of tigers in the *Ryg Veda* (1500 BC – 1000 BC), a compilation of hymns and recitations sung at sacrifices by the Aryans who were the first settlers in the land of Argyvarta, the Sanskrit name for the land drained by the river Indus. Even as late as the time of Chandragupta I (324 BC), the first Mauryan emperor who threw back the Greeks, only the lion is mentioned. The earliest mention of the tiger in Aryan literature is in the much later *Arthava Veda*, although Buddhist literature (470 BC) mentions it.

The claim to the tiger's entry into India from the east is supported by independent evidence, i.e. the complete continuity in distribution and racial characteristics between the tigers of India and China, and the corresponding discontinuity between those of western India and Afghanistan-Persia.

The tiger is one of the most magnificent of nature's animals. It can probably claim to be the most attractive of the larger



Its rather spindly hind legs give an appearance of some awkwardness



carnivores, although for sheer beauty in colour and form the leopard is hard to beat. The ground colour of the tiger's coat is a rufous red that becomes lighter with age, sometimes fading, in very old tigers, to extreme paleness. The general body colour is overlaid with transverse, discontinuous black stripes, randomly distributed and of irregular width. The stripes on either side of the body meet along the line of the back in an attractive forward-pointing design; they are continued, though less prominently, across the shoulders and neck, and down to the top of the head, where they appear as a beautiful pattern of short overlapping lines of diminishing length, merging into the facial markings. The stripes become rings on the tail, which ends in a patch of black hair; they do not cross the belly, nor do they encroach upon the chest and inner sides of the legs which are all white. Some of the stripes may be open, so as to appear double. In the facial area they are broken up into short lengths, amounting to irregular wavy dabs arranged in a complicated but beautiful design on a background of rufous red and white. The pattern achieves a bizarre beauty on the face, with a pair of comparatively small amber coloured eyes that are always alert and menacing. The back of each ear is black, with an extraordinary white spot in the centre. There are irregular white patches above the eyes. The hair around the face is distinctly longer than on the rest of the body, and in adult males forms a distinct fringe or ruff, which in old animals is sometimes quite luxuriant. The nasal area is of the normal colour; the cheeks are white with broken black stripes which almost frame the face.

The extraordinary combination of contrasting colours – tawny umber, black and white – makes for a very beautiful effect, while providing the maximum camouflage. It is only in daylight and in the open, conditions which the tiger does not particularly favour, that the animal is conspicuous. In shadow or in moonlight, at dusk or dawn, against a background of reeds and grass or in the dense shade of tropical jungle, the stripes blend with the surroundings so closely that it is extremely difficult to locate the tiger. Even if one can detect the line of the body it is sometimes impossible to distinguish the face, with its *opera-bouffe* markings, against the dappled effect of tropical foliage.



Opera-bouffe markings on the face

OPPOSITE: The stripes on either side of the body meet along the line of the back



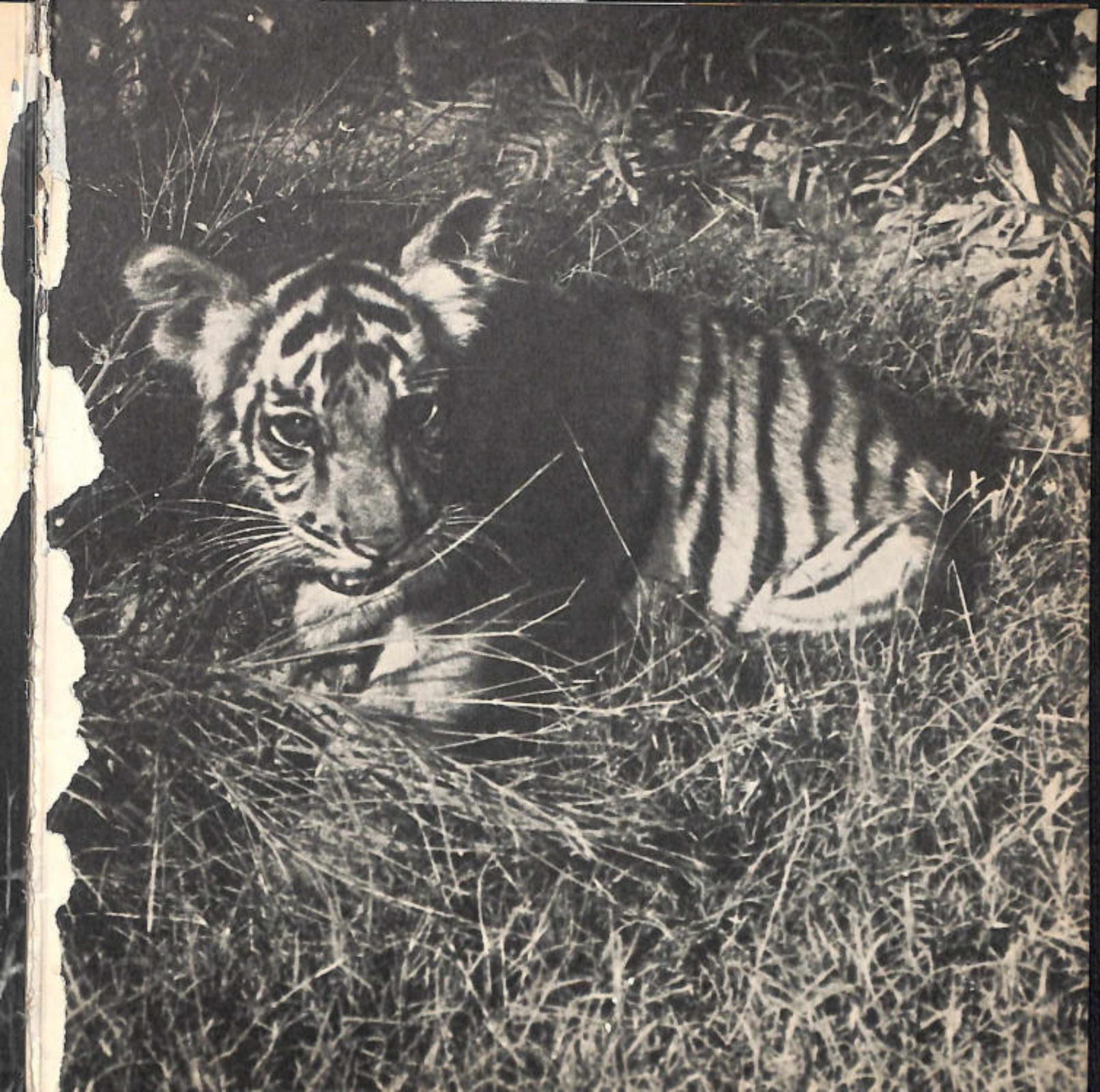
The back of each ear is black with an extraordinary white spot at the centre

OPPOSITE: There are irregular patches of white above the eyes

The northern Asian tiger has a thick luxuriant coat which is shed in spring. The Indian tiger, particularly of northern latitudes, has a so-called winter coat which is thicker and richer in colour than the normal, but this is moulted at the approach of hot weather. I have found that the fur of cattle-raiders which lurk about in the clinging secondary growth that surrounds villages, is rubbed almost smooth by comparison with that of the tiger that lives in the high forests of the interior. The only true forest tiger that I have shot which could not possibly be suspected of cattle-raiding had a very thick coat.

The tiger's bodily configuration, particularly when seen in natural surroundings, offers such an image of ferocious power and lithe sinuous grace as to raise the pulse of even the most matter-of-fact individual. The tiger normally moves with its head held low and its rather spindly hind legs give it an appearance of some awkwardness. Yet when fully alerted and in full-gaze, its intimidating stare can cause a shiver to run down the spine of any human observer in close proximity. The tiger's carriage and poised symmetry are magnificent. The tail, normally held with the end fairly close to the ground and slightly curved, is in some respects the animal's most revealing organ.

I shall never forget the slight twitching of the tail of the tiger that I once followed for some distance down the centre of a well-sanded forest road. I was on a routine inspection with my conservator and his wife, and we came upon this animal early one winter morning. While we groped tensely for guns and cameras in our car, the wild creature which we had encountered so suddenly and unexpectedly, proceeded serenely on its way. The only sign of its awareness and possible irritation at our presence being that gentle rhythmic twitching of the end of the tail. It was perhaps my fancy that I could detect the simultaneous and slight opening of the mouth in that peculiar facial contortion, characteristic of a disturbed tiger – as if muttering angrily to itself. But there was no mistaking the almost imperceptible sideways movement of the head as it looked over the shoulder at the intruders. When all the excitement was over and the tiger had gone back to the jungle, the memory of that easy slouching gait and twitching tail returned with a sigh of pure enjoyment.





## The Tiger's Behaviour

In all the countries of its wide range the tiger's environment may be described as a 'closed' one. It is a creature of heavy cover, be this the reed beds of the Caspian, the lush grass of the Indian *terai* or the dense evergreen jungles of Malaya and Assam. It avoids sunshine and heat, loves shade and coolness, and is never found far from water. Indeed, in the heat of an Indian summer the hunter looks for water as this is where he often finds a tiger, sometimes half in and half out of an inviting pool.

Throughout its long history, the tiger has shown an amazing adaptability to climatic differences. From the snowy winter conditions of northern Asia it has moved to the steaming jungles of the tropics and islands such as Sumatra and Java. In its journey to its Indian home it experienced a series of widely different climates. It traversed semi-tropical hill ranges, penetrated northwards into temperate mountain conditions, westwards to near desert, and southwards into the plateau country of peninsular India. Finally it reached the equatorial regions where temperatures change little with the seasons. Hardly any other major predator has shown such versatility in adapting itself to different climates. Except for deserts and alpine regions, the tiger has come to occupy a wide range of habitats, always with a 'closed' environment.

The tundra of the arctic was the habitat of the sabre-toothed tiger. In boyhood's imagination this animal ranked second only to the mammoth with curved tusks. The several races that evolved came to occupy a bewildering array of



locales. The tigers of the Amur river living in the extensive spruce forests of the taiga at 60° north had to cope with snow conditions for a large part of the year; here the tiger lived with wolves and foxes, and preyed upon wapiti and roe deer. The tigers of Indo-China occupied a monsoon country of forest and grass-covered hills, subjected to shifting cultivation as well as periodic fires and floods; elephants, deer, wild pigs, oxen and water-buffaloes shared this habitat. The tigers of the Indonesian islands and Malaya were creatures of virgin forest or dense secondary jungle. They lived largely on wild pigs but were not averse to sea-foods such as turtles. Tigers of Burma and India were the first of their tropical counterparts to enjoy vast expanses of forested country which contained a variety of prey species. These areas have now shrunk into blocks of permanently constituted forests managed for commercial purposes. Strangely enough, as though never satisfied, the Indian tiger even found its way to the desert fringes of Rajputana, an area of dry forests and gnarled trees where the nilgai antelope, or 'blue bull' became its prey as well as deer and pig. On the eastern side it penetrated the delta of the Ganges, the swampy Sunderbans of Bengal where dry land is at a premium and progress is along waterways. Here the *cheetal* or spotted deer constituted its main food.

In every case of migration to a new habitat, the driving force has been the need for prey species, both large enough and plentiful enough to satisfy the food requirements of a carnivore which has to kill at least once a week and has a comparatively high breeding rate. If a tiger cannot satisfy this need, it must move on. It must also be able to follow its own instincts in regard to killing and eating. By nature secretive, the tiger has to be able to withdraw to a secluded spot once it has killed. It will try to take its victim with it but if it fails to do this, or cannot hide its kill within a convenient distance of the lie-up place, it is forced after a hurried meal to leave the remains to the hyenas and the vultures. This is in general contrast to the habits of the lion which, being an animal of open environment and gregarious habits, can lie up with its family near a kill, until the kill is eaten clean. One result of this aspect of the tiger's behaviour is that it needs a very large territory and it must be constantly on the move in order to survive. Every *shikari* or hunter, in India knows the



OPPOSITE: A creature of heavy cover

LEFT: Cheetal or spotted deer

regular manner in which the tiger moves from one end of its large territory to the other and its reputation for covering great distances in search of food.

Driven by its instinctive needs the tiger has moved a long way from its original home, but now its back is to the wall and it cannot move on any more. There are no further habitats waiting to receive it. The tiger must adjust itself to its environment or perish. One other big cat, the leopard, has shown greater adaptability. This carnivore needs less cover than the tiger and in parts of India as well as in North Africa, it lives in quite open, almost barren country. The leopard is smaller than the tiger but size is not the whole story as the lion, which is as large as the tiger, also lives in open country. There is something in the deepest instincts of the tiger which causes it to restrict itself to forested habitats with adequate cover.

The tiger is also less adaptable than the leopard when it comes to hunting for its food. Lighter in build and with greater ability to conceal itself, the leopard has a much wider range of prey species from monkeys, which it sometimes pursues

Nilgai – the largest Indian antelope



into the tree-tops, to the small mammals which share its habitat. With the progressive depletion of game species which predators now have to share with man, the leopard has not found it difficult to adjust its diet to man's livestock, from ducks and fowls to goats and dogs. The village leopard is a commensal creature living in a circumscribed area within sound and sight of man. Not so the tiger which has remained much more conservative in its food preferences and as a result is more dependent upon game animals. It is true that in the neighbourhood of cattle stations as well as in many areas which have been denuded of wild herbivores tigers largely live on cattle. This appears to be an abnormal situation which does not hold out any future for the tiger. No carnivorous animal can survive indefinitely without adequate supplies

The leopard has shown greater adaptability than the tiger in procuring its food





of its natural food. The tiger has completely disappeared from large forested tracts in central, western and southern India, where it was once common and where there are now no game animals although wandering cattle are numerous.

One hundred years ago lions in fair numbers roamed almost the length and breadth of Africa

The tiger can legitimately claim to be described as intelligent, its cunning being proverbial. When it takes to hunting man it shows an almost diabolical understanding of human nature, its actions suggesting a considerable power of reasoning. Yet the tiger sometimes behaves in a manner which gives the impression of obstinacy bordering on foolishness. I knew of a tiger which killed a cow in a fenced yard and persisted for hours in attempting to lift it over the wall but in vain. It finally gave up the struggle and went away, hungry and uncompensated for its efforts.

However, tigers are individualistic animals. Some are very brave while others behave like arrant cowards. This also applies to tigresses in their attitude towards their cubs. Most tigresses will defend their cubs to the death and all are dangerous to approach when they are with their young. Tigresses make very loving mothers and take great care of their cubs. I was once with a party which beat out a tigress and her cub from a patch of jungle near a village. Someone fired at the mother. Although wounded, she remained on the spot anxious for her cub. The man who had fired at her was then



The tiger is largely dependent on game for its food

left in his tree with no more ammunition and he described how the tigress sat up like a big dog, looking for its cubs as the beaters approached. She could easily have run away but eventually she was shot.

I once came across a mother and two half-grown cubs on a fire-line when I was doing an inspection on my elephant. The mother deliberately interposed herself between her cubs and the elephant, which was an extremely nervous beast. Although the elephant kept on trying to throw us off its back by shaking vigorously, the *mahout* manoeuvred in a wide circle, keeping the elephant's back to the tigress so far as this was possible. I intended to take a shot at the tigress the moment the chance offered. She followed us around in the jungle, alert but not threatening. When the elephant stopped shaking for a moment, I took a snap shot, deliberately aiming between the eyes as she stood erect and wide-eyed. It was a kill or miss shot for I knew there would be no follow-up after a wounded animal on such a nervous elephant. I am glad to say I missed, for the tigress turned and bounded away. When the excitement was over, I pondered long on her unusual behaviour and discussed it with my men who had never had such an experience before. The tigress appeared to be highly curious and at the same time very suspicious of the bucking elephant with three humans on its back. There was no doubt she intended to see us off though whether she would have pounced if one of us had fallen off the elephant is an interesting question. The point to note is that she was a true forest tigress, met many miles from human habitation, and I think she had never previously come across human beings riding an elephant or an elephant behaving in such an unusual manner. So she had stalked us, while her two cubs sat on the fire-line and watched the *tamasha* or fun from a distance. It was one of the most remarkable experiences I have had with tigers.

The tiger's behaviour is largely conditioned by its environment. Where the habitat is relatively undisturbed, the attitude of the tiger is generally less inhibited than in localities which are disturbed by man who is its chief enemy. For example, the tiger, which is reputed to be a nocturnal creature, may search for its food by day in areas that are not disturbed. Where there is sufficient cover and water close at hand it will not drag its kill far and may even devour it in



the open. Where there is little cover it will attempt a long drag or endeavour to hide the kill while it goes away to its lying-up place. The minor scavengers of the forest, as well as the human intruders, notice these signs and adjust their own actions accordingly.

George Schaller, the American wildlife ecologist who observed tigers with a notebook and binoculars for over a year in one of India's national parks, found them moving about during the day and so was able to learn something about their hunting and family life. The conditions in this area are less

Where the habitat is relatively undisturbed a tiger may hunt for prey by day

disturbed and the cover more open than in almost any other tiger haunt in India. Both these factors were undoubtedly responsible for the particular pattern of behaviour which Schaller observed. Apart from the picture of its hunting life which confirmed what most knowledgeable persons have always suspected – that the tiger has to work very hard for his living – some of Schaller's recorded observations are startlingly different to what people have hitherto considered to be the case.

It is accepted that both tiger and tigress lead solitary existences, except when mating and then the association is only for short periods and may include more than one male; there is a unique case on record from Central India of five males being found with one female, all being shot by a single sportsman. At times they may be forced to congregate under abnormal circumstances, such as floods; an instance of five animals being shot within a few minutes by a single sportsman on a flooded river bank is recorded from Assam. It is also generally believed that unrelated tigers do not feed at the same time on the same kill. Yet Schaller records the association for short periods of two separate tiger families and their feeding together on their kills. On one occasion as many as seven congregated at a kill, including the resident male. When baits are offered this can sometimes happen. William Bazé described several tigers gathering at kills in Vietnam in similar undisturbed habitat; when he was disposing of cattle stricken by an epidemic, by taking the carcasses by lorry to an isolated dumping ground, the tigers almost queued up for their meal.

It has always been known that an adult male tiger is intolerant of the intrusion of another male into its territory, but it was not previously known that, according to Schaller's account, a tigress with cubs would allow another family to join hers and share the kill. Again there is a record from Bazé in Vietnam of three independent groups of tigers occupying the same set of caves in an area which appears to have been secluded.

It is commonly believed that the tigress keeps her cubs away from their father lest he should kill them. This is probably true as regards male cubs when they are young or approaching the adult stage when they pose a challenge to him. There is



the analogy of the domestic cat and its offspring. Smythies, who was a forest officer in UP, states that he knew a big tiger and tigress who lived together for seven years and twice in that period the father killed one of his sons when it was about three-quarters grown. In each case there was not a mark on the body except for tooth marks on the head, the skull being crushed like a walnut.

When the cubs are old enough to hunt with their mother they are safe. Schaller describes a male tiger meeting his family thus: 'On another occasion the male visited the female with four cubs at their kill. Although he was obviously hungry and the meat must have been tempting, he lay down twenty feet away and waited patiently until everyone had finished before taking his first bite. Intermittently the cubs rubbed their faces against his and sinuously moved their bodies along his head and neck, the typical friendly greeting between tigers. He remained with the family until morning and then resumed his rounds - solitary but certainly not unsociable.' This indicates a degree of family life and association between individuals which is contrary to the general view of the tiger as an essentially withdrawn animal. It also emphasises the need for further study and observation to establish what is normal behaviour.

Schaller is careful to say that he thinks his observations in this particular national park 'are fairly typical of those tigers in India which have not been constantly persecuted by man.' I believe that the habitat influences the behaviour of the tiger much more than is generally allowed for. There is probably very little completely normal tiger behaviour in the average environmental set-up of today.

India can rightly claim to have been the meeting place of the tiger and the lion, at any rate in modern times. There has always been speculation as to how these two species got on together in the only region where they once overlapped - the north-western part of the sub-continent. In fact the word 'clash' has been used in a rather sensational manner to describe this meeting. Towards the beginning of the last century the Indian lion was found as far south and east as Allahabad, and some authorities state that it would have spread further east and south if the age of the firearm and the arrival of the British had not intervened. In the face of the



onslaught which was launched upon it, it is said that the lion retreated along its original route of entry into India, to the very edge of the sub-continent where it is now found only in a tiny area in Cutch, in less than 500 square miles in the Gir forest, almost within sight of the Arabian sea.

A tiger leads a solitary existence



An alternative view is that the lion could not stand up to the tiger. R. Lydekker states that the tiger is the stronger animal. Most people believe that this, in conjunction with its ferocity when aroused, makes it more than a match for the lion. Alleged clashes between the two animals seem to support this view. However when the late Maharaja of Alwar put a lion and a tiger into the ring together nothing much happened. Even the experiments carried out by the Maharaja of Gwalior in the early part of this century, when lions were re-introduced into an area where they once lived, do not throw much light on this. Starting with three pairs of African lion which he kept as a breeding nucleus in a park at Shivpuri, nearly a dozen lions in all were released in pairs after a period of 'conditioning' in the art of killing live prey. Except for two which were shot far from their place of release, the other were not heard of again. One pair actually came back to the park and were said to have been killed by tigers. It is recorded that tigers were regularly attracted to the spot by the nightly roaring of the lions.

The matter has been put to the test in at least one staged fight to the death between a tiger and a lion which was photographed in a Hollywood-style film which I was unlucky enough to see very recently. The contestants were released in a sand pit from which there was no escape. From the beginning the lion demonstrated its superiority over the tiger which tried to escape by climbing the steep walls of the sand pit. (The hero and his companion were peering into the pit with theatrical awe as though they had unexpectedly come upon this unique fight.) In between manoeuvrings and spells of apparent indifference the opponents staged furious bouts of clawing and biting, holding and wrestling in the manner of big cats, all to the accompaniment of the most blood-curdling noises. At one stage the tiger, fighting back savagely, appeared to have gained the upper hand but the thick mane of the lion seemed to have been in the latter's favour in warding off the bites. The end saw an exhausted tiger at the mercy of the lion. There was a final scene, as revolting in its callousness as the rest of the barbarous display, of a half-dead tiger being dragged up the wall of the pit by means of a rope around its neck, while it feebly moved a paw against the strangling noose.

Another theory of their comparative dominance is that the



two animals occupy completely different habitats, the lion living in open drier country which the tiger shuns. But lions were once shot in the tiger infested jungles of central and western India. Haryana and Rajasthan must have contained both lions and tigers at one time and there are still tigers in Rajasthan. The analogy of the lion's disappearance from Europe in mediaeval times and from the Middle East more recently – even though there was no tiger there to molest it – is used to prove that the lion would have become extinct in India in any case through natural causes. An artificial cause of the lion's disappearance, but a very cogent one, is the unbearable pressure to which it was subjected by those same sportsmen who were arguing over its prowess compared with that of the tiger. S. H. Prater in *The Book of Indian Animals* has added a confusing note. He uses the lion's limited distribution in India as proof that it was a recent immigrant and states that it would have spread over the whole of the sub-continent and perhaps into Burma. He apparently visualised no difficulties as regards unsuitability of habitat.

Whatever the actual facts and the force of these various arguments, great care was taken to avoid any possible clash with tigers when about eight years ago the Indian Board for Wild Life initiated an experiment to re-establish lions. This indicated support for the theory that the tiger dominated the lion. A lion and two lionesses, one of them in whelp, were released near the holy city of Benares, now renamed Varanasi, in a forest considered to be a suitable habitat but devoid of tigers. This re-introduction, after a shaky initial start, has shown signs of success, the most recent census giving eleven lions in the sanctuary.

The theory of the tiger's dominance could hold good for the lion's retreat in localised parts of its range which now do not hold lions although conditions are otherwise suitable. The explanation of the westward retreat of the lion from the Indian parts of its original range is likely to be found in its inability to adjust itself to the gradually increasing pressure over the last one hundred and fifty years and to its preference for open habitats, its natural gregariousness, bold approach and almost frank demeanour. By contrast the tiger is essentially solitary and nocturnal in its habits, and has a natural cunning and stealth.

## Physical Characteristics and Senses

The tiger has a long association with man. It has been observed and hunted for sport by white men for several hundred years and before that by the natives of the countries in which it is found. Even so, there is a surprising amount that is still obscure in regard to the life and habits of the tiger in its natural state. This is largely due to the habitat favoured by the animal, its shyness and nocturnal habits. Most records are based on observations of tigers in captivity. Can anyone, for instance, describe clearly how a tiger kills other than at tethered baits, or speak authoritatively on such matters as monogamy among tigers or give details of their family life in the wild? Is the tiger really the 'gentleman' it is made out to be and is the leopard a 'cad' by comparison as is often said? Or, is the tiger's behaviour in general governed by the same laws as those that control all predator-prey relationships and the exigencies of the particular situation?

What do we really know about the sexual periodicity and breeding behaviour of the tiger along with the other large felines? Only recently a remarkable exhibition of sexual behaviour of a tigress in season was observed in a zoological garden. Free to roam about in a large enclosure in company with a male, the tigress displayed what was probably typical behaviour in the wild: she buried her face deep in a grassy hollow where the male had obviously left his sign and then raised her head to take in the odour in a peculiar grimace. This is somewhat similar to the behaviour of domestic cats in



She buried her face deep in a grassy hollow where the male had left his scent

which the female goes about sniffing where the males have left their signs.

Unless man stops chasing the tiger to kill it, we may never know how it lives in the wild state. Perhaps it would be as well if we were left with some of these questions unanswered so that something of the tiger's mystery may remain to cast a spell over man long after he has reached sanity in his dealings with this great and beautiful cat.

Felines in general have a limited range of uttered sounds, unlike for instance, the apes and the monkeys. The lion is the noisiest and most vocal, probably because it is the most gregarious of the big cats. Yet the tiger has quite an interesting repertoire of sounds with which it expresses its various moods. There is the loud 'whoof' which expresses surprised resentment, as when the tiger is suddenly put up in high grass or when it charges out at vultures eating its kill. It threatens with a deep-throated growl, particularly when guarding its kill. There is the full-throated roar which at times seems to express a feeling of *joie de vivre*, quite different from the terrifying roar of anger sometimes heard on a beat when a tiger is disturbed or about to launch an attack. There are also the harsh, guttural, coughing roars as it charges.

A. I. R. Glasfurd has described how he was suddenly charged at early dawn when he was on a *machan* – a tree platform – and had lit a cigar. The tiger came with a terrifying, bellowing 'whoaaai-yughh! whoaaai-yughh!', immense, deep, vomiting roars each followed by its convulsive, breath sucking 'yughh'. He writes vividly of 'the enormous fear, hate and strength that burst from that great brassy throat, like the blaring of a thousand trombones and hurled into one's face out of the pre-dawn peace'. He adds that the roar of a lion seemed a little thing by comparison.

These are the more obvious noises and the ones which are usually heard at close quarters. The sound which has intrigued all those who have heard it is the sharp 'pook' which can be compared to the call of the sambar deer, and which may be an expression of suspicion and anticipation rather than any attempt at mimicry. There is also the rather high-pitched, musical 'ahoonh! ahoonh!', like repeated moans but not continued for long, with which tigers call to each other over short distances. This is believed to be their way of keeping in



Sambar deer: the tiger's 'pook' can be compared with the alarm call made by this deer

touch when hunting although it may be uttered by a solitary tiger, possibly to stampede game.

One evening on a forest stroll through my plantations I stood and listened with mounting apprehension to this 'ahooing' of an approaching tiger until it was so close that I could almost sense the up-thrust of air into the nasal passages and the effort being put into the high-pitched note. I have often lain awake on a monsoon night in the Raimona range – famous tiger country – listening to the call being given and returned by two tigers as they approached each other, hooting like ships in the darkness. It is a thrilling sound, mysterious because generally heard at a distance.



Cubs have thick fur

A single blow from one of its powerful fore-paws is sufficient to bring a victim down



Of the less obvious noises that a tiger makes there is a loud hissing when startled; a vigorous sniffing which is an obvious attempt to compensate for poor powers of smell; a complaining, moaning noise when approaching a kill or, so it is said, when deprived of its meal; and, as described by Prater, a puffing sound made by both sexes in approaching each other 'made by expelling air in panting jets through the nostrils'. The sounds that accompany the mating of tigers are like the caterwauling of gigantic cats in love play. Occasionally when a tiger has been shot, one hears the death cry, described by Burton as 'like that of a domesticated cat being killed by dogs.' Tigers, particularly cubs, are sometimes spoken of as purring but the sound is unlike the rhythmic purring of domestic cats and more correctly described as guttural throat noises. The female also makes low purr-like grunts when calling cubs or warning them of danger.

Tremendous strength lies concealed in the lanky, long-limbed body of the tiger. Yet that lithe and sinuous form seems particularly well adapted to life in a closed habitat where large and powerful prey is pulled down. The tiger's speed in attack is incredible. Like the Indian blackbuck antelope it can take off from a standing start and move almost immediately into full speed. However, it cannot keep this up for more than a short distance. The fore-feet are much broader and the fore-paws much heavier than the hind feet; the prints of the front paws are more rounded than the hind. The toe impressions of a male are round, those of a tigress more elongated. The paws of a tiger cub seem to be out of all proportion to its size and, with its thick fur, are the cub's most noticeable feature. An adult tiger can bring down its victim with a single blow of one of its powerful fore-paws and can crush a man's head as if it were an egg-shell.

Yet this is only part of the armoury of weapons with which the tiger attacks and kills. The main onslaught is made with powerful teeth and sharp claws. The tremendously powerful jaws lock the large canine teeth in a lethal grip on its victim's neck or throat. The vertebrae of a bullock can be bitten clean through, leaving the deep clear impressions of the canines as the sole sign of death; or the throat may be seized and the wind-pipe crushed so as to stifle all sounds, while the grip of the teeth shuts off all loss of blood. This absence of blood from

The paws of a cub seem to  
be out of all proportion to the size of  
the rest of the body





the throat, together with the tiger's habit of holding on for a considerable time, has lent support to the theory that the tiger first sucks the blood of its victim. Photographs showing the tiger with its first death grip on the throat of its victim, showing the ears laid back and a look of near-satiation on its face, would tend to support this belief.

The tiger's paws, armed with sharp and powerful retractile claws, also play an important part in the act of killing. They are used to secure a purchase on shoulders and back when the tiger springs and may even seize and hold the head before gripping the throat or biting through the nape of the neck. Sometimes the tiger will use both paws to grasp a victim, as a kitten holds a ball. One of my friends once watched a tied bait being attacked like this: the tiger lolloped up to its victim, a bullock which was pulling backwards with its head down to the limit of the tether chain round its neck. The tiger skidded to a halt and clapping a paw on either side of the head, bit through the back of the neck which was conveniently offered. I myself once watched a tiger approach a fallen cow which it had previously attacked, with belly held low to the ground, mouth open and front paws uplifted in an attempt simultaneously to hold the jerking head and bite the throat of the wretched victim.

The tiger spends its day lying up in some secluded spot or sleeping off the effects of a heavy meal. It starts prowling just before sunset and may generally be expected to return to its kill at sunset, if it has one, unless it has eaten well or has been disturbed when the time of its return is uncertain. In secluded habitats and in favourable weather, such as in rainy or cloudy conditions it may be found on the move during the day time. The tiger dislikes high temperatures and generally avoids strong sunlight except on wintry days or at high altitudes. It tends to follow paths and game trails, often walking along sandy river beds, moving on the cushions of its feet.

There is some confusion about the tracks left by the tiger. Some writers state that its normal trail is that of a four-footed animal but that, when stalking, a single track is the rule. The tiger walks in a slouching, sauntering way, lifting and putting down its fore-paws with a peculiar 'round-arm' action and moving its hind legs inwards and setting the paws of its hind

feet in the impressions of the fore-paws. This seems to explain the single trail of identical impressions of both fore and hind feet when it is walking at its usual pace.

By holding its head low the tiger is able to pick up sounds transmitted through the ground but the main purpose appears to be the scenting of game. I once lay hidden in some bushy growth on a small ant-hill, and watched a tigress come along the edge of the jungle across grazed turf, head hung low and nose quartering the ground like a huge hound. She was either trying to unravel the meaning of the various smells of cattle and men, or she was being led by her nose to the spot at the edge of a patch of *sal* forest where that morning she had left her kill. All observers are agreed that the tiger has very poor powers of scent. Hunters have recorded tigers sniffing loudly and enquiringly in the region of their kills to try and locate the human intruder. The long whiskers are sensory organs and their role is obviously to supplement the nose.

The tiger is more than compensated for its poor sense of smell by its good hearing and marvellous eyesight which is adjusted to its role as a hunter of ground game. It seldom looks up above a certain level but when alerted or being driven or approaching a kill, it will look upwards. This makes a sportsman liable to detection unless his platform in the trees is high enough. Let him move by so much as a flicker of an eyelash when the tiger is viewing the scene and he will be detected.

The tiger also has a keen sense of hearing and this is probably the sense on which it relies most of all for leading it to its prey. As if aware of the importance of detecting sounds, the tiger itself is generally the essence of noiselessness when on the prowl or in the final stages of its approach to bait or kill, although when some distance away tigers often behave in a noisy and careless manner, only fading into complete silence and stealth when close to the objective.

On one occasion J. W. Best, a former forester in India, was sitting up over a bullock which a tigress had attacked but had been unable to kill before being driven off; it was midday and Best was meditating up a tree when he heard from far up the hill opposite him, 'the scrunch, scrunch, scrunch of heavy padded feet on brittle teak leaves'. Straight down the steep cliff, making no attempt at quietness, came the tigress. When



The round-arm action in a slouching saunter

OPPOSITE: The normal trail is of a single track; the paws of the hind feet are set in the impressions of the fore feet



The tiger seldom looks above a certain level but when alerted will look upwards

OPPOSITE: Flattened out for the spring

The tiger is generally the essence of noiselessness when on the prowl

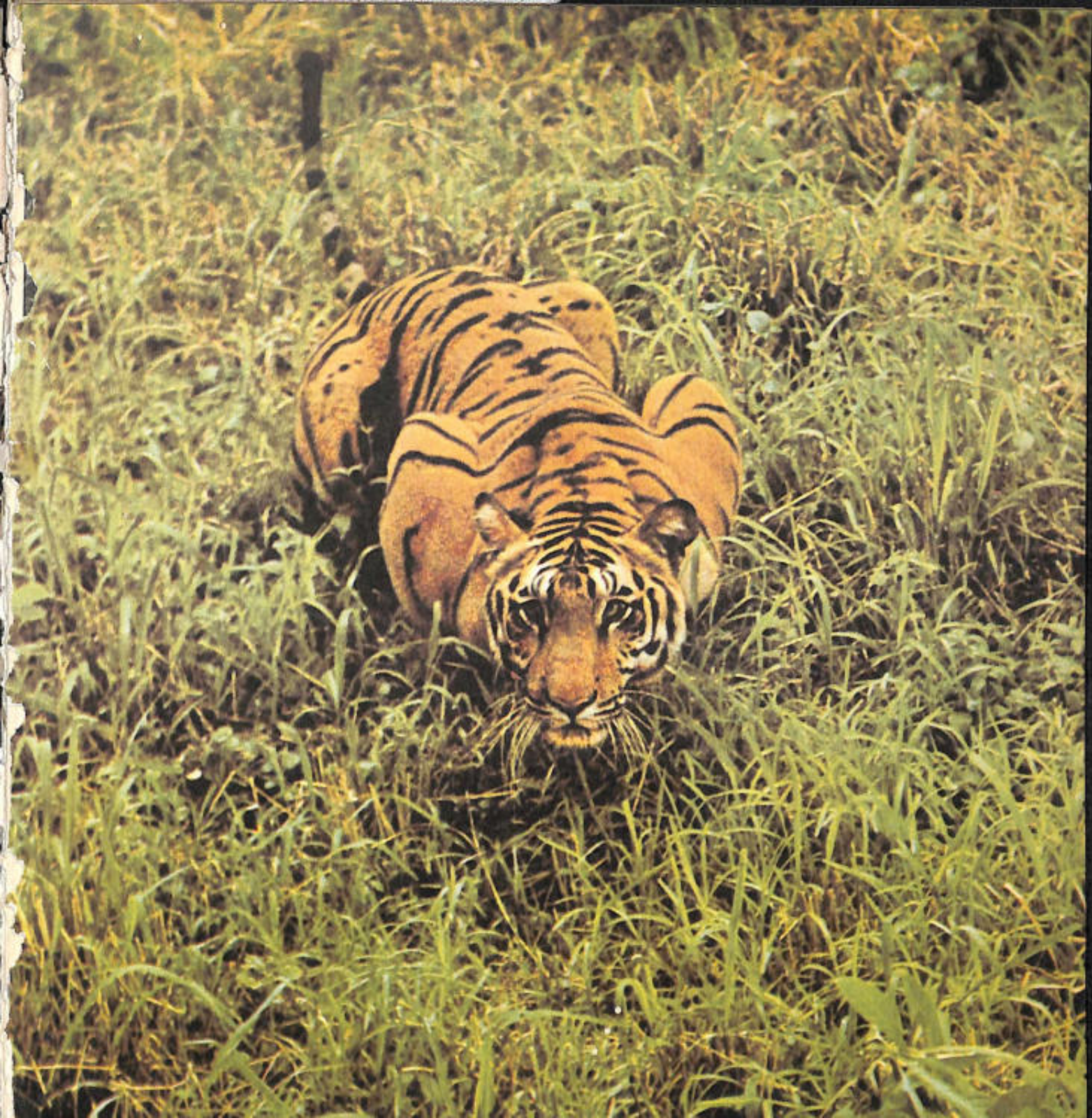


she reached the level ground and was some hundred yards from the bullock she vanished into the shrubs as if by magic and all was deathly still again. She must have seen that her prey was still there and disposed herself for stalking. The bullock had heard her coming and stood up. 'Not a sound did she make on those brittle leaves as, with head pushed down and forward she glided with flattened body from bush to bush. Noiselessly she passed until within springing distance of her prey, then behind a low bush she slowly flattened out on the hard ground for the spring. Very slightly she moved her head, as she peered through the bush; a quiver ran through her body to the tip of her flattened tail and I could see the muscles of her legs tauten for the spring.'

The struggle for survival and competition with its own kind for the available food goes on all the time. For this reason a tiger must have a large enough hunting territory. It has to cover many miles in a single night while patrolling this territory and searching for food. Territories are seldom left unoccupied; if a tiger is shot it will soon be replaced by another which indicates the nature of the competition.

Tigers have their regular beats and can sometimes be checked to the accuracy of a day or so as they cover their area in search of food. They seem compelled to be continually on the move. This is not surprising since all normal prey species tend to leave the area as the lord of the jungle arrives. A prolonged stay in any one place would mean starvation. This emphasises how hard the tiger has to work to live and also its catholic taste in food. When pressed it will eat any animal or even vegetable matter, the condition of the meat does not worry it - in fact the 'higher' the flavour the better the tiger likes it. It will eat other carnivores and even its own kind.

The tiger starts its meal from the rear of its victim but is careful not to burst the stomach bag or the intestines; it takes pains to set these aside after extracting them from the body cavity. I was once after a tiger near the Brahmaputra river, tracking it for what seemed miles over sandy banks and across arms of the river. On breasting a bank and emerging on to a grazing meadow, I suddenly came on what at first appeared to be a large, white river-boulder. A little scrutiny revealed it to be the whole paunch or stomach of a bovine. This was the first inkling I had that there had been a kill and right enough





Catholic in taste a tiger is not above hunting for frogs

there was the killer standing some distance away, obviously surprised, well out in the open. I was struck by the neat way in which the paunch had been removed, it was quite undamaged. By comparison the leopard is a dirty feeder: it starts feeding from the chest, working towards the rear and invariably bursts open the stomach and intestines which it does not trouble to remove. This explains why wounds caused by a leopard's teeth and claws are so much more liable to go septic.

The leopard is probably the only animal capable of showing greater patience, cunning and stealth than the tiger. In one respect however the tiger is superior for it will not expose itself to someone watching over a bait or kill as recklessly as the leopard does. The leopard is normally completely unafraid of artificial light and will not hesitate to come out to a kill over which a lamp has been hung, nor is it disturbed unduly by the flashing of a torch. The tiger can be conditioned gradually to a light, but by nature it is extremely shy and if disturbed in this way may abandon a kill. It is capable of extreme self-control in the interests of its own safety. Best describes how on one occasion a suspicious tiger waited long and patiently until the full moon had set and then, in the brief period before the rising of the sun, made a start at eating



the kill. Until then it had remained patient, motionless and quiet, resisting the temptation to feed until conditions provided safety.

Lying-up near a kill

A tiger feeds to satiety when it gets the opportunity for it can never be sure of its next meal. It is said to have the curious habit of blowing on its kill. This may be to drive away hornets and flies, although one authority considers that it blows to clear its own nose of the maggots which infest the carcase quickly. When undisturbed, a tiger will lie up near its kill, which it will drag into cover as far as possible and even hide neatly, emerging periodically to take a snack until everything is finished. It has to guard its food from other tigers and leopards, from scavengers such as jackals and hyenas, lizards and civet cats but most of all from vultures. If it has eaten once it usually comes back for a second feed at about nine o'clock at night but there is no fixed rule about this. When it has freshly killed and has not had time for more than a mouthful, it will turn up at sunset. By tradition and long experience, this is the tiger hunter's hour. But in undisturbed habitats, tigers have been known to come to a kill in the early or late afternoon. Much depends on the individual tiger: how often it has been disturbed in similar circumstances and, above all, how hungry it is.

The tiger is by nature a solitary animal. Its hunting and feeding habits bear witness to this. Except for a brief period, which may be less than a fortnight according to some opinions, when the tigress is in season and tigers may congregate, the animal generally lives by itself. Even during this mating period the tiger and tigress are not together continuously. An adult male tiger will not allow a rival male to share his mate and fights, sometimes to the death, over possession of a female. Unlike the gregarious lion, the male tiger does its own killing and eats alone, although in exceptional cases, as observed by Schaller, it may share a kill with its mate and offspring provided that the latter are not fully grown. The tiger is said to be monogamous in that it consorts with only one tigress at a time, but there seems no question of it mating for life to one female. When a tigress comes on heat she is supposed to search for the tiger but this does not preclude another male from intruding into a mating situation and trying to dispossess a rival. Precise details of the reproductive cycle and domestic life of the animal are still obscure.

In India the mating season is variable. In the sub-Himalaya it takes place in the cold season, but in peninsular India there seems to be no well defined time for breeding. In Malaya, according to Locke, it is from November to March. In Manchuria the breeding season is during December. The Ussuri tiger breeds from March to June and also in October to November as observed in zoos. Females start to breed at the age of about three years and then reproduce every third year or even sooner. There is considerable uncertainty regarding the period of co-habitation between male and female and also of the duration of the actual receptive period of the tigress. Some observers put the former at about four months and the latter at a bare ten days, after which the tiger and tigress are said to separate and go their respective ways. The lack of precise knowledge on the subject is understandable in view of the difficulty and hazard of close observation at a time when the animals are likely to be particularly dangerous to human intruders.

The gestation period is from fifteen to sixteen weeks, which is a remarkably short period for such a large mammal but this is an obvious advantage in relation to the task of hunting for



The so-called purring of cubs is unlike  
the rhythmic purring of domestic cats



Tigresses in captivity breed more freely  
A litter at the Mysore Zoo



food. Usually three or four cubs constitute a litter, although a litter of six has been recorded. Cub mortality in the early stages is high and it is unusual for more than two to reach the adult stage. The size and frequency of litters seems to be influenced by the availability of food and stresses of living. Tigresses in captivity breed more freely and have litters more often, most probably as the result of being relieved of the burden and anxieties of hunting for food. Cubs seldom leave their mothers in the wild before they are two years old and tigresses are often accompanied by cubs while carrying a fresh litter from a recent mating.

Although very small and helpless at birth the cubs grow rapidly. At six months they are the size of a dog and at one year the size of a leopard. At three years they are fully grown and able to fend for themselves and to kill large animals.

Adult males may stand 3 ft or more at the shoulder. (The Maharaja of Cooch Behar recorded one at a shoulder height of 3 ft 10½ in.) They may have a girth of 5 ft, a neck girth of 3 ft and fore-legs measuring 20 in. The claws may be 2 in. and the canine teeth 3 in. in the upper jaw but less in the lower. Very large adult males may weight up to 500 lb and cattle-

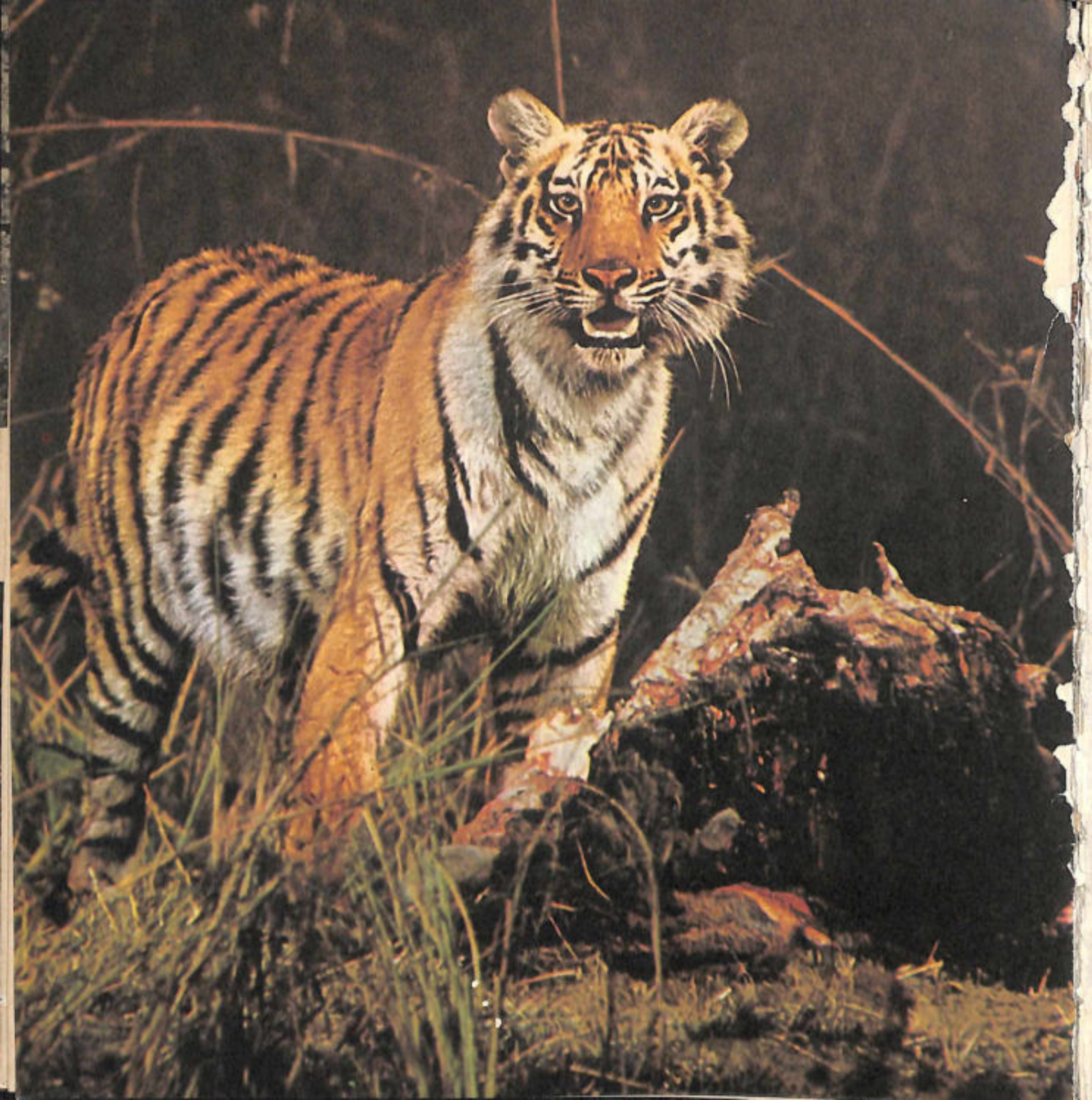
eaters up to 600 lb, but the average weight of a fully grown male is 400-500 lb. Females are considerably lighter. Male tigers seldom exceed 10 ft in length and the average measurement is 9 ft to 9 ft 3 in., 9 ft 6 in. being regarded as 'big'. Tigresses are smaller: anything over 9 ft being a 'good' size and 9 ft 3 in. as 'outsize'. Much depends on the length of the tail which may add or reduce the overall length by several inches.

The modern method of measuring a tiger is in a straight line between the tip of the nose to the tip of the tail. By old methods measurements were taken in 'curves' as the animal lay prone and could add 6 in. or more to the length. Measurements of dressed and prepared skins are no indication of real size as these can be stretched considerably. It is interesting to consider the plausibility of some of the old measurements of nearly a hundred years ago when, according to the literature, the 11 ft tiger commonly featured in India and even the 12 ft tiger occurred. (One of 12 ft 4 in. is mentioned in Rowland Ward's *Records of Big Game*.) Making allowance for the different methods of measuring a tiger in vogue in those days, 6-8 in. being added for measuring over 'curves' and between 'pegs', a great deal of scepticism was expressed in later years regarding these records, even though credit for reliability was given to the authors who made these claims.

A notable feature of some of the earlier 'record tigers' is the frequency with which they seem to have been shot by the most distinguished visitors. Making allowances for the fact that the Maharajas reserved their finest animals for their distinguished guests, the coincidence seems all the more striking and it is not surprising that the term 'Viceroy's Tiger' became a cynical expression.



The gestation period is 15 to 16 weeks; these cubs, due to be born in 4 weeks were found in a dead tigress



# The Tiger and Other Animals

The tiger has successfully conquered its environment and is indisputably master of the jungle and of the animals that live there. It exercises a strange fascination, amounting to terror, over all other animals with the exception of the elephant. In this case they regard each other with mutual tolerance.

The tiger's relationship with its prey species differs markedly in at least one respect from that of the lion. Possibly because the lion lives in an open habitat and the fact that its prey normally associates in herds, there is little alarm shown when the lion, the so-called 'king of the beasts', is in their vicinity. The business of pursuit and kill largely assumes that of a cut-and-dried affair. As long as the lion is not hungry, it can sit or lie up in close proximity and often in full view of the group of animals which may provide it with the next victim. Nor will the latter be unduly alarmed when the predator rouses itself and, in the company of its mate, sets about the stalk which is to produce its dinner. Once the kill has been made, the rest of the herd settles down to graze again, as if confident that there is nothing more to fear until the next time. It seems to be largely a question of the danger that can be seen being to that extent minimised.

The tiger, however, does not reveal itself until almost the last moment. Then it is often a question of the prey animal coming face to face with death. The tiger's power is one that is felt rather than seen or heard. The effect of a closed habitat is probably the reason for this. When a herd of spotted deer detects a prowling tiger they first sound their alarm call; they

OPPOSITE: Tiger at the kill

Approaching a kill: the tiger does not reveal itself until almost the last moment



A langur monkey's harsh alarm call will indicate the presence of the larger carnivores



stamp and stare about until they have located the tiger and are certain in which direction it is moving. They may even follow it up for a short distance, seemingly to see it safely off the premises or to ascertain its precise intentions, for once the deer realise it is coming their way they take flight. The effects of that occasional tremendous rolling roar that the tiger gives out when it starts on its rounds – all the more frightening because of the difficulty of knowing from how far away it comes – must be as disturbing as that eerie high-pitched 'ahoonh!', which may have some meaning to a hunted animal but to man is still an unexplained sound. Apart from these initial warnings, the tiger hunts in silence. True, there is that sixth sense which all animals, particularly wild ones, appear to have and which keeps them in a state of comparative tension. The langur monkey's harsh alarm call and the sambar deer's long bellow are unmistakable danger signals, indicating the presence of the larger carnivores but the *cheetal* or spotted deer's melodious treble call and the *kakar* or barking deer's bark may not necessarily mean the same thing.

The tiger has earned the position it occupies by virtue not only of its size and strength but of its courage which at times brings it to tackle even the mighty elephant on level terms. It



is also master of the art of stalking and bringing down animals that are much swifter than itself, and it has overcome the weakness of poor scenting powers. Finally there is its wariness when dealing with man – the master predator. The group safety and advantages of a gregarious predator, such as the lion, are not for the tiger which relies entirely on its individual resources. As a juvenile it has to learn how to hunt successfully. As an adult it has to carve out a territory and at the appropriate time hold its mate against all rivals. For the greater part of its life it must hunt for food on its own. Its ability to handle large animals has become a refinement of skill and strength which could well be the envy of a more subtle killer, such as the leopard. The ferocity which it can exhibit on occasions is only matched by its bravery and determination in the face of heavy odds.

The sportsmen of the East rank the wild boar as second to none for reckless courage and determination in combat. Yet it is one of the tiger's favourite foods. When a tiger tackles a large wild boar, there is no guarantee that it will succeed and much likelihood that it will sustain injuries. A tiger was once seen jumping about in front of a large boar which had its back to a clump of bamboos, trying to get the boar to expose itself to a fatal grip; the pig was lunging at the tiger with its tusks,

A herd of spotted deer will stamp and stare about until they are certain in which direction the tiger is moving

The bark of the Kakar or barking deer does not necessarily indicate the presence of a tiger



Fights between wild boar and tiger  
last until the death of either party



carefully keeping its back to the cover all the time. The tiger received a wound which began to bleed but at last succeeded in catching hold of the neck of the pig. Dragging it out of the bamboo grove, it gave the pig a swing in the air – as a cat does with a rat – and the pig became senseless. Once these fights start with wild boar, they last until the death of either party. A. Locke describes a pair of contestants exhausted from their efforts, the old boar trotting determinedly along with the tiger following equally doggedly behind.

In its encounters with Indian wild dogs, the tiger in desperation may climb a tree, using its fore-paws to clasp the trunk while walking up with its hind legs – a feat which it is normally incapable of performing. Usually the tiger takes up a position with its back close against the trunk of a suitable tree. At first the wild dogs are content to play a watching game, sitting or lying about around the tiger. Should it attempt to run away, it exposes its flanks and stomach and the pack moves in at once. The end comes at last. With trailing entrails, bitten off ears and eyes torn out, the tiger is eventually overcome and goes under with a mass of snapping, biting, tearing red bodies

Only a powerful tiger will attack  
a fully grown gaur



finishing in a combined assault what individual attacks could never have achieved.

Some writers have given the tiger credit for being a humane killer and for finishing its victims quickly and cleanly. It is said to kill as much as it requires for food and never to do so wantonly. In this rather sentimental portrayal, the tiger is invested with all the qualities of a 'gentleman', a term which has often been applied to it. This is not really supported by the facts. Tigresses training their young will half-kill their victims and hand them over to the tender mercies of their offspring, sitting back to watch their clumsy efforts at effecting a kill, and intervening only when it is necessary to cripple the prey further or prevent its escape.

Tigers have also been known to indulge in positive orgies of destruction where domestic cattle have been concerned, killing far more than they need for no apparent reason. The psychology behind mass killings has been variously attributed to the fact that the killer was a tigress with cubs, a young animal, a mating tiger 'showing off', or a cattle-raider suddenly finding itself in close proximity to a herd of cattle.

Such incidents do not happen often and may be regarded as an aberration. The tiger generally follows a set pattern of behaviour in regard to shelter and food and this does not provide for excesses of any kind.

The tiger is a major predator and its prey must be large enough to satisfy its food requirements and the time and energy spent in hunting for food. One would expect very small creatures to be safe but this is not always the case owing to the tiger's difficulty in finding enough to eat. Proof of the tiger's omnivorousness comes from many quarters. The remains of large birds, such as jungle-fowl and pheasants, fish, frogs, reptiles and even grasshoppers, have been found in tigers' stomachs. Small mammals are frequently eaten and porcupines are often attacked and eaten. The tiger's partiality for this small animal is difficult to explain. The flesh could

A herd of wild cattle: the tiger usually contents itself with attacking the young



hardly compensate for the trouble taken to get it and the tiger is apparently unable to handle the porcupine without injury to itself – often sustaining potentially crippling injuries – unlike the leopard which is reputed to be able to pick the prickly animal up deftly by the head.

When hungry the tiger does not hesitate to tackle any animal that it thinks it can overcome. There have been instances of tigers killing adult elephants. There is the well-authenticated case, recorded by E. A. Smythies from the United Provinces, in which a pair of tigers killed a fully grown male elephant near Tanakpur, a little town overlooking the bed of the Sarada river which is the boundary between Nepal and India at this point. The tusker had apparently attacked a cub of a pair of tigers and had in return been attacked by the parents. All one night the inhabitants of Tanakpur listened in fear to the sounds of the battle raging in the river bed below and next morning the elephant's injuries told their story. The tigers had obviously attacked in concert, coming from the rear and the front simultaneously. The fact that the elephant had been blinded early on in the struggle was probably the turning point in the fight.

Young elephants and the young of other large and powerful animals, such as the gaur or wild cattle and the bison, are generally taken by stealth. The tiger sneaks up behind or attacks when the parent's attention is distracted and inflicts an injury which will 'anchor' the calf; leg injuries are most frequent but the tiger will not hesitate to bite at the neck or maul the victim if it gets the chance. None but a powerful tiger will attempt to kill a fully grown gaur or buffalo.

Gaur and buffalo calves are similarly attacked and the tiger is generally content to help itself to young animals in the calving season. Once the calf is incapacitated there is nothing much the mother can do except guard it for as long as she can. This she invariably does, whether the calf is still alive or dead, but the wily tiger knows that this cannot go on for ever and bides its time. Some mothers will remain on the spot long after all hope has gone but others will eventually move on with the rest of the herd. Salim Ali, the well known Indian ornithologist, led an expedition to Assam some years ago to report on wildlife sanctuaries. While there he saw a cow gaur standing over a dead calf which had been killed by a

tiger. The cow stayed on guard for over twenty-four hours, agitatedly walking around the carcass, tossing her head, snorting and restlessly swinging her tail. Not even the approach of the party's riding elephant and the presence of two persons on a *machan* built in a tree for the observation of wild life at a salt-lick would frighten her off.

Does the tiger use its claws to hamstring such large animals as the gaur and wild buffalo, or does it bite through the tendon of the hind leg? In Burma it appears that tigers generally hamstring their victims with their teeth. In India it is generally believed that the paw is used. One can visualise the tiger administering a single, ripping cat-like stroke, or a 'right and left', after a sudden, lightning dash from cover. Corbett confirms this, citing the cases of two very large domestic buffaloes being hamstrung in this way before being pulled down and killed. He had never heard of a leopard hamstringing its victim before killing it.

No aspect of the tiger's habits and way of life has been discussed more than its method of killing. Hunting mostly during the hours of darkness and being a denizen of deep forests, it is no wonder that the matter has been shrouded in mystery. It is highly unlikely that the average sportsman, from whose ranks have come most writers about tigers, has ever witnessed the killing of a wild animal by a tiger. Usually only someone who actually lives in the forest is in a position to witness this, but even then it is extremely rare for him to do so.

The sportsman visiting a forest with the intention of shooting a tiger generally relies on hired helpers and *shikaris* (hunters) engaged locally. If he is very keen to be present when the tiger kills his bait he may sit up all night although the tiger may not oblige. Even if it does, the whole business is over in a flash, giving the sportsman very little warning. Sometimes he may be lucky enough to have a kill in the daytime or at dusk, providing better opportunities for observation but this is a rare occurrence. An animal which has been tied out all night and killed is often eaten before daylight so that all signs are completely obliterated. Very often *shikaris* do not care to examine the kill. R. G. Burton saw a hundred kills but did not make sufficiently close examination to be able to say if the tiger killed by seizing the throat or neck.

Tigers were originally credited with springing on their



victims from a distance and killing either with one blow of the fore-paws or by tearing at the throat with their claws. It is true that a tiger is capable of what must be considered as long leaps for such a large and heavy animal but the picture conjured up of a tiger galloping up from a distance and falling on its victim with one last tremendous bound is far from the truth. Some observers claim that the tiger's feet hardly ever leave the ground when it is making the attack and that its action is typically that of a domestic cat with its victim. There is hardly room for any other manoeuvre in the generally dense cover from which the tiger chooses to launch its attack. Locke describes one killing however where the tiger was in a position to give chase. The victim was a scurrying dog and it was overtaken in great, distance-devouring bounds by a tigress. In Locke's words: 'the final spring which was made at full

The tiger's normal approach to its prey is by a stealthy stalk

speed must have covered at least eight yards.' He had a vague impression of the tigress coming to rest with the dog between her paws, simultaneously biting its head and neck.

The tiger's normal approach is a stealthy stalk to within as close a distance as possible, followed by a short swift rush. It may then strike with its paws, particularly if the animal is small and elusive, but more often it uses them to seize the victim's head or neck preparatory to administering a bite or bites. A. I. R. Glasford in his *Musings of an Old Shikari* gives a beautiful description of the first clutch on the prey as often 'effected quite lightly, exactly as a domestic cat will capture a bird or mouse, waiting, or even playing with it practically uninjured, before the decisive crunch'. This has also been my experience.

Sportsmen writing in the nineteenth century were by no means all agreed as to the tiger's method of killing its prey. G. P. Sanderson, quoting the natives of Mysore where he operated as a pioneer elephant catcher and a hunter of tigers, leopards and bears, states that the tiger clutches the forequarters of its victim with the paws, one of which is thrown over the shoulders, while with the jaws it seizes the throat from below so as to dislocate the vertebrae of the neck, sometimes giving additional weight to the wrench by jumping to the opposite side. Shillingford, who was a great tiger slayer in the indigo plantation areas of Bihar at the end of the last century, states that a purchase is obtained by the paws on the shoulders, but that the tiger does not always break the neck of its victim, nor does it systematically wrench the neck to break it. According to him the fang marks on top of the neck indicate only a preliminary grip. W. T. Blanford contents himself with saying that the tiger generally kills by breaking the neck.

In modern literature no one is more quoted than Jim Corbett. He says that the tiger's methods of killing depend to a great extent on the relative size of killer and victim. Small animals may be struck down with a single blow and powerful animals may be hamstrung with claws before being pulled down and killed. Teeth, being the killing weapons of the carnivores, are used for this purpose and claws are used to catch and hold. Corbett was extremely lucky, as he states in his *Jungle Lore*, to have witnessed some twenty kills by tigers

but the interesting point is that he still could give no precise description of the movements of the killer at the actual moment of contact with the victim. He witnessed only one head-on attack: this was on a spotted deer hind which was feeding downwind.

Kesri Singh, who was employed for the whole of his career by some of the Rajputhana princes, had plenty of opportunity to observe tigers and their ways as his employers main recreations were tigers and polo; he describes how he released a young tiger and a buffalo together in an enclosure. The tiger at first attacked head-on, only to receive a rough handling from the horns of its intended victim. There must therefore be considerable weight behind the belief that tigers do their best to avoid frontal attack.

According to Corbett the normal method of attack is to rush from the rear or from one side and to spring on the back of the victim, gripping it with the paws, and then with a lightning-fast movement to seize the throat and bring it to the ground. In the act of pulling the victim to the ground, to avoid injury to itself, the killer twists the head round until the victim's legs are on the far side. Corbett is very particular on this point, stressing that the dying kicks of a spotted deer or sambar can disembowel a tiger if the latter presents itself to the sharp hooves. Dislocation of the neck may result from the victim falling to the ground or from the tugging teeth of the killer, according to Corbett.

A recent opinion, by a man operating a professional *shikar* outfit and who states that he has examined literally hundreds of kills, is that when the victim is a small animal the tiger's teeth marks are usually on the top of the neck, just behind the head, but if the kill is of a comparatively big animal such as a cow or buffalo, the marks are invariably on the throat. He claims to have seen about a dozen instances of a tiger killing an animal and states that while in every case the action was so quick that it was impossible for him to follow it in detail, what you finally see is 'the tiger sitting on one side with the victim's throat, or top of neck just behind the head, in its jaws.'

One of my contemporaries, M. D. Chaturvedi, a forest officer of the UP who has pursued the tiger all his life, states that the tiger does not actually spring but rushes on to its victim and generally bites the back of the neck, unlike the



The tiger is sometimes given credit  
for being a humane killer but  
this is not supported by evidence



Dragging the remains into cover



Dislocation of the neck may result from the victim falling to the ground or the tugging teeth of the tiger

leopard which invariably grasps the throat. Locke, however, writing of Malaya, states that in nearly all cases the quarry is borne to the ground by the weight of the tiger, coupled with the force of the spring and the fatal bite at the neck, near its junction with the head, is made with the tiger lying across the fallen animal; sometimes the victim's neck is broken by the tiger's grip or in the fall but this is incidental to the main attack with the teeth, for which the long canine teeth are admirably suited.

There are a great many accounts differing in detail and most of the writers are categorical in their statements. A. N. W. Powell makes a distinction, for instance, between the method employed on a grazing animal and a tied bait; in the former case the tiger jumps, gripping the back of the neck in its jaws, placing one paw on the shoulder and another round the nose and trips the animal up with its own hind legs, bringing the prey down heavily with the result that the neck is broken; in the latter case, the tiger rushes up to the tethered bait, seizes it by the throat, pulls the head down and pins it to the ground, holding it there until it dies. Another instance

of a kill at tethered bait was told to me by a sportsman recently returned from a shoot. He said categorically that the throat of the tied bait was grasped. He saw the tigress make a lightning dash from cover, spring on the victim and bowl it over in a flurry of dust; when he could see clearly again, there was the tigress gripping the throat hard, her teeth bared and her nose so close against her victim that the noise of the air being forced through her nostrils could clearly be heard.

The truth appears to be that the tiger may bite through the back of the neck if it is convenient to do so and if there is no danger from the horns of the prey, but it may also seize the throat and pin the victim's head to the ground, holding on until it is choked to death. The dislocation of the neck vertebrae, where it occurs, is only incidental to the killing and is not necessarily the deliberate objective of the tiger. This generally agrees with my own observations. I have found kills with the back of the neck bitten through and some with their throats bitten, some with necks broken and others without. Most of the kills were of free animals and all of them were domestic cows or buffaloes, for I seldom tied a bait and never saw a wild animal that was killed by a tiger. I am convinced that whether the animal attacked is free or tethered plays an important part in the killing procedure.

There seems little doubt that while the tiger varies its methods of killing to suit the particular circumstances, whether it prefers to seize the throat or neck is still an open question. I have no doubt that it will be debated for many years to come but the sequence of events leading to the finding of a kill with a broken neck will not be clearly established until we have a record from a slow-motion ciné film.



The neck of the victim is usually broken during the kill



## Man and the Tiger

The tiger is a shy animal in more senses than one. It is seldom seen by man and many people have spent long periods in the jungle without ever seeing a tiger. The wife of one of my conservators who had constantly camped and toured with her husband throughout his long service almost begged me to show her a tiger in its natural surroundings before they retired from India. That I failed, in spite of doing my utmost, proves how difficult it is to command these things. The tiger conceals itself deliberately and is of a naturally withdrawn disposition. It lacks completely the type of bravura normally associated with the lion which frequently exhibits this kind of attitude when dealing with the animals that share its environment as well as with man.

The effect on man of the tiger's presence is in one sense the same as that on other animals because there is a common intimation of danger, but in another respect it is different because man does not generally expect to be eaten. He also lacks the hypersensitivity of the so-called lower animals. This is just as well perhaps or for thousands of people – tribal villagers, wood-cutters and lonely forest workers – living in a tiger forest would be otherwise untenable.

The inter-relationship of the tiger with other forest animals may be straight forward enough but, all things considered, the relationship between the tiger and man makes a most intriguing study. There is the question of why the tiger should respect and fear man as apparently it does. Although its fear may be instinctive nevertheless its behaviour reserves a large



Instant flight or immediate attack is not the reaction of most tigers

degree of self-respect and dignity to the animal. Instant flight or immediate attack is not the reaction of most tigers: on the contrary, their attitude is full of initial curiosity. Having once satisfied that curiosity, the tiger will go its own way perhaps with a growl of warning. Even if it is harassed by over curious humans or over eager sportsmen, the tiger does not normally react until its patience has been tried considerably.

I have already mentioned the tailing of a tiger along a forest road for quite a distance. Initially the idea was to photograph it and so we approached as closely as we could. As far as I remember, the halting of the car and the whipping round of the tiger to challenge the invasion of its privacy happened simultaneously - or perhaps the tiger took the initiative by a fraction. There was no advance warning of the tiger's intentions, only a lightning swift turn round, and there we were looking into the face of a thoroughly alerted and challenging animal, with its head up, ears cocked and chest beautifully exposed in a classic pose. There was no semblance of a snarl and nothing to suggest anger but everything in that stance, particularly the look in those wide open eyes said clearly 'thus far and no further'.

It is customary to explain the tiger's fear of man by saying that it recognises him as its master and the world's topmost predator. Similarly we are told that the elephant carries out the orders of its puny human master because of the latter's greater brain power. But there seems to be more to it than that. Those who have studied the man-eater and its ways claim that most attacks are made on bending or squatting humans from the rear. This is said to account for the fact that most of the victims in the Kumaon and Garhwal Himalaya, the scene of Corbett's exploits with man-eaters, are village women who were either bending down to cut grass or carrying wood on their bent backs. In reverse, it is claimed that the tiger is afraid of man because he walks upright and so presents a strange and unusual difference to the rest of the animal kingdom which it holds in thrall. I offer this explanation for what it is worth. Somehow it seems to me to be altogether too naive to deserve the palm for helping to dispel the most intriguing mystery concerning the tiger and man.

These explanations are based almost entirely on the concept of fear: of man or perhaps only of his weapons in the one case,

and of the evil possibilities of man's superior brain power in the other. As such they do not attract those of us who would like to credit the tiger and the elephant with some of the less demeaning qualities. Surely it is possible that these animals have some innate nobility combined with an intelligence that may not entirely exclude the power to reason? In *The Tigers of Trengganu*, Locke tells the story of the Malay sergeant of police who, while sitting alone at dusk on a river bank, experienced the 'kiss of the tiger', as he called it. A tiger stared him in the face at such close quarters that he felt its breath on his face. As it could have killed him and yet did not do so, the sergeant did not care to look at a dead tiger and preferred not to help anybody kill one. My brother-in-law who is sympathetic to animals had an almost identical experience during the Hyderabad 'police action' of 1948. He was sitting on the edge of a sandy waste near his camp one evening with his back to a small bush and looking into the distance when a tiger, coming up suddenly from behind, walked past him. He had the good sense not to reach for his rifle, which was on his lap, and to remain rigid and motionless. The tiger was almost past him when it checked and turning its head slightly, stared at him for a second or two, then strode on apparently unconcerned. In both cases there is no doubt that the tiger had observed the man. Both incidents happened in the evening, the tiger's hunting time. Yet in each case the tiger did no harm and went its way peacefully. Both men were sitting on the ground, a fact which should discomfit the proponents of the 'upright man' theory.

The background for man's lack of fear of the tiger is less complicated in that under normal circumstances man can walk in the tiger's domain with impunity. It is only when the tiger's normal pattern of hunting for food has broken down, resulting in man-eating, that it becomes really dangerous to man. The tiger may be driven to man-eating almost exclusively by the irresponsibility of man who breaks the local rules with his greedy selfishness and deserves the retribution which such actions bring on his head. He shoots and incapacitates rather than kills, and not infrequently leaves a wounded tiger to its fate. It is these crimes against the tiger that cause it to turn on man.

The Malays believe that a sympathetic feeling exists

between certain human beings and tigers and I like to think that this explains the presence of 'gentlemen' among both classes. It probably explains some of the more unusual encounters between tigers and men. Chopra, an old forest ranger, who now lives in Dehra Dun, still tells the story of how he was once cycling along a forest road and in rounding a corner on a steep slope he suddenly ran right into a tiger. Both the tiger and the man were too startled to react in any but an instinctive manner. The tiger reared up on its hind legs to strike the man down but then dropped to all fours and turned away. The man stood rooted to the spot, holding his cycle. After the tiger had gone a yard or two, it turned and again reared up with a frightening noise but seeing the man still standing there, too paralysed with fear and shock to move, it turned away again. It repeated its threat once more and then apparently satisfied that there was no danger from the motionless man, finally made off. Does this incident reveal any trace of actual fear on the part of the tiger or does it perhaps reveal a respect for man?

One of my forest rangers in Assam was walking along a path with a group of men, led by a Nepali sawing sirdar (head man), when they were suddenly confronted by a huge tiger. The situation was one in which the normal person could well be excused for turning away in panic, but the stout hearted Nepali drew his *kukri* and in a firm tone ordered the tiger to go back. For what seemed an eternity the tiger exchanged stare for stare with its human opponent who continued to pour out a steady stream of invective which embraced both the tiger's antecedents and present connections, even calling it *Sala*, brother-in-law, a name frequently used in Hindustani among lower classes as a particularly ribald form of abuse. The tiger wilted under this volume of verbal pressure and turned away leaving the road clear for the men.

'Tigers attack their human victims from behind because they are afraid to look them in the eye, and tigers eat the corpses of such victims with the faces turned to the ground because they are shamed to look them in the face,' so run the speculations of our more fanciful writers of *shikar* tales. I prefer the experience of the Nepali sirdar and the accumulated wisdom of the circus trainer who never takes his eyes off the eyes of the tiger he is schooling. For once, man's conclusions



are probably correct. The tiger will seldom stand up to the stare of a determined human being.

However, a great deal depends on the kind of tiger. A tiger of the deep jungle, unused to the sight and sound of man, will stand and stare – often out of curiosity – but a cattle-raider living on the edge of villages will not face man with such apparent boldness. The cattle-raider will bound away in silence immediately but will not go far; it must remain near the source of its food. A tiger of the regular shooting blocks, continually being baited and driven and shot at, will behave differently again. It may stop long enough to snarl or growl but will then make off and put as much distance as it can between itself and the people whom it naturally associates with all its harassment.

The people of forest villages in areas where tigers occur

Cubs make playful and attractive pets



display a curious indifference, almost amounting to tolerance, towards their resident tigers. Even though they sometimes suffer considerable loss of domestic stock, they do not make anything more than half-hearted efforts to get rid of the pest which they come to regard as a nuisance to be endured. This is largely the result of the fatalistic approach to life which pervades the whole of the East, but it is also partly due to the social system and the struggle to eke out a living. But I do not accept the view put forward by Richard Perry in *The World of the Tiger* that such people tolerate the tiger's depredations and view with indifference, if not disapproval, attempts to rid them of the pest.

For over five years I was in charge of the famous Goalpara West forest division which had a large resident village population, drawn largely from the central Indian tribes which have lived alongside tigers for centuries. Although I initially received no reports of tiger depredations, once the villagers knew that I was a keen *shikari* and ready to go out shooting at short notice at any time of the day or night, I was kept regularly supplied with information and given every assistance.

The delicately balanced relationship between the tiger and man is well illustrated in the psychology displayed by a tiger that has been kept as a pet from its early days until it becomes too big and too dangerous to remain uncaged. Several people have brought up tiger cubs and many have left accounts of the experience. An interesting case was that of a tigress which had been captured when her mother was shot. She became very tame and did not rebel until very late in life. Even when fully grown she would sit like a cat waiting for her joint of meat, take it almost gently and run out into the garden to eat it in some private retreat. The servants were afraid of her but she hurt no one. Until almost fully adult, she liked to be stroked and fussed over. One of her ears had been partly amputated in an accident and her owner had the other cut to the same shape.

One day when she was jumpy and unsociable – obviously in season – she disappeared and the jungle swallowed her up. After some time reports started coming in of an exceptionally bold tiger causing havoc with the local cattle and showing no fear, even of noises and crackers. It would eat its victims in

the open and the local magicians made sacrifices to it but opposed any efforts to kill or capture the tiger. When a *battue* was organised, the animal seemed unafraid and displayed no hostility, and made no attempt to hide when village people met it. Eventually the tiger was shot over an ox that it had killed. The hunter, a friend of Bazé, walked right up to the animal which merely lowered its head when the light of the torch proved a little too strong for its eyes. It was found to be a tigress with both ears trimmed, establishing its identity as the erstwhile pet. This is typical of the tragedy that can so easily befall wild animals which have lost their so-called natural mistrust of man after a period of captivity. Originally there could have been no fear or even mistrust in the garden of Eden.

It is not easy to explain why tigers do not habitually prey on man as they do on other animals. In *The World of the Tiger* Richard Perry points out that the tiger is almost omnivorous and that the human jungle dweller provides an extremely easy kill either by day or night. In attempting to answer this question, he assumes that the tiger was long established in the areas where it is now found and that its pattern of killing was set thousands of years before it came into contact with men. This is not the case for everywhere in India. Peninsular India forms part of the oldest crust of the globe and was populated by Dravidian man long before the tiger came down from the north. The sub-Himalaya may have seen the tiger first. It entered this region of almost impenetrable swampy grassland from the east. The colonising Aryans from the north-west took many centuries to reach the point where they met the tiger and I feel that Perry is on firmer ground when he points out the many oddities of man which set him apart from the rest of the animal kingdom and make him an object of curiosity and suspicion. He stands upright and swings his arms and legs; makes curious un-animal noises and retires into a house at night when the rest of the jungle awakes and the tiger begins to hunt. Initially, too, man was a rarity by comparison with the plentiful game. Primitive man who originally had no need to hunt the tiger – just as the tiger had no need to hunt him – may have set the psychological attitude of the tiger towards him, as much by his differences from the rest of the animal world as by his early harmlessness and inoffensive-



Sometimes a tiger will use both paws to grasp its victim

OPPOSITE : Evening, the tiger's hunting time



A tiger will seldom stand up to the determined stare of a human being

OPPOSITE: When desperate a tiger may climb a tree - note claw marks on bark

ness. As Perry has pointed out, 'once man began hunting and harrying tigers systematically, then he had taken the first step towards creating not only a formidable enemy but one which would turn and hunt him for food'.

The Indian villager, exposed to the ravages of a man-eater, has been compared unfavourably with his African counterpart in respect of man-eating lions. It has often been pointed out, probably with justification, that it would not take long for the resolute Africans to organise themselves, go out and spear the marauder to death. If in the process one or two of them were killed or injured it would be all in the day's work.

It is not strictly true that under identical conditions groups of Indian villagers would tend to cower under the threat of the man-eater and wait for somebody to come to their rescue. Even the once proud and virile tribes of central India, Bihar and Orissa, have not lost the ability to protect themselves against man-eaters in spite of the fact that they lost their hunting rights more than a hundred years ago when their land was taken for the formation of permanent forest reserves. Exploited by money-lenders and harassed by petty officials they have become demoralised. But they are still capable of hunting a tiger down with bows and arrows. They are also adept at inventing traps, including poisoned arrows set in spring-bows on the paths taken by tigers. I came across one such case, surprisingly enough in Assam, within thirty miles of Gauhati along the trunk road among a group of expatriate tribals from the Santhal Parganas in Bihar. A large tiger was killed by means of a poisoned arrow cunningly set in a bow; the taut string was sprung by the tiger itself. I have also come across people netting tigers. Strangely enough, this manly but cruel way of disposing of a tiger is practised by the Cachares of both the Brahmaputra and Surma valleys.

None of these people however are capable of the effort which a group of Nagas will display when harassed by a tiger. Only a few years ago I was in the Naga Hills and was afforded a wonderful insight into the Naga team spirit, determination and daring, as they disposed of a family of five tigers which had been killing cattle in an area where tigers had not been heard of for many years.

The entire village of Ungma - the 'mother village' of the

famous Ao Naga tribe – consisting of some five thousand people, was alerted and practically everyone joined in the hunt except the very young and the very old. Among the Nagas a man of sixty is not considered as old; similarly a boy of sixteen is considered to be a man. The people organised themselves in to their age-groups which is the basis of Naga life. The males took to their spears and *daos* (machet), while those who had guns carried them. The duty of the women and girls was to provide food and nourishment in the shape of the ever-present *modha* or rice beer. They sallied forth to the scene of the hunt with their conical baskets on their backs, a strap of cane across the front of the head taking the weight; the baskets held cooked rice, dried fish, chutney, meat boiled with mustard leaves and jorums of rice beer.

The plan of campaign was simple and every man knew his job. A strong wooden palisade, consisting of jungle wood posts and cross members in open work, was speedily built on two sides of the area, stretching to a great distance; the other sides consisted of a steep drop into a *nala* or ravine from which there was no chance of escape. The beating started from the high ridge and was cleverly planned to drive the tigers towards the palisade that blocked the only line of escape, along which the VIP guns, consisting of the Deputy Commissioner and the military Sector Commander, were positioned in trees and other suitable vantage points. At one stage one of the tigers charged the palisade with such terrific force that it smashed the timber. It broke through but was promptly shot dead. The beaters were armed with spears and their deadly *daos*, heavy and sharp edged, and were supported by two muzzle loading guns. They chopped down the jungle as they advanced, to the accompaniment of the typical Naga noises – a series of deep, rhythmic notes, punctuated with shrill yells and a kind of yodelling. Those armed with rifles were posted on the left of the beaters so that they could fire between the advancing line and the palisade. The jungle had been cleared to afford a field of fire.

It was a free for all. Anyone who had a gun fired if he caught sight of the tigers. If a tiger tried to break out, it was met with spear thrusts and gun shots. One by one the tigers were accounted for. They stood no chance and the whole business was most efficiently conducted. The actual driving



Traps are often set on paths



and shooting commenced at midday and was over in a couple of hours. The final scenes saw everybody who could get to the fallen tigers stabbing at them with their spears. Afterwards the five unfortunate animals were dragged with ropes made of jungle bark to the village about two miles away, their skins being thoroughly ruined in the process. But this did not matter to the Nagas as they are not interested in preserving tiger skins. The five carcasses were set up on wooden trestles outside the village and left to rot – a target for the jibes of the widows as they passed up and down between the fields and the village:

‘Twi.i.i. – you lifted my cow!

‘Twi.i.i. – you ate my goat!’

## The Future of the Tiger

Two hundred years ago the tiger population of India must have been very great. It must also have been high in relation to the human population which was kept at a low level by starvation, epidemics, child mortality and a generally low expectation of life. At the same time the jungles were vast and game plentiful. But *Pax Britannica* changed the picture by stopping local wars, enforcing the penal code for crimes against life and introducing peaceful conditions in which settled agriculture gradually developed. The human population began to increase and inevitably there arose a clash between tiger and man.

In his rapid and indiscriminate clearing of the jungle for cultivation, man came up against the game species as well as their predators and although his weapons were primitive, he still had the power to maim and injure, even if he could not always kill. The result was a gradual increase in the number of man-eaters. As game became scarce with the clearance of its habitat, cattle killing by tigers became more frequent. The habit developed naturally and it was not only injured tigers which found easy prey in the increasing number of cattle.

A hundred years ago the situation seems to have been really bad and many parts of the country were feeling the pressure: villages were being deserted and the jungle was re-invading cultivated land. One alleged reason for the creation of man-eaters in the past was the abundance of human corpses during the time of epidemics and famines. Hindus burn their dead but there were occasions apparently when the number



of corpses completely outstripped the resources of the people in regard to cremation. Bodies were then left with at most a live coal placed in the mouth as a symbol of cremation. To what extent this practice encouraged man-eating tigers it is, of course, impossible to say.

The early British sportsmen were poor killers by comparison with the well-armed modern hunter. With their matchlocks and muzzle loaders, and even with the breach-loading smooth-bores of a later generation, they must have left many a wounded animal. It was the introduction of more efficient firearms, particularly the rifled barrel and smokeless powder, which brought about a significant change. Although hardly anyone except Europeans was allowed to carry arms, the large increase in their numbers, particularly of the army after the 1857 'sepoy mutiny', meant a much greater volume of fire power being brought to bear upon the tiger population. By that time the pursuit of big game and the hunting of the tiger in particular had assumed the nature of a cult among empire builders. The slaughter of the tiger as well as of the lion was on. The turn of the tide against the tiger started from then.

The human population has since increased steadily and the tiger population has decreased. Perry claims that in the last century more than a hundred thousand tigers were killed in India, yet he wonders why the mortality of victims of man-eaters did not show any appreciable decline over the same period. He quotes the following figures: in the 1860's mortality was 1300 to 2000 victims annually and in the 1930's 1000 to 1600. I believe that the explanation for the decline in post-war years is probably due to the greater efficiency of modern hunting methods, brought about by the use of the electric torch as an adjunct to the rifle. In the old days tiger shooting was an uncertain business and if tigers were fired at during the hours of darkness, the odds were that they were usually wounded rather than killed, which incidentally meant more potential man-eaters. But tiger shooting became much easier once it was possible to fit a handy dry-cell electric torch to a rifle or a shot gun. The UP, where Corbett used to operate, is the only State in India in which it is forbidden to shoot tigers after sunset and this counters to some extent the destructive power of electric torch light. Elsewhere this unsporting but to some extent unavoidable method still prevails.



The tiger watches his kill. Normally a tiger requires to kill once every three or four days

It must be borne in mind that man-eating by tigers is not prevalent throughout India. It is mainly confined to certain localities where it is generally of a long standing nature. While more tigers were being shot in the country as a whole, it does not follow that more man-eaters were being shot. The shooting of a normal tiger was an easy affair compared with the killing of a man-eater and all the advantages of darkness are in favour of the man-eater so long as the hunter does not have an efficient killing technique – and that came with the electric torch.

Even so there appears to have been an alarming increase during recent years of the incidence of man-eating, not only in areas where it has long been prevalent but also in hitherto uncontaminated regions. The scourge has assumed vexing proportions during the last few years in the Sunderbans, which for centuries has been a centre for this macabre man-animal relationship. In this vast stretch of tidal backwaters and waterways many people seem convinced that deaths from tigers are on the increase although the authorities tend to deny this. The victims are traditionally engaged in wood-cutting and honey gathering, both occupations that are conducted under the supervision of the forest department but by the very nature of their tasks the people cannot be completely protected from surprise attack.

At present there is no means of knowing whether the increase of man-eating tigers is real or apparent. The latter could well be the case, due possibly to the greater number of people being exposed as the result of a planned development now taking place in India, or to the depletion of the natural food of the tiger. Both these reasons imply that the tiger population may be subsisting on half rations. Normally a tiger requires to kill once every three or four days but this period could be extended to a week. One thing seems certain: there has been a great increase in recent years of the number of guns and activities of meat hunters, thus forcing the tigers to turn to man-eating. The increase in the number of inexperienced hunters may well have brought about a concomitant increase in the number of wounded animals.

The same grounds are offered as explanation for the position in Orissa which in the past few years has come into the news with reports of large numbers of people being killed by man-

eaters. Recently there was an appeal from a missionary in the Bastar area, home of the warlike Maria Gonds who might be expected to be able to look after themselves. In this case it is the tribes themselves who have been responsible for creating a situation which encourages the attacks of tigers for they have decimated the game by unrestricted hunting. These central Indian tribes, once masters of vast forests where they lived mainly by hunting, are now restricted to a ritual *battue* once a year in which they kill everything that they can find. Their hunting instincts are so deep and their society so untrammelled by taboos that they have virtually cleared their jungles of game. It is small wonder that the tigers have turned on them.

Corbett's country – the Naini Tal district, the gateway of Kumaon and part of the belt of the Himalaya from the Ganges to the borders of Nepal – is periodically in the news and the scourge has certainly not ended there. In addition to these chronic sore spots, alarming news of tigers killing humans are occasionally received from various parts of the country. Only the most serious get into the newspapers and it is impossible to review the whole picture. The type of information on which Perry apparently based his figures is not readily available and the lack of a scientific approach to the subject of man-eating, with the failure to sift information regarding the explanations offered for the increase of 'bad' tigers, is both disappointing and frustrating. As a piece of applied research into an interesting aspect of animal ecology, the study of the man-tiger-game relationship would be well worthwhile. The facts should be ascertained before deciding on the application of long term remedial measures in the interests of both the tiger and its human victim.

There are good grounds for believing that the boldness of the cattle-raider leads to man-killing and then man-eating. Many a killer has attacked its first human when being obstructed in the process of obtaining its meal from a herd of cattle. From killing to eating is but a small step and this may account for some of the cases of healthy tigers which have taken to man-eating. Nevertheless records indicate that it is injuries which are at the bottom of man-eating as such. In the USSR man-eating by tigers is unknown whereas it is widely prevalent in Malaya.



The quills of a porcupine often cause serious injury to a tiger



Of all the natural injuries that may lead to disabilities causing the tiger to take to man-eating, damage from porcupine quills appears to be the most common. In the majority of cases the paws and lower limbs are injured in such a way as to affect the tiger's ability to pull down and kill natural prey or cattle. Occasionally the quills penetrate the face and jaws. The quills are barbed and once they enter the flesh are practically impossible to remove unless they are cut out. A tiger will bite the quills off as far as it can reach with its teeth and will continue to rasp with its tongue until a raw wound is caused. Suppuration of the wounds adds to the pain and discomfort,

OPPOSITE: Lithe and sinuous grace

Ussuri cub: man-eating is unknown in the USSR but prevalent in Malaya and India



Sambar deer: one of the tiger's prey species



Trees and grass are necessary for the existence of wild life and to ensure sufficient prey for the tiger



increasing the degree of incapacity. Other natural causes of incapacity in hunting for food are old age. Sometimes this deterioration can reach such a stage as to make one wonder how the animal can survive at all.

Another theory regarding healthy man-eaters is that they are the progeny of man-eating tigresses but doubt has been cast on this by no less an authority than Corbett who maintained that 'cubs of man-eaters do not become man-eaters simply because they have eaten human flesh when young'. Corbett's view is contrary to that expressed by other writers and I have no means of knowing why he held it. Did it stem from his generally big-hearted and slightly romantic view of the tiger? It is generally accepted that man-eaters do not subsist entirely on a diet of human flesh and that they also eat game animals and cattle. Corbett may have had this fact in mind. It is interesting that Kenneth Anderson, who has been described as the 'Jim Corbett of the south', claims that man-eating tigers are permanent addicts, unlike man-eating leopards which are said to lay off killing humans for long periods.

Corbett's conclusion that a liking for human flesh is not necessarily transmitted to the offspring of a man-eating tigress seems to be at variance with what would be a normal biological phenomenon. It is true that there have been one or two rare cases in India of carnivores, such as the lion and the tiger, subsisting on non-animal food but it cannot be denied that the natural food preference of these species is for flesh.

Whatever the natural causes responsible for man-eating they are likely to be outweighed by the artificial cause of injuries inflicted by man. Wounds from gun and rifle may enrage the animal to the point of taking revenge. The wounded tiger's reputation for ambushing its assailant provides support for this suggestion and although a wound may not be sufficiently crippling to prevent the tiger from killing its natural prey, once launched on man-eating it may well continue with this career. In fact it is these lightly wounded tigers which on recovery have no obvious reason for continuing as man-eaters that provide the puzzling features. Generally however the evidence is clear and leads one to fulminate against the persons responsible for the initial crime against the tiger.

The tiger that has become a man-eater or a cattle-killer has



The skin of this tiger might fetch £200 today

no future. The hand of every man is against it and sooner or later it falls victim to a bullet. To this extent, wherever the interests of the tiger and man clash there is a grave threat to the future of the tiger. This applies to all the peripheral forest areas so far as cattle-raiding is concerned for there are large numbers of cattle living outside the reserved forests that also graze in the protected areas. The right of pursuit into a government forest is granted in the UP only to an aggrieved cattle owner who may sit up for the marauder. To some people this appears to be almost a quixotic gesture in the light of the prohibition on the shooting of tigers later than forty-five minutes after sunset. Many sportsmen in the YP complain that after they have made elaborate and expensive preparations and are sitting up expecting the tiger at any moment, the authorities pull them down from their prepared hides in trees as they enforce the 'no shooting after dark' rule; at the same time a person from a neighbouring village, on the plea that his cow, which was probably illegally grazing in the forest, was killed by a tiger, is permitted to take his revenge without paying for the right to shoot in the reserved forest according to the rules.

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The tiger is held in general respect, tinged with awe, in India

Can we be sure that tigers will be with us in any appreciable numbers in the future?

It was reported some time ago that tigers in Mysore and Madras were being poisoned with pesticides supplied to cultivators and that their skins were finding their way to the local taxidermists. I recently came on a magnificent tiger skin for sale in a curio shop in Delhi. I enquired the price out of curiosity and was startled to find that a trophy which would have cost £20 twenty-five years ago now sold for ten times the sum. The proprietor of the shop calmly told me that he had sold four skins already at this price. One wonders how the tiger can stand up to such commercial pressure. Twenty years ago Jim Corbett expressed the opinion that the tiger would be wiped out in ten years but he was laughed to scorn by complacent persons in authority. His prognostications are now being borne out. Large areas of the best tiger habitat have been cleared at the foot of the Naini Tal Himalaya, within fifty miles of Corbett's home, in the interests of mechanised farming. With the disappearance of grass and trees, the game has also departed, as well as the tigers that preyed upon it. The same story applies elsewhere. Forests which were once the private shooting grounds of the Maharaja of Mysore have been closed to shooting because of the alarm-





Some tribes refer to the tiger as the 'Great One'

ing decrease in the tiger population since the transfer of these areas to the Government forest department.

In India the sole hope for the tiger lies in the retention of large blocks of forests of sufficient extent and backed by hilly ranges, as is the case in the greater part of the sub-Himalaya and central India, where it can range freely and have sufficient game to prey upon. The latter is the crux of the problem, for a forest without game suitable for the tiger's diet is useless. This inevitably brings up the whole question of the general protection of wild life and of game animals in particular. Unfortunately the present position is not very satisfactory and if the tiger is to survive – not in a few isolated sanctuaries but in forests which were once its home – much more will have to be done regarding the protection of wild life. Destructive practices such as shooting from vehicles, both by day and night, the sale of game meat and the illegal shooting in government forests, must be stopped.

Fortunately the Indian tiger is not exposed to any great extent to persecution resulting from superstitious fancy in regard to the alleged value of its various parts for medicinal purposes. Among the Malays and Chinese this cult is said to be highly developed: the flesh is a remedy for debility, pills made from the eye-balls are said to cure convulsions and blindness, the skin either burned or roasted and mixed with water is a general cure for illness, the sexual parts are alleged to have aphrodisiac properties and the bones (chiefly of the head) are much prized by the Chinese as containing a soul substance or vital fluid, akin to that of man. The Indian faith in the value of the tiger's fat as a cure for rheumatism and the use of the clavicle, whiskers and claws as ornaments and lucky charms is shared by the Malays and Chinese. In India it is a common occurrence for a sportsman to lose some of the whiskers and claws of the tiger he has just shot to the crowd which always gathers on such occasions. To what extent these beliefs influence the survival rate of the tiger is a matter for conjecture. An ominous portent is the persistent drain on the world's rhinoceros population for its horn, mistakenly valued as a highly effective aphrodisiac. On this analogy alone there seems no future for the tiger in south-east Asia.

As a minor solatium we have the general respect, tinged with awe, in which the tiger is held in India. Some of the

forest dwelling tribes of central India will not refer directly to the tiger by name but will use an indirect honorific title, such as the 'Great One'. The Datla tribe of the north-east Himalaya consider that they are the kinsmen of the tiger. The superstitions associated with the belief that men can turn themselves into tigers and vice versa are less common in India than in Malaya and countries beyond. This mystique is more prevalent among the less sophisticated classes and to that extent its protective value is less. Unfortunately it is not the common man alone who holds the key to the future of the tiger.

The tiger today is India's most valuable attraction to certain classes of foreign tourist and ranks with the Taj Mahal as a foreign exchange earner. The growth of safari organisations has been a feature of the post-independence period and tiger shoots arranged by them come under the category of luxury trade. Even the indigenous sportsman finds it expensive to arrange a shooting camp.

Providing this commercial activity can be properly controlled it could do a lot for the future of the tiger. Something for which there is a demand is normally considered as worth conserving but unfortunately the demand is increasing at such a pace that there are grave fears of the supply becoming exhausted. Certain steps such as the ban on the shooting of tigresses and a tightening of the rules governing the export of skins would help. By rationing the stock of tigers available for shooting for the tourist trade and above all, by protecting wild life on which the tiger depends for its natural food, it is possible that we might be able to ensure that the tiger will be with us in any appreciable numbers in the future.

Statistics are notoriously tricky things to play with but I cannot help quoting some figures: according to Burton, a total of 1579 tigers were shot in British India in 1877 but no figures are available for the additional numbers which were shot in the native States. Fifty years earlier, between 1820-8, an average of 138 tigers were shot annually in Bombay Presidency alone. A little more than a hundred years later, according to Chaturvedi an average of 280 tigers were shot annually from 1934-54 in all of the seven major tiger bearing States of India. In whatever way we interpret these figures, one cannot help asking the question: '*Quo vadis Panthera tigris?*'



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