The Cooking Stones

FORKS AND HOPE

AN AFRICAN NOTEBOOK

ELSPETH HUXLEY

Illustrated by Jonathan Kingdon

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increase and multiply, there is mounting pressure. "The Masai grievance," Mr. Fosbrooke said, "is that they had to give up their rights to their traditional grazing within the Serengeti Park when the boundaries were re-drawn, but since then no effort has been made to keep the game on its own side of the boundary. Probably this isn't a practical proposition. But it rankles with the Masai all the same."

Wild animals are not the only rivals to the Masai herds. The crater highlands, rising to nine or ten thousand feet, are thickly forested, and here the rivers rise. The Masai are no respecters of forests. Trees, to them, are enemies which rob them of potential grazing, rather than allies which anchor soil and make of it a sponge to absorb rainfall and return it in the form of springs. The Masai drive their herds up into the glades and start fires which destroy the vegetation.

Across the Rift, on the south-western slopes of the Mau escarpment, you can count at least a dozen fires every time you fly over the mountains. You can see blackened patches and clearings hoed for crops (a lot of these Masai have Kikuyu wives who cultivate) and the gloomy spectacle of human predators colonising and spoiling the forests. Already springs are dwindling and soon rivers that have always flowed the year through will be turned into seasonal streams that come down in spate in wet seasons, and dry up altogether in between. Then what will the Masai do for water? When their streams turn into dry, sandy river-beds they will shrug their shoulders and say *shauri ya Mungu*: the affair of God. Perhaps it is, for tolerating so much human stupidity.

So this is no simple issue of the interests of human beings versus those of wild animals. Rather it is one of the short-term, immediate interests of those Masai who want the grazing, and the long-term interests of the whole community.

Ngorongoro is unique. One of the world's largest craters, it supports as rich, varied and magnificent a collection of animals, birds, plants and trees as you can find on earth. It excites wonder and delight. People come to see it from all over the world. Scientists become nearly awe-struck at its interest and variety. Surely there is a case for saying that its beauties belong to the world? Have the Masai a right to destroy them, any more than a small, local group of Europeans would be justified in demolishing Chartres Cathedral or St. Peter's, blowing up the remains of the Parthenon or the Crusader castles, or throwing the contents of the Louvre into the Seine?

These are questions perhaps lying beyond the scope of civil servants and committees who decided on the crater's future. At any rate, they were brushed aside. Ngorongoro and its highlands were taken out of

Rhino

the National Park—but, with the usual British compromise, they were not simply handed over to the Masai. They were called a Conservation Area, and placed under the control of a local committee consisting of five Masai elders and four junior officials, chairmanned by a District Officer. This was a low-level committee exercising low-level powers, and split between the Masai elders, hostile from the start to all forms of interference, and young technical officers obliged to refer every decision of importance to their seniors.

Doomed to failure from the start, the scheme duly failed. The Masai invaded the forests, drove game away from water and started to spear the rhino, a thing they had never done before—probably as a way of showing their resentment against what they considered to be perpetual interference with their rights. Other troubles arose. The mixed committee was abolished and Mr. Henry Fosbrooke appointed as Conservator directly under the Ministry of Lands, Forests and Wild Life.

By this time the Minister had become a Tanganyikan, Mr. T. S. Tewa: a co-signatory, with President Julius Nyerere and Chief Fundikira, of the Arusha Manifesto of September, 1961, an important turning-point in Tanganyika's policy. After describing wild life as "an integral part of our natural resources and of our future livelihood and well-being", the signatories pledged themselves "to do everything in our power to make sure that our children's grandchildren will be able to enjoy this rich and precious inheritance."

Meanwhile a grant of £182,000 had been made from the Commonwealth Development and Welfare Fund—it runs out in 1964—to get the Conservation Area going, and experts had drawn up a Management Plan. The aim of this is:

> to conserve and develop the natural resources of the whole Area (including water, soil, flora and fauna) so as to provide a stable environment for the human occupants and the animal occupants, domestic and wild, thereby maintaining the existing residents' rights and promoting the national interest by conserving the Area's unique tourist attraction, aesthetic value and scientific interest.

An unimpeachable aim—more briefly, to have your cake and eat it. The plan runs to 160 pages and is full of sound projects and useful information, not all of it reassuring. The success of any plan depends on the staff who will carry it out, and Ngorongoro staffing has never been adequate either in numbers or in quality. Good work has been done, bold projects launched, but in fits and starts. In other words, all has not been plain sailing. Nor has the conflict between the Masai on

the one hand, and wild life, forests, rivers and the outside world on the other, been resolved.

DWINDLING RHINOS

Down on the crater's floor lies a lake soured by soda but still drinkable, and shared between Masai cattle and herds of zebra, wildebeest, topi, eland, gazelle and other wild creatures. We came upon two rhinos, a mother and her half-grown child, standing monumentally out in the open, without a bush in sight.

Rhinos like shelter normally, and are bush-dwellers. Here, perhaps, they felt safer in the open where, despite poor eyesight, they could not be approached without warning. Three or four years ago, hundreds of their kind inhabited the crater and its surrounding hills; now there are thirty-seven, and some think this is an over-estimate. They have taken a terrible beating from the Masai, and from people living outside the crater such as the Wa-arusha and Mbulu. Everywhere rhino are dwindling so fast that the survival of their species is threatened.

The Olduvai gorge, about thirty miles west of the crater, used to be full of rhinos which co-habited the bush peaceably with archaeologists digging up bones at the Leakeys' camp, and with the Masai whose cattle grazed the surrounding plain. And then, in 1961, in the space of six months, the Leakeys counted over fifty rotting carcases in the gorge, all speared by Masai. Whether or no their motive was political, they had taken the profit; every horn had been removed.

Since then the Leakeys have not seen a single rhino at Olduvai. This is typical of what is going on all over East Africa. The rhino cannot hold out much longer. There have been rhinos on these plains, of one sort or another, for at least two million years, according to the archaeological evidence. They shared the terrain with the human species until the last few years, when the desire for sexual excitement of the Asian male and greed for money combined to end the truce.

Our pair had, at any rate, learnt to be suspicious. Mother and child stood together gazing towards us—in our Land-Rover we could not be smelt and were, I suppose, nothing but a blurred and faintly menacing shape—with their heads up, horns curved back over their heavy, encrusted heads, their feet planted squarely on the short grass, looking like massive fat pigs, grey as boulders. If it wasn't for those phallic-shaped horns, no one would bother them. Because of those, because of the legend of the horns' aphrodisiac properties and because of the greed and gullibility of man, they have perished in their tens, their hundreds of thousands. A meticulous analysis carried out in a

Swiss laboratory failed to reveal the slightest trace of any aphrodisiac agent.

Whenever I see a rhino, I feel guilty of what has been done to them by my own species and for the reasons, so shoddy and cruel. Not only is the superstition false, but how can there be a *need* to stimulate the sexual potency of Asian males? With a birth-rate like India's, Pakistan's and south-east Asia's? Had the rhinos been slaughtered in the hope of damping down their ardour there might have been more excuse.

"An all-out drive by the C.I.D., using modern methods, combined with much stiffer penalties," I was told, "*could* smash the smugglers; but . . ." The usual but—no money, no skilled staff, no real flexing of the will. So the rhinos dwindle towards a point of no return.

A CIGAR-SHAPED HOVEL

A tall, glossy-skinned young Masai leant gracefully against the Land-Rover to scrutinise with supercilious curiosity everything within, to laugh and to say to Mrs. Fosbrooke: "Mama, will you drink milk?"—the traditional offer of hospitality. Nearby was his *manyatta*, as scruffy a cluster of low, cigar-shaped, dirty mud hovels as you could hope to find, devoid of dignity or interest. A few vultures brooded on the only nearby tree, in itself a sorry specimen; pied crows perched on a broken-down stake fence waiting for offal. Here, to all outward appearances, has not stirred the least puff from the wind of change.

This tall young man was dressed in the traditional manner, his hair gathered in a queue like an eighteenth-century sailor's, but matted with grease and with red ochre, which also dyed his short calico cloak and reddened his limbs. He had the almond eyes of an ancient Egyptian with a disturbing glitter; an air of arrogance; shining bangles and bracelets and dangling ear-rings; a strong musky smell; and above all that strange effeminate, half-drooping attitude proper to the Masai warrior.

I do not know why these well-built young men, with their reputation for endurance and bravery and swagger, should look so like girls, or at least stand and move like them, but they do. Their bodies are quite hairless. Beside them a hairy-chested European has an ape-like appearance. They are smooth as statues and fluid in their movements. I suppose they are one of the most publicised, photographed, anthropologised and sentimentalised people on earth.

All the same, they *are* photogenic and I clicked away as all tourists do. "His usual fee is thirty shillings," Mr. Fosbrooke warned me. Because I was with the Fosbrookes I was permitted to click for nothing. Not long ago one of our party had picked up a Masai with his spear,

dressed in the same fashion, as a guide. He proved to be an ex-Sergeant-Major, a trained driver and carpenter who had served in Burma and Malaya and, after the war, returned to his *manyatta* to herd cattle, content with his cigar-shaped mud hovel and resolved never to take a job, drive a vehicle or use a lathe again.

The young man who offered Mrs. Fosbrooke milk owned a part-share in a lorry. A number of warriors had clubbed together to buy it for £2,000 and used it mainly to get about in, not to market anything—they have nothing to market but their cattle which, as a general rule, they are reluctant to sell. They enjoy travelling, and go sometimes to Arusha. On the way from this busy little town, we had passed several lorries halted by the roadside, while pig-tailed Masai exchanged milk in old gin or whisky bottles for maize-meal with the Wa-arusha. It is no longer true that Masai will eat only their rancid cheesecake made from sour milk, cattle's blood and a dash of urine. So, after all, there have been changes.

As for the part-ownership of lorries, it's mostly a matter of *heshima*: that quality which impregnates African life as intimately as the sap impregnates a plant's tissues. Pride, face, dignity, prestige: the motive force, the mainspring, the sustaining factor.

Above all, this quality of *heshima* is linked with cattle. A man without cattle is a man without *heshima*: conversely, the more cattle, the more *heshima*. So, to some extent, wealth and *heshima* are one, but there are subtle differences. Prowess and courage can win *heshima* for young men, wisdom and contact with ancestral spirits for the old.

This, in a nutshell, is the problem of the Masai: to persuade them to treat their cattle less as the measure of their wealth and *heshima* than as an economic asset to be exploited and managed. It is no longer a problem of "we", the Westerners, teaching "them", the Masai. White men are now in Tanganyika only as experts and advisers, when called in by Ministers in Dar es Salaam. Nevertheless, there is still a "we", although its face has turned black. An African "we" wishes to change an African "they". Nothing, really, has altered, except a few complexions. And there are still plenty of white ones about.

This is a terrible dilemma, the root of African uncertainty, insecurity and contradictory behaviour. Africans are torn in two ways. They do not want to go on merely being "them", to be changed and remodelled by a "we" which remains basically Western, and therefore white, in origin and philosophy. They want to be themselves, to find their own way and to have their own personality. At the same time they don't want to forego and renounce either the ideas or the technical

but of married couples? Once again, it is probably a question of meaning. Love in the romantic sense seems generally to absent itself from marriage, as from adolescent love affairs. Adultery leads to fines, not to the break-up of the marriage, it is an offence against property, not against trust. The world of an African man might be well lost for a plot of land, a brindled cow, for revenge and certainly for *heshima* but never, I think, for a woman.

Yet love does grow. If, to the Westerner, love's symbol is Cupid's arrow—or perhaps a fork of lightning that strikes with blinding glory and can fuse into one the hearts and souls of two people—Africans, I think, might see it rather as vegetable. You plant the seed with marriage and, if the soil is fertile and the seasons kindly, it germinates and roots—slowly, perhaps, with setbacks possibly; some seeds do not grow at all, and some develop into sickly plants and some plants are scorched or drowned. But most grow, in their fashion, and so does the seed planted with marriage grow into mutual respect, inter-dependence and a shared experience. And, ultimately, is love more, or less, than this?

TSAVO PARK

ON A VOI VERANDA

The first to appear on the veranda was the dwarf mongoose: fat, sleek, brown, furry, about eight inches long, with a shrew face and yellow eyes, it sniffed my feet and then sat on my lap. Not for long, because Uppity the zebra foal mounted the steps: a ridiculous toy creature, so obviously hand-painted, a sort of natural joke; it nudged and butted until I got up just in time to greet Rufus, a two-and-a-half-year-old rhino, standing about three feet at the shoulder, who licked my hand with a purple tongue and nuzzled with a long, prehensile upper lip. He had been wallowing in tractor grease which encrusted his sides, and followed me about licking my hand until he was stayed with bananas and peppermint rings.

The senior warden of the Tsavo National Park, David Sheldrick, and his wife, share their house at Voi with a great many animals and birds. Both Sheldricks belong to that small company born with an instinctive understanding of their fellow creatures and with the patience which goes with these queer, unsought talents. Such individuals are gentle, quiet in motion, slow spoken, unassuming, in a sense absorbent; they have a tranquil, indrawn quality. People who are taut, jerky, sparklike and aggressive seldom draw from an animal the trust and feeling of security it needs.

Few people would really like to share their garden with four young buffaloes and two elephants, one almost full grown. It is a miracle that there is any garden left to share. This is dry gardening, with an average annual rainfall of ten inches; but averages mean little here; one year 7·24 inches fell, another 47·27 inches. Lawns are kept green with sprinklers and beyond them, except soon after rain, everything is ash-grey and biscuit brown. The steep hills that rise just behind the house are clothed with thorn scrub and resound with the harsh bark of baboons. Everything is dense and spiky, you cannot push a way through the scrub. In amongst it are Acacia trees haunted by clumsy-flying banded hoopoes and by those miraculously coloured, brilliant blue or soft violet rollers. Each roller seems solitary and independent and, at this time of year, sits alone on the end of a branch.

All day you hear the melancholy, plaintive hooting of the emerald-

spotted wood-dove, a small bird to make so much fuss, dropping its rounded notes like pebbles falling softly from a narrow-necked gourd. From the garden comes the bubbling note of black-headed orioles with canary-coloured plumage; a flash of scarlet betrays a pair of red-headed weavers in a tree by the veranda steps.

The Sheldricks' elephants walk right up to the veranda, but fortunately stay outside. Sometimes one of them will wind his trunk round David Sheldrick's arm and the two will wrestle, the elephant at first pretending to give ground and then pushing his playmate backwards into a tree. After that he strolls off to uproot a few shrubs and trample the petunias.

Four buffaloes stand with lowered heads to have their backs scratched. Rufus nudges everyone till he gets more peppermint and strolls off for a siesta in the tractor shed, where he has located a useful pool of sump oil. When he was about a day old, he wandered unaccompanied into the kitchen. His mother was never found and had certainly been killed by poachers. Rufus is now a sturdy, placid child, lacking in the least desire to return to the wilds. No animal here is put under restraint, although those vulnerable to lions must be shut up at night.

A WARDEN'S PROBLEMS

The life of a Game Park warden seems idyllic; but, like other men, he has problems.

One is poaching: how to keep out of five thousand square miles of bush and scrub and craggy mountain, with very few roads, not a single aircraft and a mere handful of rangers, the mobile, leather-footed hunters with their poison-tipped arrows and bush lore skills, and the organised gangs whose lorries wait on the Park boundaries to take meat, horn and ivory to the coastal towns, where the merchants who control this racket smuggle out the ivory and horn in dhows.

Rhinos are the worst hit. The reason is, of course, that a lot of middlemen make enormous profits. The African poacher gets about three shillings a pound for the horn—to him, good money. The Asian trader at the Coast gets eighty to a hundred shillings—a three thousand per cent profit. The consumer in Asia pays £70 to £80 a pound. In between, the only costs are those of transport. The gap between the three shillings received by, as it were, the producer, and the fifteen hundred shillings paid by the consumer, must surely be the widest in the world. So rhinos go on dying, and merchants thrive.

Elephants are poached too, but from the point of view of statistics

this does not matter. (From the point of view of cruelty, of course, it does.) The problem of the elephants is that there are too many of them, in and around the Tsavo Park.

For this the basic reason is that age-old migratory movements which kept animals in balance with their habitat have been disrupted. Elephants can no longer trek, as they once did, hundreds of miles in search of fresh woods; they are boxed up in one area and must go on eating what it will provide until they have eaten it bare. If they stray outside the Park and its immediate surroundings, they are destroyed. So they stay inside, and destroy their own sustenance.

You have only to drive a few miles to see evidence of this. Dead, recumbent, grey-white tree-trunks and shattered branches lie about like toppled ninepins on the ashy soil—a graveyard of trees. Some have been knocked over, some have died first on their feet after elephants have stripped their bark to find the nutrients stored there. Baobabs, in particular, have suffered because the silvery-grey, glistening bark of these queer-shaped, thick-boled trees is rich in calcium, and elephants—not surprisingly, when you think what big teeth they have—need a great deal of this mineral.

The trees go, and at first grass replaces them—the wiry, coarse and mainly un-nutritious grasses of these arid lands with a marginal and fickle rainfall. (The only reason five thousand square miles have been set aside for animals is that no humans can live there.) The death of trees exposes the soil to a heat so fierce that even grasses barely survive, and the earth gets baked and sterile. Then along comes a fire which sweeps across the tinder-dry country consuming everything—surviving trees, bush, the struggling grasses, insects, reptiles, even birds and beasts—and leaves behind a blackened desert.

It is true that, after rain, up will come green shoots again, and a deceptive smile of verdancy will spread over the land, but this *is* deceptive; many of the trees have gone for good, the grass has been weakened, the soil scorched. While elephants can and do eat grass, here the rainfall is insufficient to sustain a grass cover in its turn robust enough to support large herds of elephants.

What these elephants need are trees; between them, fires and hungry pachyderms are wiping them out. And how can you control fires in an area without inhabitants, two-thirds as large as Wales, where everything is dry as wood shavings? A tourist's cigarette-end, a poacher's camp fire, a spark from a locomotive, even sun striking through a piece of broken glass will start one. What the vegetation map describes as "desert grass-bush" is regressing by way of open grassland into

unadorned desert. All this, in turn, is changing the fauna of the Park.

The worst year anyone can remember was 1961. No rain fell until October. Everything became denuded, bare, desiccated; hot winds swirled dust-devils across the plain; grasses withered; rivers shrank into dry, sandy gulleys; every day the sun rose into a hard, unpitying sky; big, hollow rolls of cumulus cloud mocked thirsty creatures with their emptiness, like the heavy breasts of childless women; only vultures thrived, too gorged to move more than a few reluctant paces from carcases whose stench polluted the air.

Elephants, who can walk farthest and are very adaptable, had most of what little sustenance there was, rhinos least. Along a forty-mile stretch of the Galana river, and close to its banks, the Park's wardens and rangers counted the carcases of 282 rhinos who had starved to death. Some, too weak to stir, were being pecked by the vultures before they were dead. In the Nairobi Park and its environs, no more than about two hundred square miles, perhaps ten thousand animals perished, despite all the efforts made by devoted wardens to save them, and the distribution of bales of hay which they were too weak, or too set in their habits, to tackle.

Tsavo wardens were puzzled by the black, wet appearance of some of the rhinos still on their feet—as if they were literally sweating blood. And they were. The blood had been drawn by millions of tiny flies. (It is quite untrue, Mr. Sheldrick told me, that rhinos have thick skins; their blood vessels lie close to the surface and their hides are sensitive.) Further researches showed that these flies breed in the rhino's dung. In normal conditions, rhinos are fond of wallowing and coat themselves with mud—that is why they more often look red than black; and this coat protects them from flies. In the drought there was no mud, hence no protection; flies smothered and tormented them, weakened their resistance and so hastened their ends.

"There's always something new to find out," David Sheldrick said. While I was at Tsavo reports of a new, or at any rate unidentified, disease of elephants were coming in. The Africans knew about it, and called it *garabogoya*, but it lacked a scientific name and neither they nor anyone else could specify the cause. Elephants are not afflicted by many diseases. A few die of anthrax, and rather more of *babesia*, an ailment carried by ticks.

TOO MANY ELEPHANTS

As part of an attempt to break this vicious circle of over-crowding,

Elephant

destruction of habitat, and the consequently dwindling capacity of the Park to support any animals at all, a great deal is now being found out about the behaviour of elephants. If a way to break the circle can't be found, the Park will turn into a desert, everything will go except a few desert-loving creatures, Kenya will lose one of its major tourist attractions and the world one of its last surviving wildlife sanctuaries.

A year or two ago, things looked black. Rough estimates put the elephant population of the Park and its surrounding areas at 16,000 and its carrying capacity at about 10,000 or 11,000 beasts. The Park's director, Mr. Mervyn Cowie, and his staff were therefore faced with the prospect of culling five or six thousand elephants.

The prospect appalled them. To begin with, were you to shoot animals in large numbers within its boundaries, you would destroy the two main objects of a National Park, which are to provide sanctuary and to enable visitors to enjoy the creatures who avail themselves of it. No one could expect hunted elephants to pose placidly for photographers; nor, indeed, could photographers be allowed to come, since no one could shoot elephants in thousands without allowing a proportion of wounded and therefore dangerous beasts to escape. Skilled hunters do not exist in numbers sufficient to tackle such a task; unskilled ones would spread havoc; carcases could only be left to rot. To create a morgue of dead and dying creatures for the benefit of vultures and hyenas cannot be the answer to the problem of too many elephants in a National Park.

To find out just how many elephants really were in occupation of the area was clearly a pre-requisite to any serious plan of campaign. An aerial count was needed. Lacking any aircraft themselves, the Park's authorities turned to the Commander-in-Chief of the armed forces, Sir Richard Goodwin, who willingly sent observers in light aircraft and helicopters, to carry out a full-scale count in 1962. The first accurate mapping revealed 10,799 elephants actually within the Park, another 3,282 in an area across the Galana river, and a further 1,522 in other adjacent regions: in the whole ecological unit which includes the Park, a total of 15,603 elephants. So the wardens' guess of 16,000 had not been far out.

More than this, the airborne observers mapped the units into which this population was split. They found over eleven hundred separate herds, ranging from solitary bulls to groups of thirty or forty. The commonest size was between five and fifteen animals—family parties consisting of cows, their calves, and two or three bulls, with an average of just under eight young to every ten mature cows. A cow elephant

reaches maturity in about twelve years; after that, barring accidents, she will breed for about half a century, and die between the ages of sixty and sixty-five. Calf mortality is high. A statistical analysis of the data concluded that of every 10,000 elephants, 775 cows bred annually some 700 living calves, of which only 300 survived to maturity.

The next stage was to estimate the Park's carrying capacity in terms of elephants. For this, it was first necessary to discover exactly what these Tsavo herds feed on. Elephants do not eat anything that comes along; they select; and their diet varies with their habitat.

So David Sheldrick and a biologist, Mr. Napier-Bax, spent every hour they could squeeze from routine duties with their field-glasses, watching elephants eat. As soon as each animal moved on, they took specimens of the plants it had been feeding on and sent them to the Coryndon Museum in Nairobi to be identified. This done, they returned to the bush and took samples of each plant—over a hundred species were collected—for chemical analysis by Dr. H. W. Dougall at the plant research station at Kitale. Thus has been assembled a card-index not merely of which plants these Tsavo elephants eat, and when, but to some extent of why: of the mineral content, for instance, of each species, which in its turn varies according to the time of year.

Only a botanist could appreciate a list of the species included in what is clearly a well-mixed, varied food supply, derived from four sources: trees, grasses, bushes and creepers. These the elephants favour at different seasons. The leaves of the shrub *Cordia gharaf*, for instance, are eaten only when they begin to shrivel; of *Dobera glabra* and *Anisotes ukambensis* only in times of drought; the bark of baobabs seldom in the rains, when grasses are favoured above shrubs or trees. There are minor mysteries. Why do elephants in the deserts lying several hundred miles to the north eat with apparent enjoyment the fruits of the doum palm (*Hyphaene coriacea*), while these Tsavo pachyderms reject them? All elephants are wasteful feeders, and will often knock a whole tree over to get at the bark, and spit out the fibre.

Whatever the nature of their appetites, one thing remains clear: there are too many elephants. And especially too many in the eastern sector of the Park, the driest sector, which suffers most from overstocking. Here, in round figures, seven thousand elephants are attempting to live in an area which, at best, can support five thousand. Dead or mutilated trees, broken branches, trampled bush and general desiccation are the consequence. This is a dying countryside, carrying at least two thousand surplus elephants.

To cull them is too difficult. The only remaining palliative is to

increase the carrying capacity of the region. For this, no weapons are needed: only more water, and fewer fires.[1]

WATER FOR WILD ANIMALS

Elephants seldom travel more than twelve or fifteen miles from water, and so whole stretches of this eastern sector of the Park, which lack water, also lack elephants. If water could be provided, the elephants would be presented with a new range of feeding-grounds to relieve pressure on the old.

During the 1961 drought, Mr. Cowie and his Park trustees started a Water for Wild Animals Fund which saved many lives. One of his best moments, Mr. Cowie told me, occurred when the Nairobi manager of a firm selling tent and camp equipment walked into his office to say: "My boss has authorised me to bring you this cheque. It's for ten thousand." Taking this to mean shillings, the currency of the country, Mr. Cowie began to thank his caller warmly. "Not shillings, pounds." A condition was that the donor should remain anonymous. Later, however, the name of Mr. Herbert Bonar, the head of the firm, became known.

When the drought ended, plans were made to lay on water, with the money that was over, to some of the drier regions of the Park. I watched pipes being laid from a pumping station on the Galana river to concrete tanks on hilltops, whence water was to be reticulated to drinking troughs installed in the bush at five mile intervals. The birds and beasts who have since, no doubt, discovered these thirst-quenching stations, and the tourists who enjoy the birds and beasts, will alike have cause for gratitude. A satisfactory thing, it seemed to me, on which to spend one's money.

The more dried-up and denuded this zone becomes, the more trees give way to open grassland, the more unmanageable do fires become and the more damage do they inflict on a sick countryside. The only practical means of control known at present is to make, and maintain, firebreaks—corridors kept free of vegetation, too wide for flames to leap—across the direction of prevailing winds.

So the art of Park management gradually takes shape; in essence, the art of the rancher applied to a three million acre estate, itself an enclave in a zone six times as large, to elephants and other wild creatures which cannot be rounded up and sent to market, instead of to cattle, which can.

[1] Since my visit Dr. Glover has written: "I flew over the area only last week, and the devastation is truly appalling. There are large areas of bare red soil with only a sparse grass cover in the dry season. Obviously something immediate and drastic must be done to reduce the number of elephants in the Park. . . . What we most urgently need are aeroplanes and money for trained men to study this fascinating problem while there is still time before the population crash occurs."

CULLING IN THE PARK

There still remains the nub of management, control of numbers. Stopping fires and laying on water can help to spread out and support the existing elephants; but this population, like that of humans elsewhere, will go on increasing up to the limit of its food supplies, tightening the spirals of the vicious circle until disaster comes. Birth control for elephants—is that the only solution? What can be done?

Scientists are groping for an answer. A few slender lines along which it might be sought, mere threads, are emerging; but it is still too early to say which are, and which are not, sound enough to grip. There is far too little money to pay for the few explorers of this new field, and some of the keenest can do this work only in their meagre spare time, for no reward but their own satisfaction.

One such, Mr. James Glover, was until recently statistician at Muguga, the East African Common Services research centre near Nairobi. Applying his statistical technique to an analysis of the aerial counts made in the Park, and their breakdown into herds, sex ratios and ages, he concluded that by culling every year for six years only 140 young cows in the twelve- to fifteen-year age-group, plus a similar number of young bulls to balance the sexes, you would reduce a "resident population" of seven thousand elephants in the eastern sector of the Park to five thousand, a level which could be held indefinitely by even lighter culling. Two hundred culled annually from a herd of ten thousand would reduce the numbers in five years to seven thousand five hundred elephants. This modest annual slaughter of young females would arrest the replacement of natural wastage and would, if continued, halve the original numbers in seventeen years. Such are the miracles statistics can suggest.

Objections remain to shooting even a few animals in a National Park. But there are more ways to kill an elephant than to plug it with bullets. There is darting. Normally, hunters discharge their drugged darts merely to immobilise their quarry, but an overdose will put it out for good—safely, silently and humanely. Two scientists working for the Nature Conservation department of the Kruger National Park in South Africa recently fired from a crossbow a dart containing succinyl choline chloride into a young bull elephant who, quite

oblivious of their presence, collapsed within five minutes and died within thirty, while his companions went on eating undisturbed.[1]

This technique is still experimental, and leaves unanswered the question of how to dispose of carcases. At present, Mr. Cowie says there is no intention of destroying any elephants in the Tsavo Park. The whole ecological zone of which it forms only about one-sixth must be tackled as a single unit. And for that, a lot of money must be found.

THE GALANA RIVER SCHEME

Northwards and eastwards of the Park, and outside its borders, lies an area of about three thousand square miles where a small tribe of hunters called the Waliangulu live mainly by poaching elephants. Poaching, of course, is here purely a European term. The Waliangulu have always lived off elephants and they simply go on doing so, oblivious of rules and regulations invented by distant bureaucrats in cities they have never seen to collect money for purposes of which they know nothing.

When the Tsavo Park was set up, these Waliangulu hunters became not merely tax-dodgers but a threat to the Park, since they strayed across its borders to slay its elephants with poisoned arrows. Poaching became so serious a menace—the Park at one time was strewn with carcases and hundreds of young ones starved to death after the demise of their mothers—that a major anti-poaching campaign was mounted. To the extent that this succeeded, it deprived the Waliangulu of their living. They are not adaptable enough to change their ways; schools, literacy, even for the most part trousers, have passed them by.

If nothing would stop them killing elephants, it was argued, then the killing might as well be legalised, controlled and used to benefit everyone concerned. A dead elephant is valuable: mainly for its ivory, but also for its meat and other by-products; let the profits be shared out fairly among the tribe, numbering only about three thousand souls. The Nuffield Foundation backed an experiment begun in 1960 and planned to last three years.

It would be impossible to imagine anyone more unlike the popular image of the brawny, tough, hairy-chested elephant hunter, a Hemingway figure if ever there was one, than Mr. Ian Parker, the young man

[1] See *Oryx* (Journal of the Fauna Preservation Society) for April 1963, U. de V. Pienaar and J. W. van Niekerk. An indication of the capacity of elephants (like all other species) to multiply when released from the normal balance of nature, is provided by the increase of a nucleus herd of ten in 1905, to 1,750 in 1962, in the Kruger Park, where grave dangers of overstocking loom ahead.

Gerenuk

in charge. If asked to place Mr. Parker I would have put him down as a rather frail, city-dwelling office-worker of about nineteen, economising on buns and instant coffee and interested perhaps in music or photography. And there he is, dwelling among the doum palms on the scorching banks of the Galana river, hunting over a vast area of trackless bush and shooting an average of about three elephants a week. He lives among primitive tribesmen every one of whom is armed with poisoned arrows that can kill in five minutes, and is responsible not merely for despatching the elephants but also for loading their carcases into brine tanks on lorries, getting them back to camp, drying the flesh and then transporting it across a hundred miles or so of roadless bush to the railway before the meat putrefies. All this, and a lot more, he has done with the help of one English colleague and a small band of Waliangulu tribesmen.

Both young men had wives and babies, and their camps were separated by the brown and turgid river from a Land-Rover track on which they jolted, now and again, sixty miles to Voi, to buy fresh vegetables and watch trains go by. During the floods of 1961, when the river became a savage torrent and stayed so for three months, their supplies were dropped by air.

The essence of the scheme was to share out all the profits from the elephants, ivory included, among the Waliangulu, so as to demonstrate that legal hunting paid them better than illegal poaching. But the Treasury in Nairobi took the line that the Government, not the Waliangulu, were entitled to the ivory. A paper battle over this continued for two years and resulted in a draw satisfactory to neither party.

Then came trouble with the Giriama, the Waliangulu's eastern neighbours: a tribe of cultivators. They infiltrated into the area set aside for the scheme and not only poached elephants, but started fires which drove the beasts away by consuming their food supplies. The Giriama tribesmen also stripped the region of its trees to make charcoal. Their object was to settle in, and claim the land as their own.

After much negotiation, representatives of the Giriama reached agreement with agents of the Government to withdraw from Waliangulu territory if, in return, they were allowed an uninhabited region to the north. This agreement had to be ratified in London, whence no decision emerged for two years. Meanwhile, more Giriama infiltrated and more fires raged. When a reply did percolate the bureaucratic filter, it was to the effect that the Giriama could have the northern area but mustn't be ejected from the Waliangulu scheme.

Despite all this, the scheme achieved a limited success in its short life of three years. In the first year it showed a loss, as was expected. In the second, although much of the country was under water for four months and the tracks eradicated, it made a tiny profit. In the third year it made a considerably larger, if still not handsome, profit.

Every bit of elephant was used. The ivory was auctioned, the dried meat sold for about tenpence a pound, the feet went to Rowland Ward's to be turned into umbrella stands, the ears were split into four and became handbags and wallets, an order came from New York for one million bracelets made from tail hairs, and Mr. Parker sold seventy-five skulls for fifteen shillings each to a film company wishing to depict an elephant cemetery. (These are wholly mythical.) The experiment proved that elephants *can* be cropped at a profit under very difficult conditions; further, that the scheme could provide permanent employment for some, if not many, of the Waliangulu. But Mr. Parker would like to see cattle brought in. These would justify a canning factory to deal with the meat on the spot. Elephants could then be processed too, and the ranching of pachyderms and bovines combined.

Mr. Ian Parker has bold ideas for developing this region of arid, unused land. These need capital, and control over the Giriama, whose present depredations are placing in jeopardy the region's capacity to support cattle, elephants, or anything else. Neither aim is impossible. There is capital waiting for sound investment if political stability can be ensured; and independent governments do not have to wait two years to get their agreements ratified, or wrecked, by London authorities.

MUDANDA ROCK

David Sheldrick pointed out a small shrub called *Sericocompsis* growing in profusion. It was, he said, a favourite food of rhinos. Before the drought of 1961 we should have seen very little of it; now, the shrub's unbrowsed abundance testified to the paucity of rhinos. That day we must have driven a hundred and fifty miles and we saw only one, so well known he was semi-tame. Rhinos seldom travel long distances and he appeared to be condemned to permanent celibacy; at least no one had seen him with a mate. Can numbers build up again? It seems doubtful.

In fact we encountered few animals: a couple of giraffe-necked gerenuk, three lesser kudu, some oryx with their look of unicorns, one solitary, distant buffalo, a herd of Peters' gazelle, a tortoise and a hare. But we saw an Africa empty of humans—hard, bare, spiky and

magnificent, its trees stripped and bashed about by elephants. The whole countryside has had a triple bashing—poachers, drought, fire.

At Aruba lodge we sat beside the big dam. A strong wind roughened its brownish waters. On a pale, denuded farther shore some zebras and a herd of waterbuck were drinking when along came four lions—the parents, and two half-grown cubs. At a stately and deliberate pace, as if performing the measure of a dance, they advanced across the shore. Zebra and waterbuck raised their heads, but made no move; when lions are not hunting, other beasts are wary but display no overt fear. All four lions lay down and lapped the water. Then the cubs had a gambol, cuffing each other while the parents, outstretched to cool themselves, looked on indulgently.

Evening at Mudanda rock. From a smooth grey saddle that hugs the sun's heat you look down across the dam to all Africa beyond, speckled with thorn trees, beguiling with birdsong, beckoning with the hare-bell-haze of distance and threatening with indifference. Crumpled hills lie over the horizon, immemorially old—the oldest rocks, some say, in the world, pre-Cambrian granite, formed perhaps six or seven hundred million years ago. Has this immense antiquity, stretching back even beyond the first life on this planet, instilled into the very atmosphere a brooding feel of total unconcern, the very core of stillness? So have things been since before creation, so will they always be. We saw Africa as the first hunter saw it before he learnt to rub fire into being: unmarred, unsullied and primeval; animals at peace with each other, balanced and harmonious. No rifles, no arrows, no snares, no discontent and discordancy—no men.

From bush and wide-stretched plain the elephants converged upon the dam in small parties: slowly, majestically, unhurried, mellow, red in the slanting sunlight with dust or mud coating their skins. As they paced on they swung their trunks gently to and fro and flapped their ears. (This is to cool the blood; a cluster of blood-vessels lies behind each ear and the flapping acts like the agitation of a fan.) In turn, each group halted a little way from the dam to wait for members of the preceding herd to drink, cool their limbs and complete their ablutions. Some sucked from the shallows, some waded out until they were belly-deep, some wallowed and rolled over. These, the wallowers, are bulls; cows are more timid and stay close to the margin. We must have seen at least three or four hundred elephants and not one was impatient, bad-tempered or ill-behaved. "The only harmless great thing," as Donne described them.

Many birds came to the dam. A pair of Egyptian geese circled

round, and a flock of whistling tree-ducks with white-ringed ears. White egrets and ibises perched on the branches of half-submerged trees. Storks came, and herons.

The sun sank behind the Teita hills which rise in ridges, black against a sky of apricot and orange. The jagged edges of the hills looked as if they had been slashed decisively from plywood: everything was hard and clear, splendid and eternal. A misty blue seemed to enfold among those distant hills a phantom sadness; and day was over, light gone and there were the first stars, soft pricks in a sky of dark lilac, or the deepest delphinium.

More elephants were coming down to drink. As the light died they started to trumpet to the stars. A flock of white egrets settled among black branches. Frogs croaked, a tree-duck whistled, elephants splashed. We drove away, disturbing on the road many grasshopper owls crouching in wait for small rodents. And so home.

vegetation is lush, rich, thick and green instead of bare, spiky and easily discouraged.

Even here in the Murchison Park, population pressure is changing the landscape. It used to be thickly wooded. In places, forests of a tree called *Terminalis* (of the *Combretaceae* family) grew. Elephants have ring-barked the *Terminalis* trees and left a devastated landscape of toppled, ash-grey corpses or leafless skeletons dead on their feet, soon to join their prone companions. We drove through depressing stretches of these dead *Terminalis* forests. No one knows just why the elephants strip off the bark; one theory is a search for some substance lethal to internal parasites, another is the need for a calcium.

Pressure is not only converting much of the Park from forest to grassland, but is converting elephants from tree-feeders to grass-eaters. An American student of their habits, Dr. Buss, believes that most of them have adapted themselves almost completely to a grassy diet. They seem to have little choice. Scientists speculate as to whether they can extract from grass alone all the elements they need, especially minerals. Here is one more of the many fields waiting for research, which in turn waits for money.

THE MURCHISON FALLS

As you approach the falls the current strengthens, and turns back your launch below a pool creamed with foam into which the waters of the Nile, emptying from the Lake Victoria basin, cascade through a rocky funnel less than three yards wide. It is an exciting spectacle, this vast bulk of spray tearing, gushing and spurting through the narrow jet into a churning pool below covered with apparent soap-suds. The scene can have changed little since Sir Samuel Baker "discovered" the falls in 1864—inverted commas are needed because, as Africans rightly point out, they had known about these natural features for centuries; the use of the word is very genocentric—and, getting his measurements wrong, described them thus:

> Upon rounding the corner, a magnificent sight burst suddenly upon us. On either side the river were beautifully wooded cliffs rising abruptly to a height of about three hundred feet; rocks were jutting out from the intensely green foliage; and rushing through a gap that cleft the rock exactly before us, the river, contracted from a grand stream, was pent up in a narrow gorge of scarcely fifty yards in width; roaring furiously through the rock-bound pass, it plunged in one leap of about 120 feet perpendicular into a dark abyss below. The fall of water was snow-white, which had a superb effect as it

> contrasted with the dark cliffs that walled the river, while the graceful palms and wild plantains perfected the beauty of the view. This was the greatest waterfall of the Nile, and, in honour of the distinguished President of the Royal Geographical Society, I named it the Murchison Falls. (From *The Albert Nyanza*, 1866.)

For centuries, these falls have acted as a plug. The whole of the water system embracing the great central African lakes—Victoria, Albert, Edward, George (how unimaginative and royalist the British were about names!) and Kioga, once shared a common piscine fauna. Roughly, perhaps, twenty or thirty thousand years ago, a drought of an intensity we can scarcely imagine dried up every one.

Life shrivelled, but somehow enough creatures must have survived in pools and mud to re-colonise the lakes and rivers when they filled up again in the last pluvial period, corresponding to the European ice age, about fifteen thousand years ago.

Ever since, the water fauna above and below the Murchison Falls has been quite different. In Lake Albert, and in the Nile below the falls, lives the giant Nile perch, which may be six feet long and weigh two hundredweight; the tiger-fish; and various other fishes unknown in Lake Victoria. During all these centuries they have failed to find a way up the falls. Equally, Lake Victoria contains fish not found below the plug—mostly smaller ones, who have flourished in the absence of the larger predators, and include a kind of Cichlid which hatches its young in its mouth.

Below the falls the Nile spreads out as if grateful to be freed of its wasp-waist into a wide, placid river no more than twelve feet deep in normal times. But these times are not normal: since the floods of 1961, the river has risen by eight feet. Not only that, it has at long last rebelled against its compression and forced for itself a second channel at the falls, bursting a way through rock to leave an island between two arms of water. So now there are two Murchison Falls.

When I asked the chief warden, Mr. Roger Wheater, whether elephants swam the Nile he replied that they certainly crossed it, possibly by swimming, but they might also "bounce along the bottom". They could not bounce now.

WHITE RHINOS AND BLACK BUFFALOES

That afternoon we saw a pair of white rhinos: relics. It is a sad story.

Once they were fairly common. (They are not, of course, white; the name is a corruption of an Afrikaans word meaning wide, and referring to their upper lip; the more correct name is square-lipped.)

Slaughter reduced their numbers until they survived only in a few isolated, inaccessible spots, of which the principal was a stretch of the Nile's western bank, partly in Uganda and partly in Sudan. Here, until quite lately, they existed in respectable numbers—several hundreds, anyway. In the last few years, poaching has reduced the total to between forty-five and fifty individuals. The point has been passed where the extermination of the species is inevitable, unless such drastic action as removal of the survivors to a place of genuine safety can be taken in time.

The game authorities decided to move ten to the Murchison Park, where they could at least enjoy closer protection. This was before the technique of darting had passed an experimental stage. So animal-catchers were called in to lasso the rhinos, and three died from injuries. The remaining seven are now at large in the Park. They are much more shy and nervous than their smaller black brothers and would not allow us to approach close enough for photographs.

About ten thousand buffaloes—roughly the same number as the elephants—are believed to dwell in the Park. As a rule these creatures are wily, elusive and wholly bush or forest dwelling; they are hard, and sometimes dangerous, to approach, and take refuge from Land-Rovers in thickets and gulleys. Not so these Murchison herds. They graze like the most placid of beef cattle on the open downs. We might have been driving across parts of Sussex, past herds of, say, Galloways, strung out in long lines. They don't even lift their heads as you go by.

We saw a single herd estimated to contain eight hundred buffaloes and altogether, in two hours' drive, Mr. Wheater estimated, about fourteen hundred head, all in the open. It takes the sting out of the opinion I have heard expressed by many hunters, that of all big game the buffalo is the most crafty, dangerous and unpredictable. These buffalo would have been dull if it had not been for the very fact that their tameness was so surprising. It only needed a lot of flags, stands, pavilions and a band to turn the whole place into an agricultural showground.

A HIPPO WALLOW AND A DUNG BEETLE

We inspected a concentration of hippos in a swamp composed of the Nile cabbage (*Pistia stratiotes*), an incredibly prolific plant that floats down the river and, if not kept in check, colonises every bay and calm stretch, forms a mat, and kills aquatic life beneath by sealing off the air. Here the cabbage has colonised the pool. Packed together shoulder to

shoulder, fat haunch to obese stomach, were hundreds of hippos, their backs glistening like aluminium blisters, or like silvery pustules on the flesh of some stricken mammoth—a revolting sight. The slime must be foul with their excreta, but in it they lie and sleep and now and then wallow in lethargic content. This contentment conquers everything in Uganda.

The most attractive creatures are the oribi, fawn-coloured antelope about two feet high or less with the neat movements, flickering tails and limpid eyes always so appealing among small buck. They go about in family parties and are as skittish as kittens. Sometimes they jump into the air with all four legs straight and stiff and appear to bounce, as if on springs. At other times they lie in clumps of grass and are as invisible as hares until you get right up to them.

On these open downs the vegetation is mainly the poor but long and coarse *Hyparrhenia* species of grass, and queer little dwarf borassus palms which stick up like green fans, no more than two feet high. A borassus palm is normally a largish tree. Why do these fail to develop? Probably because fire stunts their growth, but possibly some element in the soil is lacking. Mr. Wheater echoed the remark I've heard from almost every wildlife authority: "There's so much we haven't found out, so much to be done. . . ."

There is a game biologist at work, mainly on elephants, but he is busy in a new Park recently scheduled in the north, the Kidepo Valley, in the still primitive, largely roadless province of Karamoja. The first problem here is to find out what animals survive there and what do not, so little is it known, and so devastated has the area been by poachers who raid across the borders of Sudan in organised gangs of several hundred armed men. These gangs snare or slaughter everything that moves and return with tons of dried meat to a rendezvous with lorries. So bad is the poaching in this region that, although it has been scheduled as a Park, the public cannot yet be admitted and little wildlife, in the opinion of experts to whom I talked, is thought to survive. The hope is that, if poachers can be kept out, animals will be able to build up their numbers. The "if" is a big one.

By Lake Albert's shore, on a level stretch of brilliant green, against blue waters and distant purple mountains of the Congo, a frieze of elephants, each with a white egret perched on its back. . . . By the roadside, two pale brown Uganda kob fighting, their wide horns locked. . . . A guinea-hen scurrying with her fluffy, speckled chicks across the sandy track, red-gold in evening light. . . . A batteleur eagle with crimson beak and legs and black plumage, pitiless and imperial,