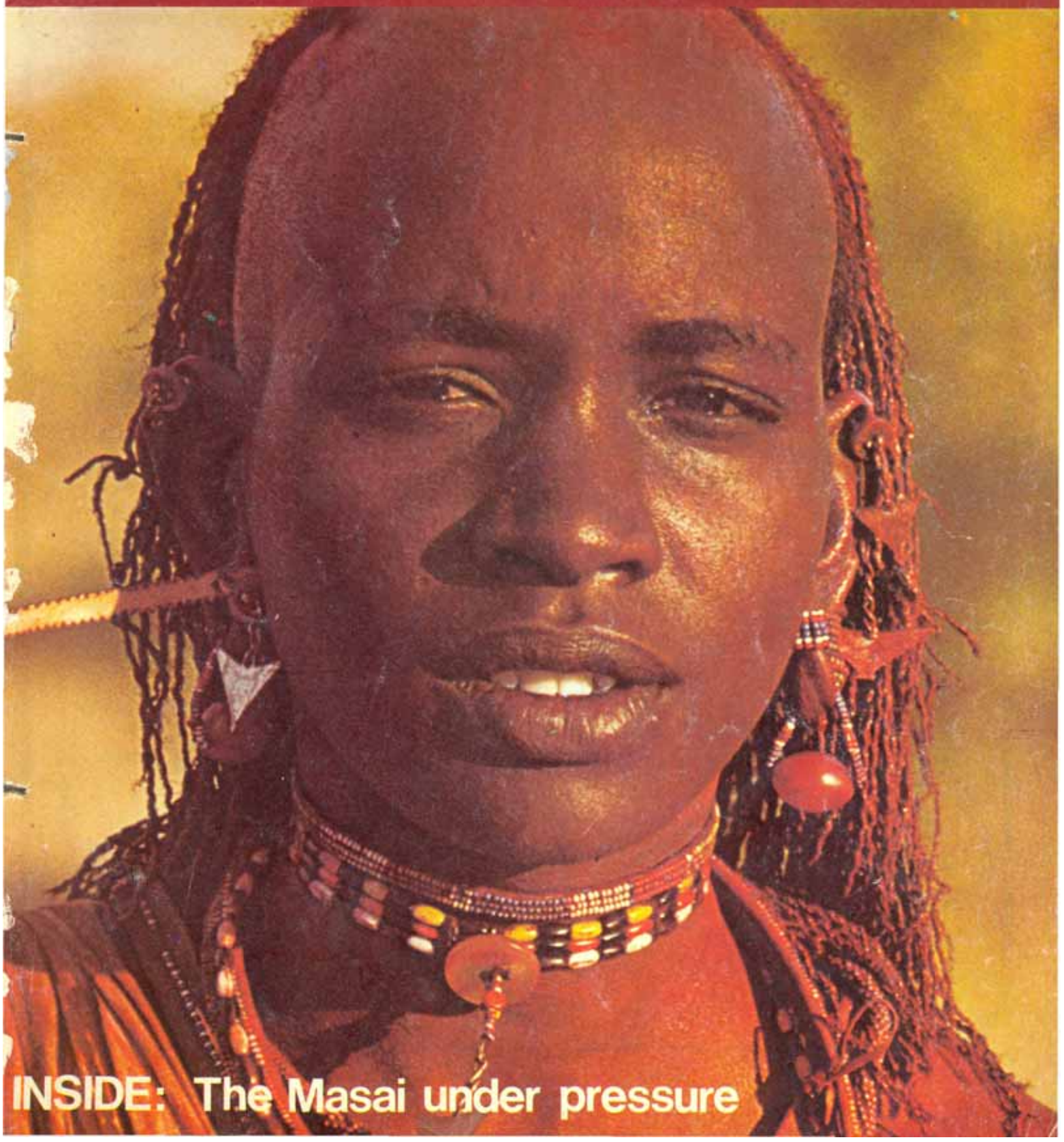
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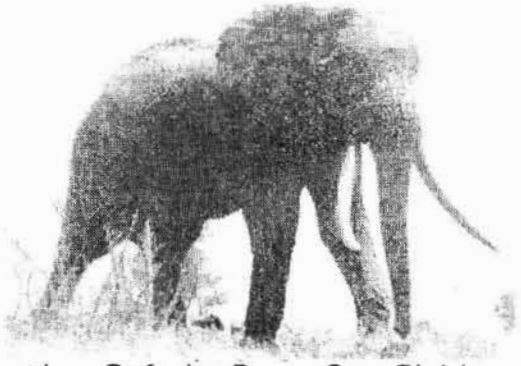
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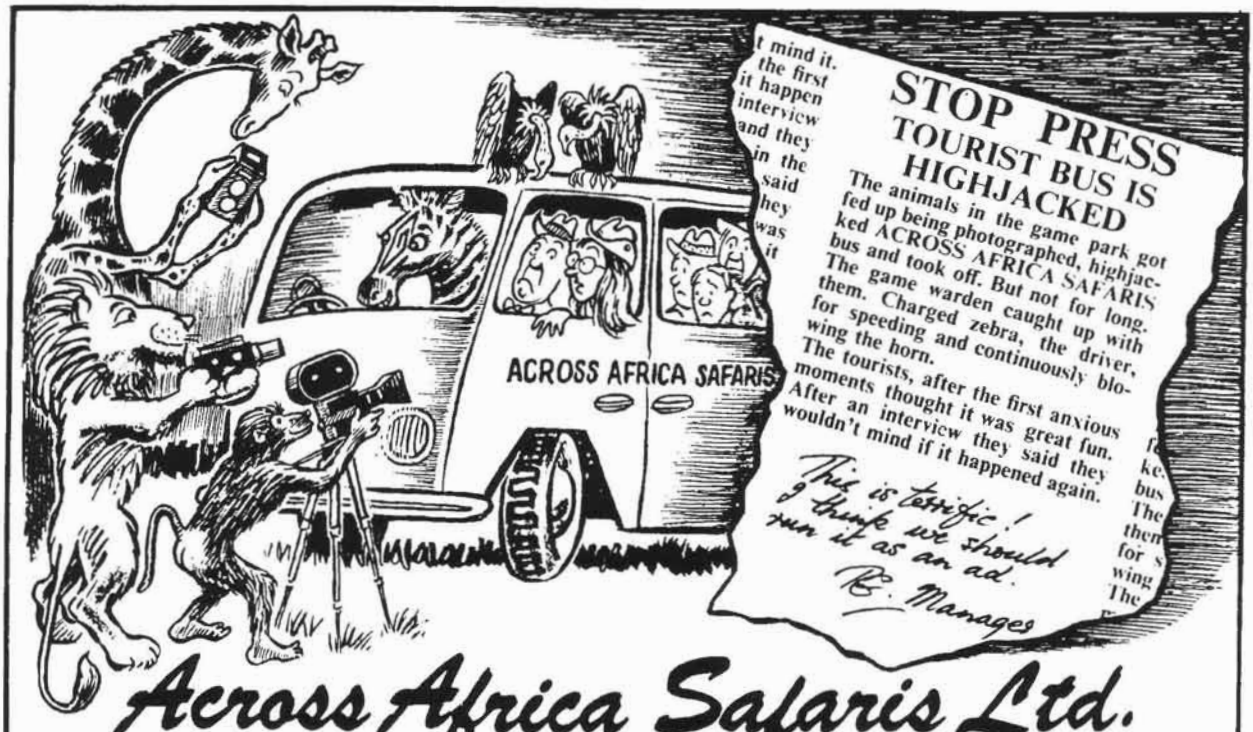


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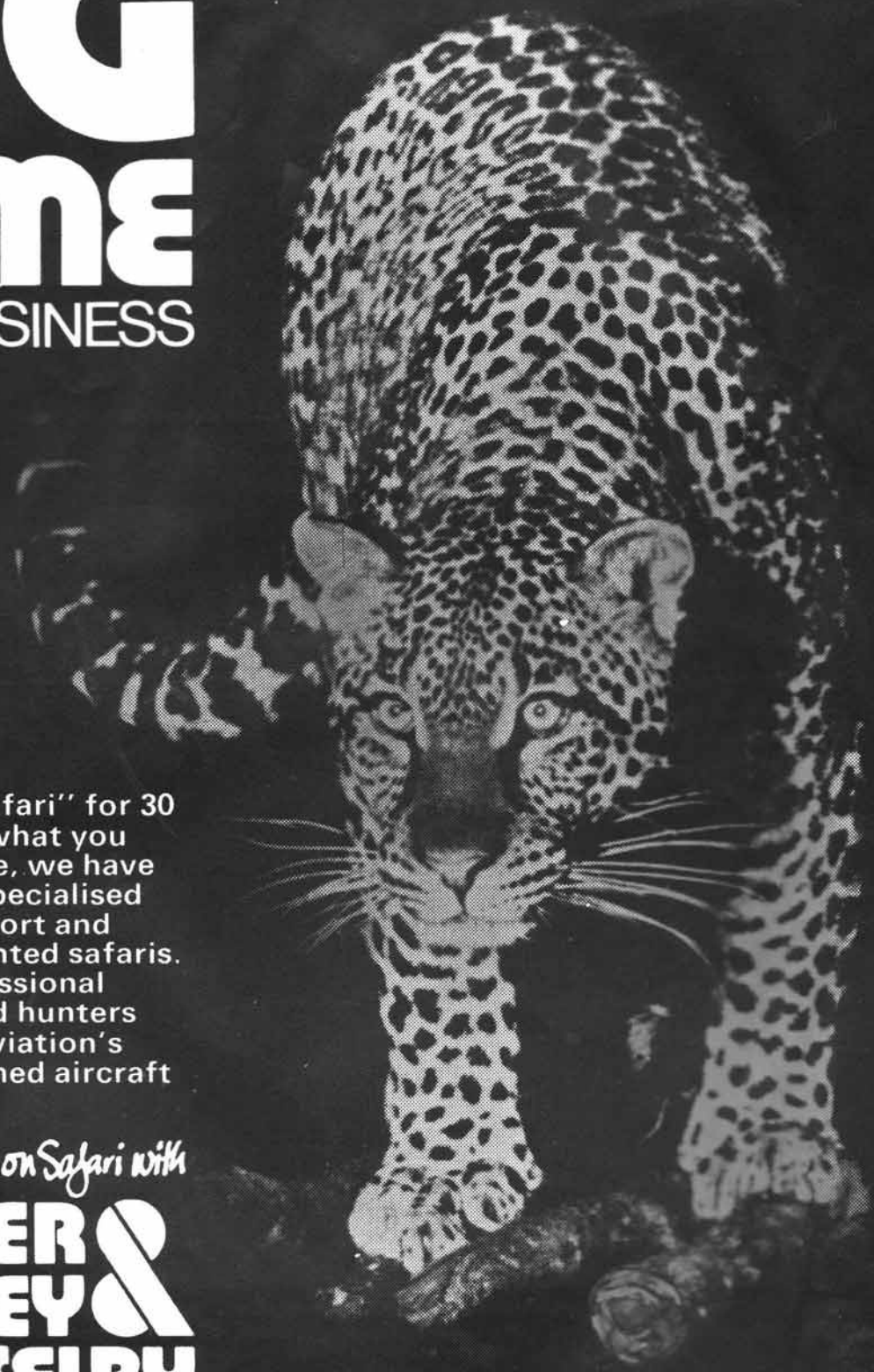


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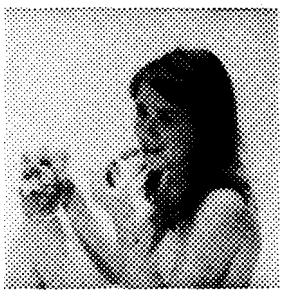
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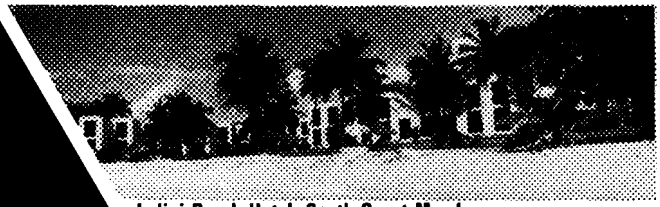
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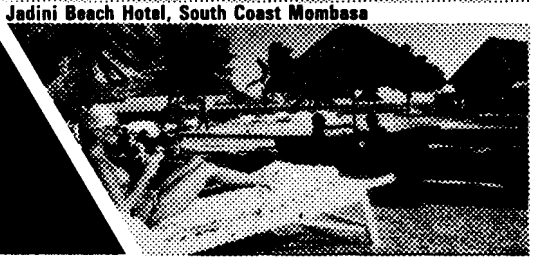


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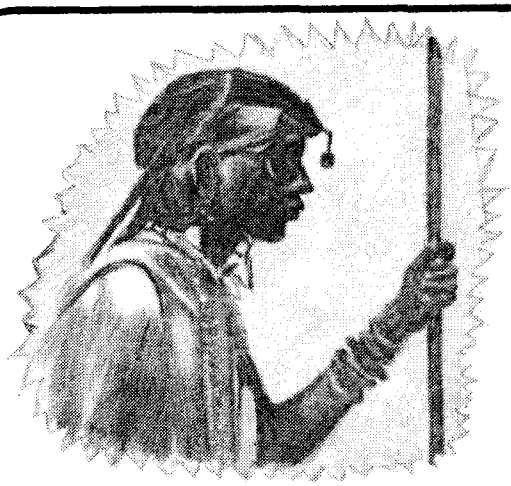




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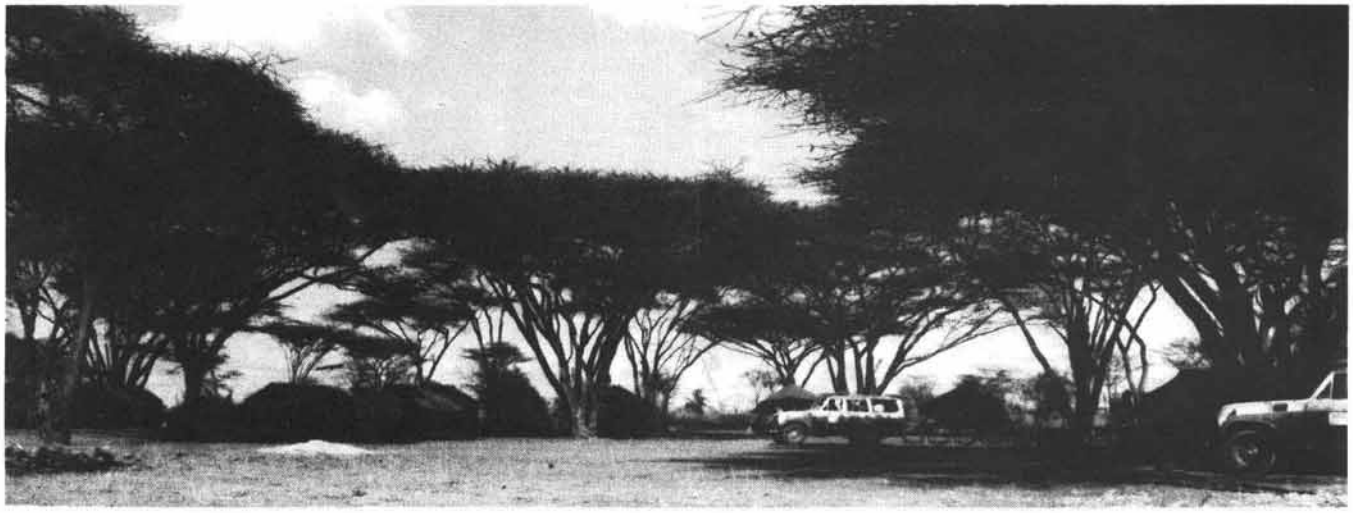


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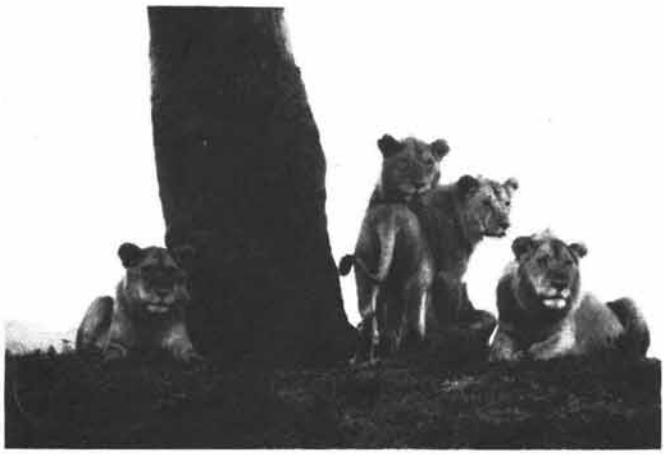
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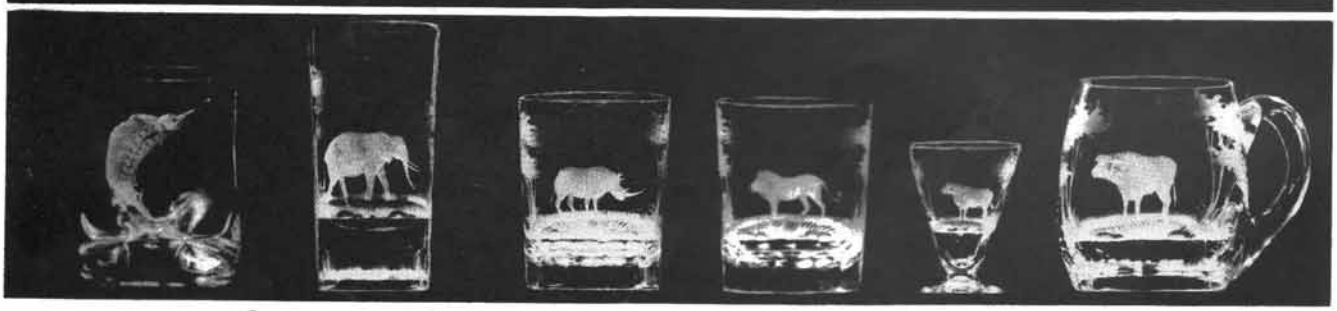
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AFRICANA

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LAKE NAKURU was once the greatest flamingo lake on earth. Not so world-shattering perhaps—still it did provide Kenya a certain distinction and the odd advertisement to help sustain an annual 100 million dollar benefit from tourism.

Now the birds have flown, and no-one quite knows why. Least of all the poor Minister for Tourism and Wildlife, Hon. Mathews Ogutu, who is to an extent unjustly blamed. But public opinion demands that he follows the birds to far-away Lake Rudolf, there to sit on his own little boat and contemplate pink albatross.

The demand comes not from those "interfering foreigners" of the conservation agencies and the Press, but from his own people through their representatives in Parliament. To an extent it was Maasai-led, but even so the MPs had a fit of national conscience on the wildlife situation; called for Ogutu's resignation, and for a Select Committee to investigate his administration. The innocent, sacrificial goat of Kenya rituals often remains mute, but Mr Ogutu registered a solitary, plaintive "no" to the Private Member's Motion.

In fact, he'll probably keep his entrails, if not his office, because constitutionally the government need not comply with the MPs' vote. Nonetheless it was a surprising demonstration of the democratic process in Kenya and a welcome public outcry against wildlife mismanagement and destruction. Perhaps the government, especially the Treasury and the Attorney-General's office, will yet be sympathetic to the MPs wishes—stranger things have happened in Kenya than self-examination through a government Commission of Inquiry.

Nakuru, would not be the only issue, nor the most scandalous. But it's a good example of what everyone is complaining about. . . .

The facts are that a small, ugly factory close to the lake is capable of discharging five tons of copper-based pollution a year—and scientists have determined that eight tons of copper in the lake will kill it. Other experts, this time government people, claim that the factory is a *potential* risk to humans, let alone to the "priceless heritage" and the current profit of Lake Nakuru National Park.

Government Ministries have protested; so has the Press; and now the MPs. WWF, which spent a quarter of its million dollar conservation grants to Kenya on preserving Nakuru has suspended further aid. The Germans are shelving their two million dollar project to clean up the sewage outfall in the lake.

But none of it makes a blind bit of difference. The factory continues operation, and the Minister funks the issue—perhaps for political popularity.

Unfortunately for him, the issue is not his loyalty to government, but whether or not the wildlife trust and multi-million business of tourism is being administered with the same sanity and professional competence which distinguish Kenya's government from that of the comic empires or socialist "heavens" in the neighbourhood.

The evidence is that Tourism and Wildlife is not a typical competent government operation, and now that the *people* as well as the international community are saying so, it cannot last much longer.

However, in the meantime, ivory continues to be moved around mysteriously; questions are still pending about the receipts from ivory exports; and the 213 local curio shops are still bristling with tusks despite the Ministerial order to clear stocks months ago.

An expensive, desperate, pathetic operation to translocate the remnants of Grevy zebra from the north is planned; private funds have been raised to "rescue" Rothchild's giraffe from hamstringing; George Adamson weeps over Somali devastation of Kora; and poaching generally remains rampant.

The Minister rows with the trustees of the Utalii training College, finally sets up the Wildlife Fund Trustees a year late; watches benignly the slightly alarming performance and ambition of his Kenya Tourist Development Corporation; and fails to announce the Civil Service decision on who is to head the Department of Wildlife Conservation and Management.

In all, . . . there is Nakuru and plenty of other questions of some importance which might be asked by the MPs committee—but better, as we suggested, the government's own Commission.

Vol. 6 No 4 January 1977

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TWINS are light relief for Manyara's elephant – perhaps!

by
Oria Douglas—Hamilton

THE RARE incidence of elephant twins at Lake Manyara National Park has focused Tanzania's attention on the "Manyara problem" —the world's highest elephant density at five per square kilometre and intolerable damage to the park environment.

Dr. Iain Douglas-Hamilton studied the problem in depth between 1965-70, and in essence recommended an extension of the elephants range south-westwards out of the park into a vast forest reserve. The one obstacle was an intervening wedge of land rescheduled by the British colonial government in 1955 as seven settler farms.

The elephants' access to the Marang Forest was barred by farmers defending their crops, and several hundred were shot as they attempted to move out of the park in the dry seasons. They were turned back on themselves, and began barking and killing trees, particularly the scenic acacias.

Dr. Douglas-Hamilton proposed the incorporation of the Marang and Magara farms in the park as the only alternative to culling the elephant— and since then, Tanzania Parks' Director, Derek Bryceson, has tried to persuade various local authorities and government departments to bring this about. So far, he has had partial success. The forest is now, in effect, a protected area for the elephants and a "thin edge" of the wedge of farms is now within the park boundaries, amounting to a narrow migration corridor.

But this is not enough, and it is hoped that the national publicity generated by the birth of the twins, plus two visits by Vice-President Aboud Jumbe, will prompt new negotiations with the local government authority and lead to Parks acquiring more of the farmland.

Meanwhile, the management study of the Manyara elephant families and of their "modification" of the habitat is continuing, mainly by the Tanzanian Rangers themselves, a Tanzanian ecologist R. B. B. Mwalyosi, and a Harvard under-graduate, John Scherlis. Iain Douglas-Hamilton continues to monitor the study and provides regular assistance in his capacity of co-chairman of the IUCN/WWF Elephant Survey and Conservation Programme—part-funded in this case by the New York Zoological Society.

The elephant twins are of course incidental in the saga of Manyara, but have provided an interesting diversion from the main study—and considerable amusement—for the researchers. Here ORIA DOUGLAS-HAMILTON provides a detailed photo-report.



The twins mother Bahati with Ramadhani (centre) and a visiting calf, Pili

SOMETIME during the second week of August, 1976, a young elephant gave birth to twin male calves in Tanzania's Lake Manyara National Park—the first elephant twins in Africa to be followed closely by men from their birth.

Since this family is known to Iain and I, let me take you back a bit into its history, because each elephant has an interesting story.

Bahati, formerly named *Valeria*, is the mother of the twins and was the eldest daughter of a one-tusker, *Jezebel*, the family matriarch.

Ranking closely to her was another one-tusker named *Curie*, who may very well have been Jezebel's sister. Then there were *Hera* and *Iphigenia*—and these four females together with their calves formed a family unit known as "JEZ-F.U." Jezebel's family was, incidentally, part of the kinship group of *Boadicea*, who was a principle character in our book "Among the Elephants".

In 1974, Jezebel disappeared, presumed killed, leaving Bahati, aged 12, and her brother *Nguroko* aged eight—and since then, several changes have taken place in "JEZ-F.U."

Curie, who has two sons, aged 10 and five, and a daughter named *Pili*, now seems to have taken over the leadership. She's a restless female who constantly pushes other members of the group around—so much so that Bahati tends to keep her distance and Iphigenia often leaves the family altogether, almost certainly because of Curie's aggressiveness.

Hera who was named after a jealous Greek goddess because of her unexpected charges, remains with Curie and has now calmed down considerably. She is the only other large female in JEZ-F.U., with a ten year old daughter *Yusta*, and a young son of about five however she has no milk.

Since the birth of the twins, Curie's family has been closely watched by a ranger, Mhoja Burengo, who worked for five years with us on the Manyara elephant project maintaining the study through the Rangers' Training Scheme, a new initiative in Tanzania National Parks.

Working with Mhoja, under the general supervision of Manyara Warden Benjamin Kanza, is a young student from Harvard, John Scherlis, and together they are re-cataloguing, naming and following the 27 family units whose composition and structure were fully known in 1970.

While John makes detailed sketches of their ear outlines for the recognition files, Mhoja names or re-names each elephant. Valeria, as mentioned, became Bahati —"luck" in Swahili—and Hera became *Mama Kali* (fierce mama!). Thus from Scottish Queens and Greek goddesses, the elephants became properly Tanzanian.

The birth of the twins brought great excitement to Manyara—and Tanzania generally through the local Press. They were born during the moslem festival of Ramadhan, and so Mhoja named them *Ramadhani* and *Rashidi*.

A "marching order" between the twins was soon established, with Ramadhani sticking closely to his mother's heels and Rashidi ambling behind him.

Ramadhani, who is slightly smaller than his brother, has a crook in his tail, and since both their ears are smooth, round and flat, their identification cards show the sole distinguishing features of two tails!

When they were first seen on August 20th, they were so small that they could hardly reach their mother's breast, and at one point Ramadhani had to stand up on his hind legs until he was able to hold onto the nipple firmly, drop down and with a very stretched up neck, suck for all he was worth.

Despite his smaller size, he pushes his brother around and, protesting with strange elephantine shrieks, Rashidi often gives way and moves off. This may have established his more secure and dominant position next to his mother.

However, the twins do play together, but mostly in the cooler hours of the afternoon—twirling trunks around each other, pushing and pulling and falling over. Even so, they seem much less playful and look weaker than other babies of the same age.

Two factors which are making life much more difficult for them are the present drought and very hot sun, and the unfortunate composition of the family, with no other wet-nurse available—other than the temperamental Curie. The only help and comfort Bahati gets is from Hera's teenage daughter, Yusta, who looks after and plays with the twins.

Curie tends to kick the twins when they come near her, and she will certainly not allow them to suckle. On the other hand, Curie's calf will quite often suck from Bahati, when she goes over to play with the twins. That means, of course, that Bahati must provide enough milk for three.

If there is any justification for the name "Luck", it is because if Curie had not had her baby in April, slowing down her movements a bit, Bahati's twin babies might not have been able to keep up with the restless fast moving matriarch. In this



The twins Ramadhani and Rashidi

event, they could not have survived.

In mid-September, when the twins were only a month old, "JEZ-F.U." very nearly lost Hera.

During a normal foot patrol near Ndala in the Central region of the Park, Mhoja and another ranger, Dennis, heard the noise of breaking bushes and galloping hooves on stones at the bottom of an escarpment. They then saw buffaloes stampeding into an acacia forest leaving a line of dust behind them.

Mhoja knew something was wrong and ran towards the escarpment to be confronted with elephants running down the same path, trumpeting with heads low and tails high in the air, as they crashed through the bushes in a state of panic.

He recognised Curie, closely followed by Pili and her elder son. Then he noticed Hera running but staggering from time to time.

She had a big red wet patch on her side and was being helped by Yusta and her young son Kali, who seemed to be holding her up each time she faltered.

A little way behind them ran Bahati and the twins, all heading for the safety of the acacia woodlands.

Mhoja followed the family and as they came to a stop, he saw that Hera had a big wound on her side and that Yusta's trunk and face were covered in blood. She was touching the wound and stood very close to her mother who was losing a lot of blood and still seemed very unsteady on her legs.

Mhoja and Dennis followed the trail of blood some way up the escarpment, and soon found the two poachers who had come right into the park, and had placed themselves in the safety of a tree and speared Hera as she went past. Fortunately, the spear went high in her back. The poachers fled as soon as they saw the rangers.

The rangers ran on up the hill, until they came to a small village where the poachers tracks led directly to two huts, but were told that no-one was inside and that the owners of the huts had left.

Mhoja and Dennis returned to base, reported the incident to HQ, and then for the next two weeks went with John Scherlis in search of Curie and particularly Hera.

But Curie and her family had vanished into the safety of the thickets of the southern sector of the park, and hid in Endebash for over two weeks, during which time Hera recovered.

At the beginning of October, the family "JEZ-F.U." and the twins re-appeared at the Bagayo river.

Hera's wound had healed, though it was still swollen and slightly damp, and she still looked quite thin. The twins were well, but looked undernourished and tired as well.

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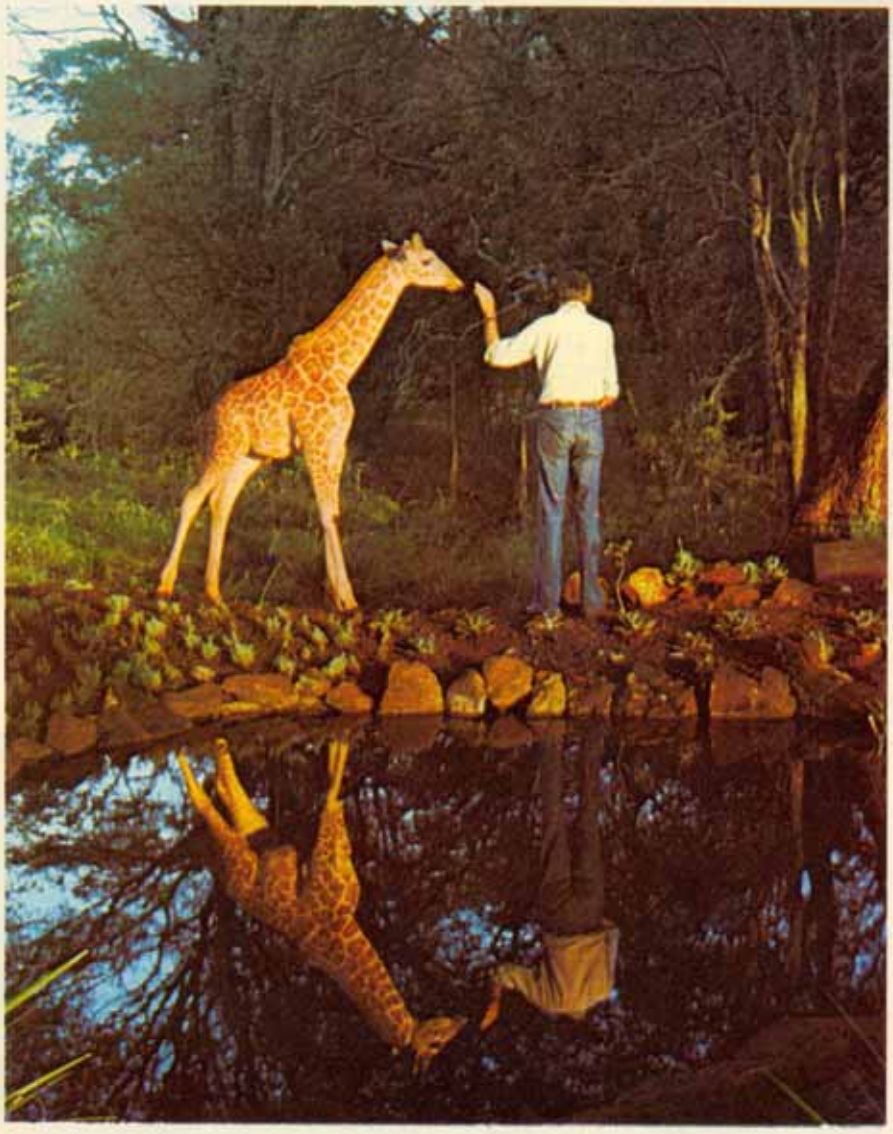
Curie's family disturbs a disgruntled hippo.



FUND-RAISING TO RESCUE THE ROTHSCHILDS

by
Betty and Jock Leslie-Melville

JOCK and BETTY LESLIE-MELVILLE are authors, lecturers and TV personalities in the States, and safari operators for Percival Tours in Kenya. They are also giraffe benefactors, *having just raised more than $6,000 to move an endangered herd of the rare Rothschilds sub-species to the sanctuary of Lake Nakuru National Park. The operation is scheduled for early in the new year with the Leslie-Melville's working with trapper Tony Parkinson and Kenya's Ministry of Tourism and Wildlife. But there is still a need for funds, and donations would be much appreciated—c/o "Africana", with cheques made out to the "J.D. Leslie-Melville Giraffe A/c."*



THERE has been no shortage of advice: "Get a team of crack shots with dart guns to sneak up on a herd and tranquilise twenty of them in a single salvo," one enthusiast told us, "then load them into three or four large trucks—squashing them up tight like cattle so that they don't fall over—and let them out four hours later in Nakuru—it shouldn't take more than a day and would hardly cost a thing. Don't bother about permission or anything—just do it."

The telephone rings again, a girl this time. "My film friend and I have had a fantastic idea. Get the G.S.U. (Kenya's paramilitary force) to stop the traffic on the road for the hundred miles between Soy and Nakuru and drive the entire Rothschild herd along it." (This adviser was not joking but relaying a carefully considered plan.) "At night they could encircle them in a patch of bush or trees so that they could feed. At twenty miles a day it would take five days and be a great training exercise."

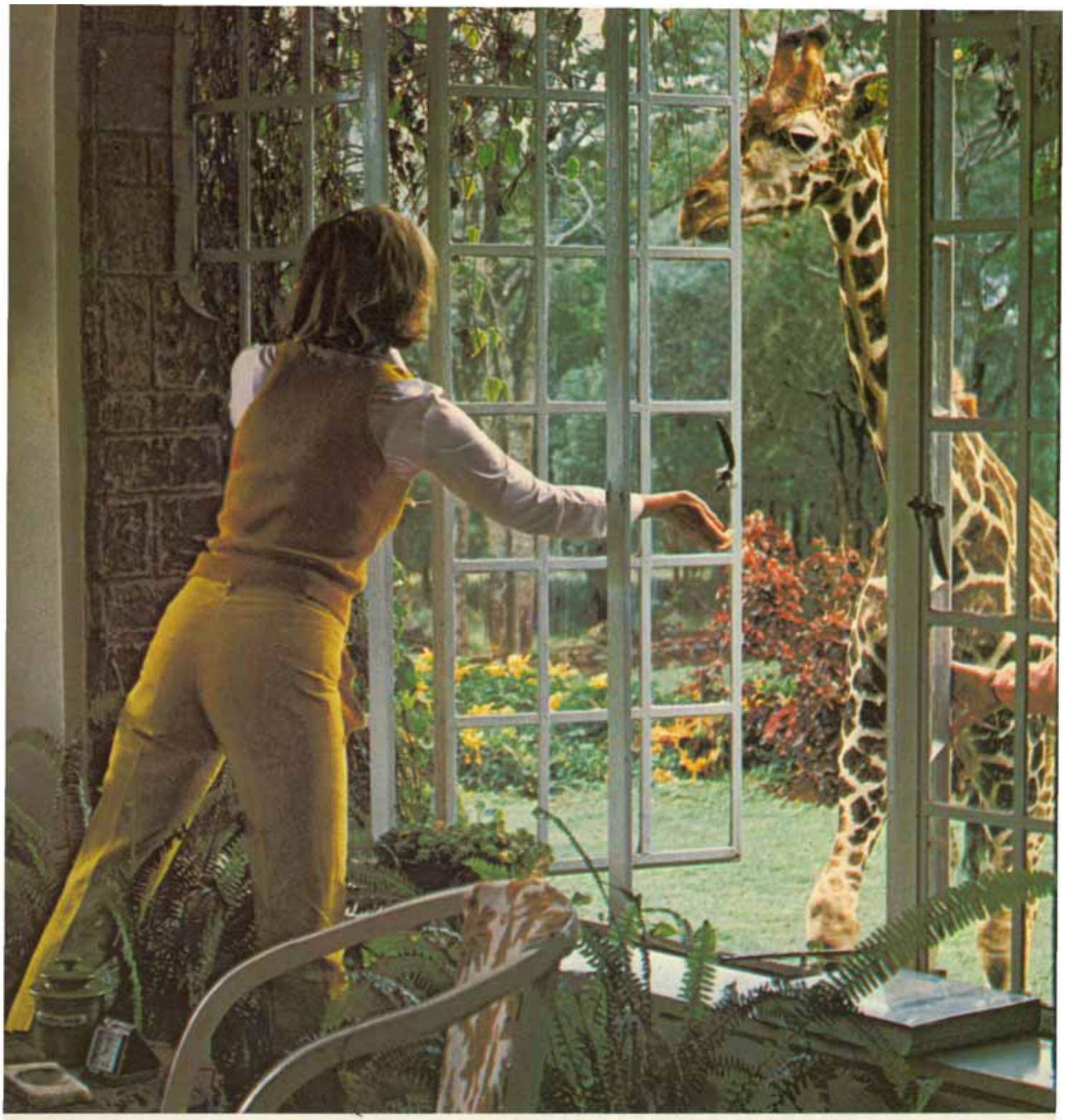
Since giraffe cannot be moved like cows—they will break through any cordon and have been known to jump clean over cars to get away unless you can somehow persuade them that you are driving them to where *they* want to go—we didn't think the main road idea too practical, but the master planner persisted. "Well, drive them across country then." Wet blankets that we are, we pointed out that there were actually farms and fences and forests and standing crops and railway lines—petty annoyances like that—between Eldoret and Nakuru.

To be fair, though, on a smaller scale such a driving operation *was* attempted fifteen years ago with the object of moving about forty Rothschild giraffe from the McCall farm at Kitale to an adjacent valley where there were other giraffe living in a wild situation. Local farmers with polo ponies and retired racehorses joined thirty tribal police from the Northern Province mounted on Somali ponies, and for two days they wheeled and circled and charged the luckless giraffe, galloping after them over the rough terrain sustaining broken collar bones and cracked skulls, until they had succeeded in pushing the herd down a steep escarpment to the safety of their new sanctuary. Men and horses dragged themselves home to recover from their wounds and the following morning the entire giraffe herd, plus several more who had joined them in the valley below, had all clambered up the escarpment again and were happily destroying things around the farm as usual.

It is generally accepted that the Rothschild are a sub-species of giraffe falling somewhere between the Reticulated

Rothchilds

Pictures: by Betty Leslie-Melville



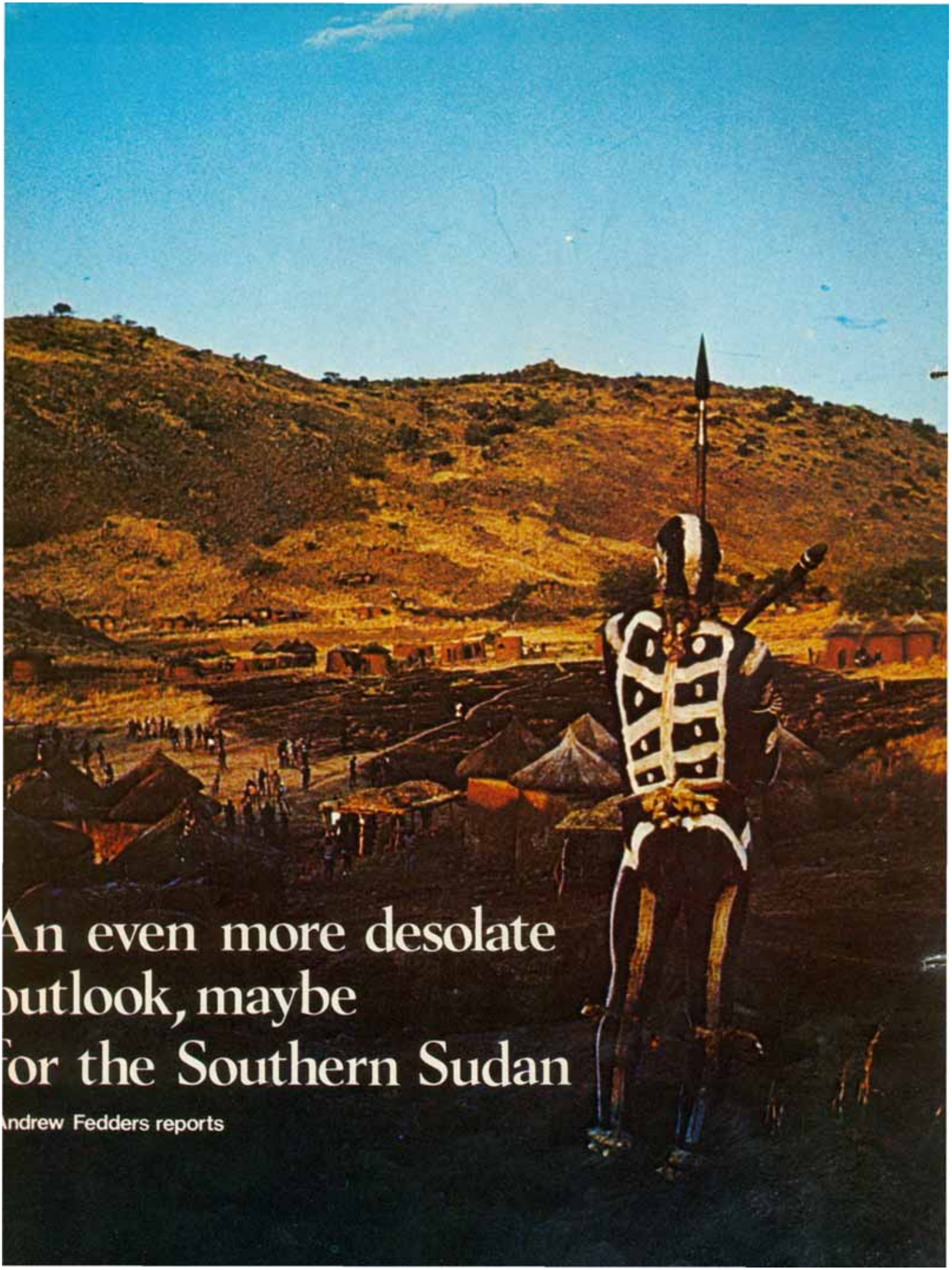
Picture: by GORDON

and the Maasai, and their characteristics include light coloured socks and the development in older males of two extra "horns" behind the main horns, which together with the prominent frontal bump has sometimes led them to be called the Five Horned Giraffe. Originally they could be found from Baringo (where a sharp eyed member of the renowned banking family on safari seventy years ago first spotted the differences and generously imparted his name) right up into the eastern part of Uganda, but as agriculture developed in the Uasin Gishu and Trans Nzoia they were either wiped out or trapped in little enclaves on farms. By the late 1940s the only significant concentration remained on Alexander Douglas's ranch which lay between Eldoret and Soy.

The Game Department in those days was in a dilemma (nothing ever changes) because while they wished to preserve them there was no mechanism then to compensate farmers whose crops and fences were damaged by wild animals, and their only recourse therefore was to shoot the offending beasts when complaints became too strident. In the end old man Douglas and an even more elderly Col. Swinton-Home, who was the Game Warden for the area, arrived at a pragmatic formula whereby Douglas would buy the giraffe on his place for Shs. 10/- each and it would then be up to him to argue with his neighbours about damage. Douglas loved the giraffe and was determined to preserve as many as he could, not caring that they made his ranching less easy. When he died he left the place to his daughter Delia and she and her husband David Craig have sustained the Rothschild herd until the present day. Now the ranch is to be sold to 600 settlers and co-operative farmers and there is no way that agriculture of that kind can be done in harmony with giraffe.

Government has been aware for some years that a hiatus would ultimately arise and an ecological survey of Soy and Lake

Continued on page 22



An even more desolate outlook, maybe for the Southern Sudan

Andrew Fedders reports

JONGLEI is just another small village in the southern Sudan, but its name has been appropriated for a potentially great ecological and social disaster—the Jonglei Canal Project. What makes Jonglei village significant is its convenient location by the Bahr el Jebel, where the main channel of the river curves away to the west, and its proximity to the central swamplands of the Sudd. It is an ideal departure point for the Canal Project. What makes the Jonglei Canal Project significant is the subject of this paper.

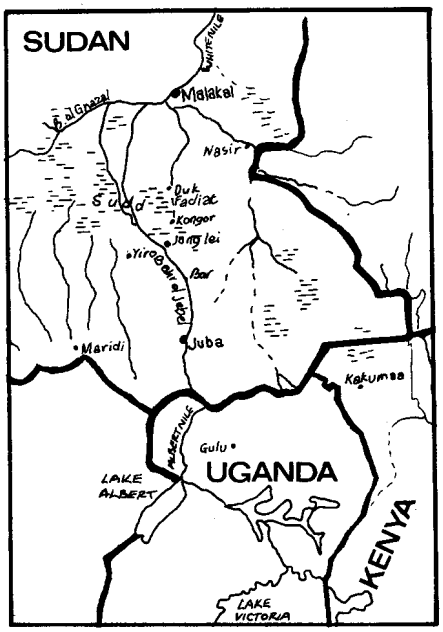
The Sudd is a vast papyrus swamp. It is a unique inland sea of primordial ooze, of Nile and other river waters, of prolific masses of floating and choking accumulations of vegetable matter, of flocks of birds as dense as clouds of mosquitoes, of a profusion of fish, of strange reptiles and mammals. The swamplands are home to the many peoples who nurture their cultures within them. The Sudd, then, is neither wasteland nor land wasted; it abounds with life.

It is more than the permanent swamps. It encompasses flatlands and depressions liable to flooding and sandy ridges which rising waters transform into islands. The area of the Sudd swamplands varies with the seasons, sprawling across a maximum of between eighty and one hundred thousand square kilometres during July to November, the wettest months, the time of overflowing and flooding, and shrinking to a minimum of some twenty thousand square kilometres during the dry months. The waters rise and fall in an ancient rhythm, and the flora and the fauna—including man: the Dinka, the Nuer, the Shilluk and others—of the region have adapted to and live with this measured flow and flood and ebb in harmony.

To outsiders the Sudd has always been an Obstacle. It discouraged two centurions dispatched by the Emperor Nero to search for the source of the Nile. It continued to discourage explorers and travellers for nearly two thousand years thereafter until eventually Sir Samuel Baker succeeded in hacking his way through. An Egyptian expedition also succeeded in 1874, and another in 1880. But it was only early in our own century that British engineers led by Major Malcolm Peake created a permanent channel.

The idea of building a canal so that the Nile would bypass this riot of inconvenient vegetation—of rearranging the river and nature, was first proposed in 1897.

Then, starting in 1904, the Egyptian Government initiated serious studies of the Equatorial Nile. Surveys were made and data collected. A summary of the studies was compiled in 1946, and plans to control and regulate the Nile from Lake Victoria on down past the Sudd were presented. In the same year the Egyptian Government submitted these proposals to the Sudan Government for consideration, and the Governor General of the Sudan established the Jonglei Committee and the Jonglei Investigation Team whose task it was to inquire into the effects of the proposals on the interests of the riverain inhabitants. The Investigation Team completed its task in 1954 and presented its findings and recommendations in a report called "The Equatorial Nile Project and its effects on the Anglo-Egyptian Sudan." The Nile Water Agreement



followed in 1959. According to this the Sudan and Egypt were to co-operate on future projects and in the sharing of Nile water. Then, however, the civil war in the Sudan dispersed the committees and shelved their proposals and plans.

So much for the abbreviated background of the Jonglei Canal Project. What of its present status? After the cessation of hostilities in 1972 the committees reassembled and their proposals and plans reappeared as immediate threats to the Sudd and its inhabitants. Works—on pilot irrigation schemes, for example—are already in progress. By far the largest of them, the actual construction of the Canal, is scheduled to commence in 1977.

Old proposals have been revised and the plans are now more modest. The diversion/drainage/navigation Canal will be about three hundred kilometres long, beginning at Jonglei vilage in the south and running to the mouth of the Sobat River in the north. It will be fifty-two metres wide and four metres deep. It will have a capacity of twenty million cubic metres of water a day (in contrast to the originally proposed fifty-five million). And the rate of flow will be 0.95 metres per second.

A smaller canal for irrigation will be excavated parallel to and on the western side of the diversion/drainage/navigation Canal. It will have a capacity of five million cubic metres of water a day. Ultimately it will serve a projected two and one half million acres of agricultural land.

An all weather ramp road will be built along the eastern bank of the Canal.

Advantages

Those are the basic facts about the Jonglei Canal Project supplied by the Sudanese. They tell us what the Project is. The Sudanese also supply a list of "advantages," telling us what the Project is meant to accomplish, what its intended benefits are. These are summarised as follows: "(a) needed water for development in the Sudan after 1980 will be provided by the canal, (b) the project will provide and accelerate major economic and social development in the Southern Region through the financing of mechanized mixed farming . . .; (c) the project will provide cheap and short communication routes by river and road. . . ." Then "(d) the perennial problems of floods and bad drainage system . . . will be solved by appreciable reduction of the river flood levels through drainage of about 15 per cent* of the excess water into the canal; (e) opportunities of more pasture lands in the dry season will be available for a growing cattle population in the area; (f) clean and sufficient water of the canal will be available at all times. . . ."[1]

We now know what the Jonglei Canal Project is and what it is meant to accomplish, what its intended benefits are. But what about the environmental and social effects of the Project? Will the Project "result in extinction of livestock, disappearance of fish for a long journey into Egypt; migration of wildlife, the introduction of the desert into the area, in the evacuation of the populations in the area and their resettlement in far distant areas?"[2] The Sudanese themselves have asked at least some of the right questions, but I, for one, am not satisfied with the answers, and by the absence of evidence to support them. Sweeping assurances are not as convincing as a few concrete facts.

Yet we are not given facts about the possible effects of the Project. Instead, we receive assurances based on unfounded optimism and wishful thinking:

> The fish will be there for anyone to exploit; livestock will be there and will probably increase . . .; none of the geographers I have consulted has confirmed the stories of the desert springing up from there in the Jonglei area to replace the sudd; the crocodile, hippopotamus, nile monitor will probably remain—if they wish. Antelopes will still continue to drink from the banks of the Nile.[3]

There is, however, the astonishing admission that "Wildlife will, in the end, be reduced, because of the pressures of modern development and human population increase."[4] That is indeed predictable. Little else is.

According to Mr. Peter Hayes of the Environment Liaison Centre in Nairobi, "no real environmental assessment has been done, only 'cosmetic' research." Incredible. Worse, what research has been done has been concerned with questions such as the amounts of D.D.T. that will need to be used! That puts those of us who are opposed to the Project in the same spot as those who are its proponents: we lack the facts which a proper environmental assessment could have provided. But we do have recourse to common sense and, to some extent, to the examples of past projects.

Let us consider the hydrological and climatological aspects of the Project first. The Sudanese and the Egyptians reckon that the Canal will conserve water now lost through evaporation. Common sense dictates that the issue is more complex.

> Calculations show that about 27 milliard (10^9) cubic metres (that is 27 Km^3!) of water enter the swamps but only 14 milliard m^3 emerge. This means that 13 milliard m^3 are 'lost' through seepage and evaporation/transpiration. It is not known as yet exactly what happens to this water, but what is certain is that the evaporation (estimated at 7 milliard m^3 . . .) will fall somewhere as rain, and that the seepage (6 milliard m^3) flows into the reservoir of the underground table and will emerge somewhere. It is almost certain that this contributes to the fact that wells are

30% is a more accurate figure.

Continued on page_16

LEFT: The Nuba—by Leni Riefenstahl who recently produced for Collins two magnificent books on the people of the Sudan—to be reviewed in the next issue of Africana

Perhaps UNEP's Mustafa Tolba and others should think again before meddling with the Nile.

unexpectedly shallow in North Sudan (and it is thought possible that ground water as far as the Sahel zone may be effected).'[5]

And naturally the possibility that rainfall in the Sudd itself will be reduced is very real.

Hydrological and climatological changes will have an inevitable effect on the ecology of the Sudd. If, as some experts think, irrigated agriculture has a higher evaporation rate than existing marshes and pools, then the effect on the ecology may be catastrophic indeed. A chain-reaction in the eco-system could be rapid—and irreversible. From the insects which will no longer breed to play their roles as links in the pollination chains to the elephants which will lose their dry season grazing, the life of the Sudd is bound to suffer. Fish will be dispossessed of their breeding grounds, the pools, and migrating fowl of a waystation. The very swamps themselves may suffer death by desiccation.

Then there is the sociological aspect. What will happen to the people who inhabit the swamplands? Their societies, economies and cultures are primarily pastoral, though they do engage in agriculture. Deprived of seasonal flooding, their grazing grounds will become barren. No fresh growths of grasses will spring up to replace the old. Their migratory routes will be broken by the Canal and the irrigation schemes, causing conflicts over grazing. If not resettlement, then at least settlement will be forced upon them. Perhaps as many as three million people will be affected and their societies, economies and cultures significantly affected.

The people will not even imbibe the benefits of "(f) clean and sufficient water." Swamp drainage will not reduce the breeding grounds of bilharzia and malaria carriers. Apparently "swamp drainage and associated irrigation provide more favourable habitats for these parasites for the simple reason that the water is better oxygenated and more stable in its regime."[6] The Sudanese should know this from the Gezira scheme; "bilharzia was virtually unknown but became widespread a few years after the inauguration of the scheme."[7]

Swamp drainage will have another effect on the health and well-being of the people. Their customary diet during the dry season consists mainly of fish. The loss of the pools will result in the loss of a source of nutrition.

What is most important is that no traditional pastoralist to whom I have spoken on my visits to the southern Sudan wants any part of this Project or its intended benefits. Two years ago I was at Bor, not far south of Jonglei. I was there to set up a safari camp for a small group of scientists. The police insisted that I park our vehicles inside the station compound at night. When I asked them why they replied that otherwise the local people would burn them, because they suspected us of being associated with the Jonglei scheme!

But opposition to the Project is not limited to the traditional pastoralists in the so-called bush. In October of 1974 there were riots in Juba, the capital of the Southern Region. They lasted for three days and the cause was the Jonglei Canal Project.

Given all this opposition, not only by environmentalists but also by so many of the southern Sudanese themselves, why is the project being pushed forward with such force? Who wants it? An official spokesman says "although the Regional Government did not initiate this project and is not financing it, I wish to say that although this is a Central Government project, the Regional Government supports it and stands for it."[8] Right. The Governments, both Central and Regional, shed the stigma of "underdevelopment" and acquire a prestige development project. Moreover, by constructing a prestige project in the Southern Region the Central Government hopes to appease the inhabitants of that region for all those years of armed hostilities, and not so benign neglect.

Who else wants the Project and will gain from it? Foreign entrepeneurs want it and will gain enormous profits from it. The two main companies involved are the Compagnie de Construction Internationale and the Compagnie Francaise d'Enterprises. There are other less important groups involved.

Prestige and profit, a formidable pair. Who has the necessary power to oppose them? Obviously environmentalists do not. Neither do the inhabitants of the Southern Region. Who does that leave? It leaves the neighbouring countries. The O.A.U. Charter requires that all surrounding countries be officially advised of any project that could effect them adversely. This, insofar as I know, has not been done. Yet the Jonglei Canal Project will effect the entire Nile basin and the eastern Mediterranean Sea. Kenya could dry-up from Ethiopia down to the slopes of Mt. Kenya—and yet the Sudan and Egypt have kept the construction of the Canal a bilateral act.

I am not surprised. The two countries are overwhelmingly committed to the Project. They will employ all their influence to protect it. When I went to the offices of the United Nations Environment Programme in Nairobi in search of information—any information—about the Jonglei Canal Project, a secretary did her very best to assist me. No one else did. One of the two officials who was supposed to be knowledgeable about the Project flatly refused to see me (the other official was vaguely "away"). There was no printed material available. Later I learned that the present head of UNEP is an Egyptian, and that "*there is one hell of a political fight in progress.*"

This is the time, the last chance, to join the fight against the Project. Kenya may well suffer from its adverse affects, and Africa will be poorer for the loss of the Sudd and the flora and the fauna and the cultures within it. Moreover, there are alternatives to the Project: utilization of the natural irrigation resulting from seasonal flooding; the fisheries potential of thirty thousand tons annually; wildlife management and game cropping; pulp production from papyrus and other plants; methane gas and fertiliser production from floating plants; and many other productive and practical development schemes requiring only imagination and a respect for the environment.

No one begrudges the Sudan and Egypt their desire for development programs, but not at the cost of a potentially great ecological and social disaster that will not only affect them but will also affect their neighbours.

NOTES

1 **H. E. Sayed Abel Alier,** Statement to the *People's Regional Assembly on the Proposed Jonglei Canal,* Executive Organ for the Development Projects in Jonglei Area Publication No. 1 (Khartoum, January 1975), p. 18.
2 **H. E. Sayed Abel Alier,** p. 13.
3 **H. E. Sayed Abel Alier,** p. 14.
4 **H. E. Sayed Abel Alier,** p. 21.
5 **Environment Liaison Centre,** *Transnational Environmental Implications of the Jonglei Canal Project in South Sudan* [working draft] (Nairobi), p. 2.
6 **Environment Liaison Centre,** p. 5.
7 **Environment Liaison Centre,** p. 5.
8 **H. E. Sayed Abel Alier,** p. 21.

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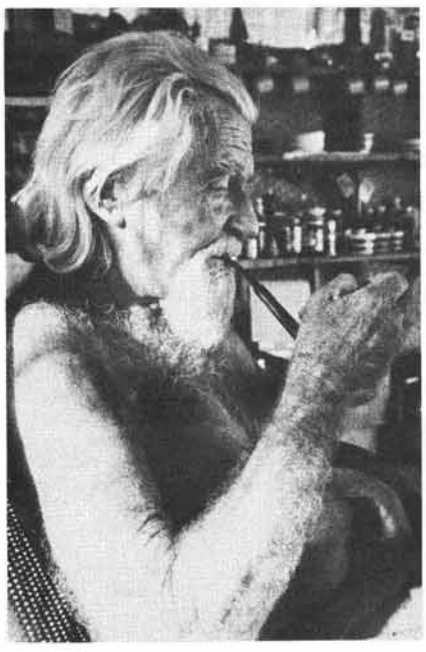
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Anthony Pearson reports a grim verdict from George Adamson

KORA IS DYING



THERE was once a breed of men in Africa who were many things in their lives—adventurers for the most part, but entrepreneurs, wits, cycnics, and some say, fools. But they were never quite that even if they cared so much about some things that they appeared to be fools. Now they are an anachronism. But so are the things so many of them cared for. The animals which brought the men to be hunters and then game wardens and provided them with meat and sometimes sport on the crazy treks into nowhere to look for nothing, are dying and dead.

George Adamson is such an anachronism. He admits to it reluctantly but he has been in Africa too long and seen too much to pretend that it is not true. He has almost too many wildlife years to remember but he can sit in the dark evenings at the table under the Tilley lamp in his boma at Kora Game Reserve and gloat because he is lucky to have memories of Kenya when it was fresh and wild and so lovely it captured too many hearts forever too easily. Anyway, what else can he do but remember? There is nothing else left.

In five years, Adamson says, Kora Game Reserve for which he fought so hard and for which he is still fighting, will be dead. That is unless the Kenya Government takes rapid and powerful steps to issue legislation for the area of 500 square miles and then rigidly enforce that legislation. The game at Kora has been decimated by poachers and the intrusion of tens of thousands of Somali cattle and camels which have destroyed the already meagre grazing while their masters have scorched the land to build their bomas and push their herds to the Tana River.

Kora is bleak enough but once it teemed with elephant. Even ten years ago the herds roaming the arid plains country numbered hundreds of animals. Now they are in fives and sixes, mostly calves and cows and even they are hard to find. Adamson told me he could search day after day without seeing elephant spoor, even along the old favoured grounds by the

Continued on page 18

Tana. The elephants have gone to the poachers, their ivory hacked away for Nairobi curio dealers or to be carried east across the Somali border. But ironically, the Somalis are no more to blame for the devastation of Kora than the Wakamba. For every beast falling to Somali guns, two fall to Kamba arrows. But for some reason it seems to be more provident to blame the Somalis who come each year in greater numbers and with greater arrogance and many of them say that soon they will be coming to take the land for themselves forever. They've been saying that for years, of course—but now the sentiment must be echoed by their new political friends in Hargeisa surely?

Too old to care

But George Adamson is too old to care much about the politics of Somalis. He cares for his lions—there are seven of them at his camp now—and he cares for his game reserve which he tries to maintain without any official support other than a warden and ten scouts armed, between them, with a shotgun, an ancient British Enfield .303 and a .375. They are a brave little group who patrol the 500 square miles of Kora with their useless armament knowing that any time they could meet a Somali poaching gang armed with automatic rifles and machineguns. Sooner or later unless this ranger force is reinforced with men and the means to uphold the law, there will be a confrontation which can only end in a disaster for the askaris. They, too, could be victims of poachers' greed and administrative neglect and stupidity.

If Kora is not given legislation and physical support of the law very soon, George Adamson feels his work there will have been in vain and that there would be no point in going to some other place and starting again. A man who has accomplished so much, not only with lions but with the conservation of game generally, is almost on the point of giving way to the weariness he feels after too many battles against too many fools and their greedy promoters. He is sick, he says, of the useless slaughter of game which increases in tune with the rising flood of tourists and their simple but selfish need to buy so many curios provided by too many poachers and corrupted, privileged officials.

"The temptation to give up is always then" says Adamson. "I go on because a few people are truly concerned and try to help. But in another 20 years if things go on as they are doing presently, there will be nothing left in Kenya. The game will be dead, wiped out just as it was in South Africa.

But in Kenya, even the game reserves will be destroyed, he says. The poaching is so widespread and little is done to stop it because there are too many greedy people benefiting from it. Then the Somalis are slaughtering game trying to turn this country into an empty desert just like their own country. No one cares enough anymore but when it is all finished I will be long gone too so I won't see the end, thank God."





No Leopard

George Adamson had and still tries to create a project to reintroduce leopard into the Tana River area. But in the present state of things the plan has little hope. All the leopard in Kora have been trapped out. Not one animals is left. The lion have managed a little better but only because Adamson has been there to help them. Even so he thinks there are no more than 30 in the whole Kora area and those few have to struggle to survive except when the Somali herds come and the killing and feeding is easy. It is the one small benefit Kora could claim from the swarming invasion of the Somalis.

They had left at the time I spoke to George, but it is already almost too late. The damage is done. Also they will be back, Adamson says, to repay the Wakamba for the raids against their bomas when they were in no position to raid back. They will come with their guns very soon to steal Kamba cattle, kill herders and then take what game loot they can on their way out. The Kenya Government has neither the force to oppose them—nor seems to have the inclination at present.

"I will stay here as long as I can be of help" George Adamson said, "but I am afraid I do not know how long that may be. I cannot and will not start any more projects without Government support; and I'm sickened by the destruction. It's nearly all over for me anyway, but I wish with all my heart that the country could go on and on. I'm an optimist, but I fear that my hopes are really only a dream".

The 'Pokot' from Beverly Hills

ELIZABETH MEYERHOFF is 25 years old, from Beverly Hills, California, and formerly a protegee of the late Louis Leakey, working with him at the National Museum on ethnography. Now she is living among the Pokot tribe of Kenya, sharing their tough life-style and preparing a thesis for Cambridge on "The Role of Woman Among The Agricultural and Pastoral Pokot." She is funded partly by the Leakey Foundation.

by ELIZABETH MEYERHOFF; photos: MURRAY ROBERTS





"CHEMUCHUKWO" she said, "are you going to the valley to buy meat?"

The sun had not yet risen over the hill, and although the idea of meat was very appealing I did not feel like moving that instant. I asked Chesakut what time they would start dividing the meat and she pointed to the sky saying "*teno asis*" ("like this, the sun."). There was still a good two hours.

Chesakut and her two younger siblings continued on their way quickly, knowing that their father would be angry if they were not on the shamba early. He had been there all night fending off the small animals from the nearly ripened maize, and it was now the children's turn to keep guard—this time against the birds.

Cherop, the youngest, quite enjoyed making mud-balls with her friends and then giving them to her brother to fling from the end of a stick at the birds. The children had made it a game, competing in aim and distance, but after twelve hours it became tiresome and boring.

I continued my work at my own pace; removed the stones covering the coals from last night, made the fire, and put the *towut* (clay vegetable pot) on to boil.

Looking outside the world around seemed brown, the greens so widely dispersed to have turned yellow from a distance. The sky was clear and the air already warm. I wondered about Siwareng's words, when the old man cynically smiled and said: "*If there is no rain there will be no food, and we shall all die*". Thinking back on the hours of digging with a hoe, weeding, fencing and chasing goats, the loss of the crop seemed inconceivable. But, just as the Pokot do, one learns to live by the moment, confronting problems in their daily present tense reality.

Two hours had long past when my neighbour, Kokok'siran came to the hut. She was laden with an assortment of things for the day's work. On her back was tied her *lokolo* which held two calabashes for water. She also carried her panga, and food for her husband in the shamba; his large *korop* (tightly woven basket) of *pan* (maize meal) and a separate dish for vegetables (various leaves gathered from the vegetation on the valley floor). I took my *lokolo* and some maize and we went down to the valley together.

By the time we arrived, the women from Mosol (a neighbouring location of pastoral Pokot) were carefully cutting the hanging carcass into pieces to be traded. None of the cow was wasted; the blood drunk; liver and spleen roasted for the old men; hoofs to be made into necklaces; skin for sleeping on; meat and intestines to be eaten.

Typical for Pokot, the trading interaction was anything but straight-forward. I decided to add my maize to a friend's, and together we selected and took the front leg. We then joined our neighbours in a secluded spot out of sight from the Mosol women, where they helped us decide on the worth of our meat as we measured out our maize by each pouring some into a skin bag, keeping the rest separate to hide in the bush.

When we returned, a woman had laid out her *okom* (large leather garmet tied at the shoulders) onto which we poured our maize (approximately shs 4.00 worth). She looked at our meat, compared it to the amount of maize, then separated a small amount of maize telling us to add that amount again. Everyone discussed and bargained for some time until the amount we were to add was agreed upon; four maize cobs. We added this from the maize we had hidden, while the women from Mosol tied their *sombur* (large skin bags carrying 30 lbs. of maize) to their backs. They still had a journey of about five miles across the plains before they would reach home.

It was getting late and most of the women had already begun grinding when

Continued on page 20

POKOT *Continued from page* 19

we arrived at *ghat* (large communal grinding stone). My amount of maize seemed irrelevant compared to theirs which was being ground for this evening's and tomorrow morning's meal for their large families.

However, I knew from experience that I would be almost the last to finish, never having mastered the rhythm and skill involved. In the initial step of crushing the maize I still stop, finding it difficult to add two more kernels with my left hand while simultaneously pounding it with the stone in my right hand. Grinding is the same; kneeling as they lightly brush more maize to be ground without interrupting the swaying rhythm from shoulder to wrist, even as they repeat grinding their maize for the second time.

Women meet at *ghat* just to *ama lokoi* ("eat history".) This keeps the rhythm going with a continuous flow of words, gestures and expressions, while they fix their calabashes, weave baskets, or do each other's hair by twisting it into individual strands and then smearing it with a dark oil.

The women were speaking so excitedly that it took me some time to piece together what was being said. Apparently, last Thursday afternoon, the prophet's neighbours heard him "witch" the rain. The prophet is known to be angry with the people of this area, because they have brought money and beer to his younger brother asking him to make it rain. People believe it is the prophet who has "closed" the rain, especially since we can often see it raining in the near distance and this rain never reaches our shambas.

The community has decided to take the prophet to *kokwo* (court). Everyone will go and the case will take hours to decide; the men and elders standing individually as they try to persuade others to their way of thought, first reviewing what happened and then deciding the appropriate fine. The women will sit in a group separate from the men. It would be impossible to measure the strength of their persuasion, which is done privately at home or through the gossip and rumours they spread and initiate. The *kokwo* will be held on Monday; if, as one old woman said, "it doesn't rain".

The sun was setting when we finally went to fetch water and begin our separate ways home. We were climbing the hill when Kokok'siran who was carrying her bundle of firewood on her back, simply exclaimed, *kelion* ("legs!"). Her children trailed behind her; Chesakut carrying the water, her son with his bow and arrows, her daughter (approximately six years old) carrying the baby on her back, the empty *korop* and the meat, Cherop with the maize on her head.

We reached my hut and put down our loads to rest, they still had another hill to climb. Having smelt the meat, my cat appeared whining. Kokok'siran asked if she could borrow her for five days, as the rats were eating the maize in her *topot* (ceiling used for storing grain in huts). I agreed and we put Chepusi and her dish in a bag, which Cherop happily carried off.

I began making the fire for the evening meal. A strong wind had begun and the rain seemed to be moving towards our shambas. Who knows what the power of belief entails? Instead, we only know of our need and daily struggle for survival.

MANYARA ELEPHANT TWINS *Continued from page* 11

We were able to watch them for several hours every day for the next two weeks. They moved in a set pattern along the scarp in the morning, reaching the Bagayo river between 1 and 3 o'clock to drink, and then slowly wound their way back along the shore and up onto the lower part of the scarp in the late evening.

The recent attack on Hera, notwithstanding, Curie and her family were completely unperturbed by the presence of a stripped down Land-Rover with people in it always staying very close to them. But however much they seemed to ignore us, we never stayed too long so that the twins could rest with as little disturbance as possible.

Manyara was very dry, and the bushes were stripped of their leaves by the elephants until most were only bare sticks. By nine in the morning it was hot, and Curie was usually to be found on the escarpment past the hot springs where the big Baobab tree stands out as a landmark half way down the Park. Several gulleys had to be crossed as well as the acacia woodlands before they got to water — and this would take them at least four hours.

Curie's daughter Pili, who was nearly six months old, sucked at twigs, chewed bits of grass and soft leaves, but her main diet was milk—and her mother had plenty of it. Pili was therefore strong and full of life, and during the slow walk along the escarpment, she would often amble over to play with the twins. On the other hand, Ramadhani and Rashidi were weak and slow-moving and spent most of the morning collapsed in a heap, between one walk and another, under the shade of their mother or a bush.

If they wouldn't play with Pili, she too would join the little heap and lie on top of them, where they would always be watched by Bahati who never hastened her pace and let them sleep.

Bahati's brother, still too young to leave the family, stayed near by and Yusta, the eldest daughter of Hera, stood guard or walked alongside so as not to leave the twins alone if Bahati strayed from them.

Bahati's breasts were small compared to Curie's, perhaps because this was her first birth, and I wondered if she would have enough milk for those two ever-hungry, ever-growing babies of hers, whom she would have to feed for at least five years.

They would nearly always suckle Bahati at the same time, and we never noticed any special preference for a particular side or teat. On several occasions, I saw Pili nudge her way in and feed from Bahati as well, but we never saw either of the twins being fed by Curie. Sometimes they would try to suckle Yusta or even odd teenagers who would come and visit them.

One day while we were watching the family moved from the shade of one acacia tree to another, at times only a few yards away, and each time they stopped for a while, rested and kicked cool earth onto the cupped end of their trunks to throw over themselves. The twins were just beginning to learn how to loosen the earth with their toe nails and how to suck up dust in their trunks then blow it out again flicking the trunk back and forth.

Ticks seemed to cover all the elephants at that time, probably because nearly all the mud-holes had dried up and so the family couldn't have a good wallow and thereafter rub themselves against trees and ant-hills to squash the ticks.

The twins seemed to be always scratching themselves. A couple of times I actually saw them both rake the inside of their left leg with the flat of their right foot like a dog. At this age he's a rubbery, nimble little animal and will not long be an elephant with the facility of putting a foot onto the back of his head!

By the time the twins were near the Bagayo river, the sun was overhead, heat waves lifted from the ground—and Curie hurried her family onto the well-trampled elephant path right up to a pool under the shady trees.

The twins followed at the end of the line, heads and trunks down, tired and hot, and with eight little feet padding as fast as they could go.

Curie and her family waded up stream to get to the clearest water when there was a great splashing noise as if an elephant had fallen into the water. But out came a huge hippo splashing and snorting and looking rather perplexed.

Bahati did not take her twins up-stream, but instead found a gentle slope with shallow water, where she and her babies could drink—a serious business for them, and highly amusing for us.

As soon as the twins got to the edge of the water, they put their trunks down, but obviously had not acquired the technique of sucking up water, and lifting the trunk to let the water trickle into their throats. Instead they flicked their trunks back and forth to no good purpose, and walked into the river until they were completely submerged, drinking with their mouths as they went in. All we could see were four little eyes peeping above the level of the water and two round grey heads looking like the tops of rocks.

Rashidi actually managed to keep the tip of his trunk out of the water so he could breathe, but Ramadhani was less capable. We saw a big bubble pop up in front of his eyes; then the trunk jerk out of the water for a quick suck of air, before it plunged back again as Ramadhani resumed his submarine refreshment.

One day after drinking at the river, the family stopped under a tamarind tree to rest and dust themselves. As also happens at these moments, the elephants defaecated and settled down for an hour of siesta. Whereupon the twins began eating from a fresh round of dung — the first time, incidentally, I had actually seen them picking up any form of food with their trunks and putting it into their mouths.

We have witnessed this "coprophagic" behaviour several times in the past and it may be that young animals eat fresh dung as a means of introducing intestinal bacteria to their gut which will be essential for their digestion.

In the evening, one could usually find Curie and her family on the lakeshore eating the alkaline grass and intermingling with many other families. Elephants are always much more playful and less nervous in the evening, maybe simply because it is cool and they have eaten and drunk their fill.

At this time, youngsters will race about from one family to another, and even the twins are liable to be smelled, touched, playfully swiped and fondled by visiting juniors and teenagers. These "social" evenings seem to be the only playful times for young Ramadhani and Rashidi — two certain celebrities who otherwise have had a fairly harsh introduction to the serious world of elephants in East Africa.

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The East African Wild Life Society, Private Bag, Nairobi, Kenya Tel: 27047. Trading Department P.O. Box 20110.

OUR AIMS AND OBJECTS ARE TO SAFEGUARD WILDLIFE AND ITS ENVIRONMENT

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THE SOCIETY'S NOTES

Compiled by Ted Norris

Further facts on Uganda s elephants

The drastic decline of elephants in Uganda published in the last issue of "*Africana*" shows a very worrying situation.

Rennie Bere, ex-director of Uganda's National Parks, said in his book "*The African Elephant*" that prior to 1963, Kabelaga and Rwenzori National Parks had about, 15,000 elephants between them. The population for the whole country was estimated at 25,000. Another estimate, by Temple Perkins put the figure at 20,000.

Rennie Bere said that over 30 years or so before 1965, the annual death toll was in the region of 1,400 animals. These were, shot on control (1,010) or for sport and ivory—250—or were found dead of natural causes (140).

In spite of this cropping the elephant population was increasing by approximately two per cent yearly; and this would have been encouraging but for the loss of land available to the elephants.

The southern sector of the Kabelega Park was the dry weather concentration area from which they spread out in a regular migration pattern. This concentration built up, becoming critical when the animals were unable to migrate due to the use of the lands for agriculture. Eventually some, 9,000 animals were confined within an area of 1,500 sq. miles. Something had to be done, calling for positive management control—and that meant the shooting of 2,000 animals. In spite of this, the numbers remained high until 1973 when the real destruction started.

Wholesale killing for ivory took over with 80 per cent of the Kabalega Park elephants being killed. Thus the problem has now taken on a completely different aspect—instead of there being too many elephants, there are, too few. If killing ceased, the population could, no doubt, build itself up again.

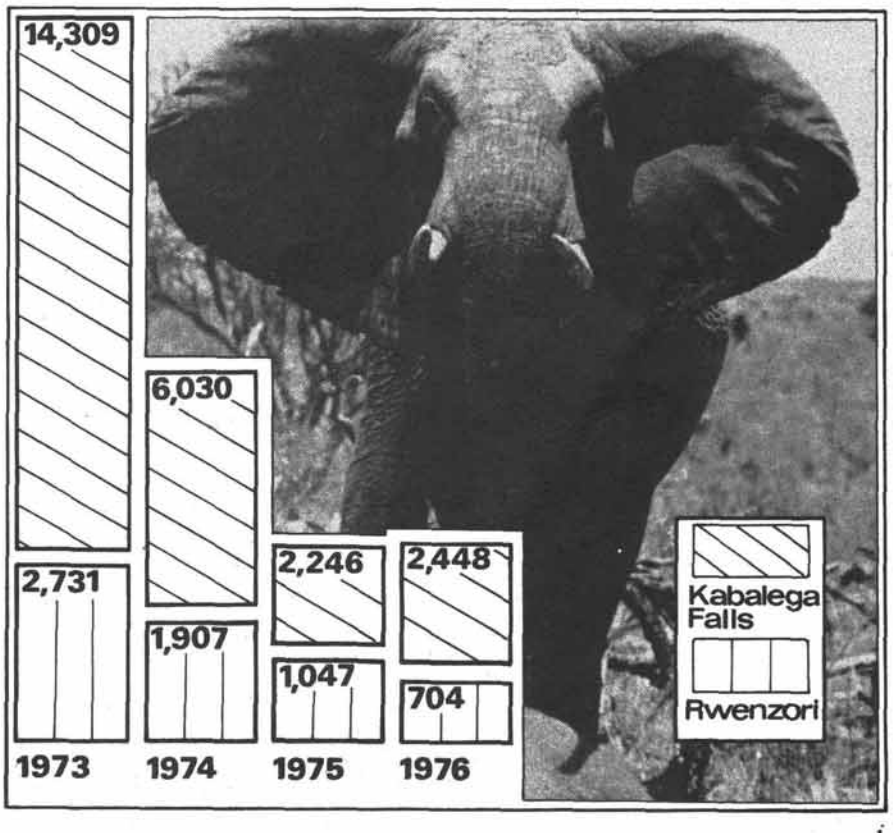
In 1905, The Kruger National Park supported 10 elephants which, in 1966, had grown to 2,000. The same happened in the former Albert National Park where, in 1931, there were 800 elephants which increased to 2,500 in 1950.

Sir Samuel Baker, in 1863, when travelling near the upper reaches of the Albert Nile saw, moving parallel to his caravan, about a mile distant; . . ."*a vaste concourse of elephant, grouped in parties of varying sizes from 10 to 100 animals, while single bulls dotted the landscape in all directions*".

This whole display was some two miles in length—but Sir Samuel, unfortunately, never hazarded a guess at the numbers he saw.

Dr. Keith Eltringham and Mr. R. C. Malpas reported on the slaughter in the magazine "Oryx". July 1976 in which they said broke down the normally well-ordered family structure. The matriarch cows, having the biggest tusks, are the first chosen after the bulls by the poachers, which leaves the family leaderless causing the young cows and calves from various family herds to group together, creating a locally high density as these animals are loathe to leave without a leader. They are now damaging their habitat, which would of course ease if they would only disperse.

This ghastly killing is bringing out so many lessons—the most important being that unless something is done immediately to bring matters under control, the future of elephants in these Uganda parks is grim.



New Life Members

The Society has pleasure in welcoming the following new Life members.

Australia
R. R. Routley
Mrs. A. M. Wise

Canada
Miss Barbara Pindar
Mrs. Jean Simmons

West Germany
Clair B. Bosshammer

Norway
Ms. Inger Marie Hakas

Persian Gulf
Mrs. N. G. Phillipson

United Kingdom
Group Captain A. Hughes

United States
Herman D. Gimbel
Mr. Colin A. Harris
Mr. David N. Hugus
R. J. Luxmoore
Mr. Keith Parsons
Mr. John C. Peace

Kenya forests report

The following is a report by Ted Norris on the Kenya Forests.

I submitted a report last year on the condition of forests to the Minister for Natural Resources—firstly, concerning the Nature Reserves:—

1. The Yala River Nature Reserve

This amounts to approximately two square miles, and we, approached it on foot from the North and from the South. We found the forest adjacent to the Reserve on the south side was being selectively felled to supply timber for the plywood factories at Eldoret and Elgeyo. Some sawing pits, I am given to understand, are now within the Reserve, which is a tragedy as this tiny forest block consists of primeval, tranquil rain forest which until now has remained untouched.

On the North side, all adjacent forest had been felled to grow maize and vegetables so, unless careful supervision is maintained, the destruction could well extend into the Reserve itself.

The Yala River Reserve is an ideal conservation area but is too small on its own to be viable for any species of fauna or flora. It is, therefore, essential that it be increased in size to cater for the unique species of small mammals and birds found only in this area of Kenya and Uganda.

2. The Forest Station Nature Reserve

This is an even smaller area of approximately 760 acres or 305 hectares—and we observed being driven through it to a large clearing for grazing. Close by the reserve, towards the pump house ravine, I found forest being cut down for the manufacture of charcoal! Once again, my opinion is that the Reserve is too small.

3. The Kisere Nature Reserve

This is an isolated area of some two square miles, and I understand it no longer exists, having been completely cut down.

Thus there are only two forest reserves left, covering 2,000 acres in isolated blocks —totally inadequate to serve the purpose which was originally intended by their Reserve status.

The only way of creating worthwhile conservation units would be to increase these two areas by adding whatever forest still exists before it is cut down.

It appears necessary that these Forest Nature Reserves should be re-classified as National Parks so that they could come under the jurisdictions of the Wildlife Conservation and Management Service to ensure their continued existence.

In Kakamega and North Nandi forests which are scientifically very valuable, inadequate ecological research has been carried out. It is possible that some new species of invertebrate or, even small mammal may be lost to science before they have been described, due to the habitat having been destroyed.

In the indigenous forest management units, selective control feeling is being carried out, but the areas are becoming increasingly smaller through encroachment on the fringes.

On my last visit, I came upon a wonderful forest being eaten into by charcoal burners and vegetable growers. Much of the timber from these areas is being extracted for transport to the plywood factories. The tractors used are causing considerable damage by creating deep ruts which allows excessive run off of rain water with subsequent increased siltation of the rivers.

Further areas are being utilised as long rotation hardwood timber management units—and in some of the older areas, which are now fully established, a representative population of indigenous birds and small mammals has built up. Here again there is the probability of incursions into the standing forest, as the practice has been to fell everything over some 24 square miles, leaving nothing except charred stumps and bare soil. This land is then given over to cultivation of maize—and fortunately of weeds since without them there would be a terrible erosion. These forest soils are extremely friable and fragile, having always been covered by leaf fall and a high foliage canopy.

When trees in these areas were felled, I understand there was no planned demarcation of boundaries physically established on the ground so, the actual size of the area is not known, nor are the boundaries!

Photographer donates exhibition proceeds

PETER DAVEY recently held an exhibition in the Nairobi Hilton Hotel, featuring the best of his photographs taken over the last 10 years on safari. Peter has twice been awarded the East African Professional Hunter's Association, Buxhoeveden Trophy, for his wildlife photographs.

All the photographs exhibited had been enlarged from 35 mm slides and superbly printed by Colour Centre of Nairobi; many of them looking as though they were oil paintings.

I was very taken with one of zebra standing in silhouette against a lovely sunset. Later in the evening, this picture was auctioned and fetched Shs. 3,500/- which, Peter very kindly donated to the Society.

The clarity of the Spur-wing Goose coming in to land on clear water showed the skill and knowledge required to obtain such a picture. Also impressive was the photograph of the cheeky lion cub perched on the top of a buffalo carcase, as the expression on it's face was so in keeping with a lion cub thinking up what evil it can get up to next.

To those of us who are amateur photographers this exhibition was stimulating and a challenge, showing what can be done by choosing your subject carefully. Let us hope it will create enthusiasm for others to follow suit in showing their pictures for all of us to enjoy.

I would like to take this opportunity of thanking Peter Davey for having put on this show and the help it has created for the EAWLS.



Presidential warning on conservation

In his Speech to the Nation delivered on Kenyatta Day, President Kenyatta stated:—

"I have requested many of you to ensure proper use of our natural resources, our forests, rivers, the soil. Our entire environment must be carefully utilised, protected and conserved. To be able to do this, I am directing that all Government Ministries or Departments should, in future, co-ordinate their planning activities more effectively to ensure that our developmental efforts do not unnecessarily destroy the natural resources or, the environment on which our future livelihood depends. I am directing also, that the existing environmental, protection, and conservation laws should be vigorously enforced, and new laws prepared where they do not exist."

The Society would like to take this opportunity of congratulating His Excellency for this great step forward. It is so typical of him to foresee the dangers which must lie ahead should our environment be damaged too severely. We all know it has received some very harsh treatment over recent years and, such treatment can easily be the cause of far reaching effects unless immediate action is taken. The President's announcement is timely as, in many areas it is not too late—but we have fears where forests have been decimated and on the edges of rivers areas where soil conservation has been ignored.

The ever increasing demand for charcoal is the one factor which will destroy one of our most important natural resources in the form of trees.

Anti-poaching campaign

We would again like to thank the many individuals and private companies, both in Kenya and overseas, who so generously donated money to the Society for anti-poaching.

One particular anti-poaching team that the Society has been financing has, during the first nine months of 1976, recovered trophies to the value of $222,500 (Stg. £136,923 or K.Shs. 1,780,000). Fines and imprisonment have been imposed on the culprits.

We are most grateful to you all for enabling the Society to help wildlife once more."

Part protection of Saiwa Swamp

I visited the Saiwa swamp at the end of November to see the new fencing, supplied by the Society, which had been so ably erected by Tim Barnley.

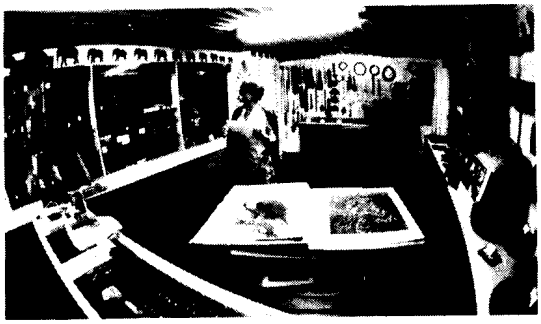
It has not been possible to fully complete this work as, at the south end, the boundary follows a stream bed into which fencing posts will not hold. In this area are a number of Sitatunga out of the Park, so by leaving this area unfenced, there is a chance that these animals will move freely in and out of the park. The fence has made an amazing difference to the number of Sitatunga which, Mr. Jackson Makodongo, the Asst. Warden in charge of the Park informed me, now reach some 400 individuals. I saw a number of small calves which I have not seen before, as they were previously being killed and taken by the surrounding farmers' dogs.

The grass in the park is now lush —no longer being grazed by cattle or goats.

Mr. Jackson Makodongo has achieved a first class job in renovating the viewing platforms. The form already finished have been completely rebuilt with new hardwood timber from Mount Elgon. Three new bridges have been completed so visitors can cross without fear of falling through into the swamp. More viewing platforms are due to be erected on the eastern side of the swamp as soon as the bridge across has been completed.

It will be necessary for finances to be provided by the Department to clear a fire break along the boundary fence as, at

Continued on page iv





The Society's Gift Shop and Art Gallery in the Nairobi Hilton.

There's a wealth of choice items on sale in the Society's Gift Shop and Art Gallery.
Everything from jewellery for the most sophisticated taste to the popular key rings, ties and decals; carvings, batiks and artifacts; prints paintings and sculptures by leading national and international artists; wildlife books, journals and magazines; Christmas cards and calendars.
Original paintings and reproductions by David Shepherd, Guy Coheleach, Ralph Thompson, Talbot Kelly, Iris Darnton, Joy Adamson, Rena Fennessy, Bob Kuhn, Philip Lasz, Kim Brooks etc. Send for brochure/s on Christmas Cards Calendars; Prints; David Shepherd prints; and gift items for sale.

Annual Subscriptions

	KShs.	US$	£
Resident E.A.	60/-		
Ordinary Overseas	120/-	15.00	8.
Family Membership	160/-	20.00	11.
Corporate	1,000/-	125.00	67.

Life Membership Fees

Ordinary	1,000/-	125.00	67.
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As a member of the Society, you will receive a years' subscription to the Society's East African wildlife magazine.

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OFFICES, ART GALLERY & GIFT SHOP IN NAIROBI HILTON
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Due to ever increasing costs, we have had to raise our membership rates and delete some.

The new classes and rates are shown in the Society Notes.

We do hope you will still continue to support us in our work.

Lambwe Valley and Shimba Hills Roan observations

On a recent visit to the Lambwe Valley Reserve, Mr. Arthur Mahasi, the acting Game Warden, was kind enough to show me the Reserve. Since very few people have so far visited the Reserve, my observations might be of interest to Society members.

During a period of three hours, Mr. Mahasi was able to find three different herds of roan. One, a herd of 17 males which is unusually large for this species. Roan bachelor-herds, normally, do not exceed a dozen individuals. The two classified nursery herds seen were as follows:—

Total	Bull	Adult females	2-yr-olds	Yearlings	Calves
18	1	6	2	3	6
26	1	15	1	3(2F, 1M)	6

An interesting observation was made on the ages of calves. They were all between six and eight months old in the smaller herd while no calf was older than three months in the larger herd. This pattern suggests that roan in Lambwe do not breed seasonally but that each herd synchronizes its breeding separately. It is likely that calving takes place at ten month intervals, as has been found with roan in the Kruger National Park.

At present there are over 200 roan in and around the Lambwe Valley. His policy of grass burning appears to be an extremely effective way of keeping the animals inside the reserve.

The valley is an ideal site for studying roan, Jackson's hartebeeste and oribi and research on any of these ungulates should be given every encouragement.

The Shimba Hills Roan

I continued my observations on the Shimba Hills roan between June and September 1976. This short report summarizes their present status.

In September, 13 roan were observed in the reserve which is the highest number since 1973 when my observations started and, when no more than 10 individuals existed. At present, there are 7 adult females (2 of which were born in 1973), one 18-month old female, two 10-month old female calves, a month old male calf and two adult males. The existence of these two adult bulls was only confirmed during the last week of my observations. Two bulls were regularly seen in 1973 and 1974 but last year it appeared one bull had disappeared. The presence of a second adult male may make all the difference to continued survival of these roan.

Recent observations indicate that these roan have overcome their critical period. During 1974-75 only one calf survived. In September, 1976, three calves were present also four females are expected to give birth before the end of the year.

If the roan continue to make such good progress these should be between 16 and 18 roan by the end of 1977. These might include the second generation Shimba Hills roan.

Ranka Sekulic.

Tanzania raises National Park entrance fees

In order to meet the rising costs of running and developing the National Parks and of the greatly increased anti-poaching measures and operations, The Board of Trustees of the Tanzania National Parks, have decided, with the approval of the Minister of Natural Resources and Tourism, to raise the fees payable by visitors.

First Schedule

Fees for the period commencing at arrival and ending after 24 hours on the next following day, or part of such period and for each following period of twenty-four hours or part thereof, spent in the Park:—

A. Permit for the Entry of each person

	Resident	Non-Resident
(a) above the age of 16 years	Shs. 5	Shs. 30 (ALL PARKS)
(b) between the age of 3 years and 16 years	Shs. 2/50	Shs. 15 (ALL PARKS)
(c) below the age of 3 years	Free	Free

B. Permit for each motor vehicle (24 hours or part thereof)

	Non-Foreign	Foreign
(a) Tare weight less than 2000 kilos	10	60
(b) Tare weight more than 2000 kilos	60	120

*Foreign Motor vehicle is any vehicle coming from outside Tanzania and bearing Registration other than Tanzanian.

(c) Permit for resident vehicle (vehicle kept in or within the park) Shs. 10 per vehicle.

C. Permit for Camping

For any period between 7 p.m. and 6 a.m. in anyone period of 24 hours:—

	Residents	Non-Residents
(a) On established Camping Site	10.00	30.00
(b) In places other than camping sites at the discretion of Warden:—	20.00	40.00
(c) Children between the age of 3 and 16 years half rate in both cases and below 3 years of age	Free	Free
(d) 2 bona fide servants for each visitor	Free	Free
(e) Each servant in excess of 2		10.00

D. Permit for the landing of Aircraft

Permit for landing of any aircraft—Shs. 30/-.

E. Fees for the service of an official guide per trip—Shs. 30/-.

Second Schedule

(a) **Cinematography:**

Number of persons (including artists, technicians or administrative staff) making or participating in the making of the film.

1–5 Shs. 1,000/-
6–20 Shs. 4,000/-
over 20 Shs. 10,000/-

(For every week or part thereof during which film is being taken)

(b) **Still Photography**

One person or more than one person travelling or working together and forming one photographic unit.

Fees: Shs. 400/- per week or part thereof.

Third Schedule

The Director is empowered to fix any other Misc. rates i.c. rates for hostels, huts, rest/guest houses etc.

These charges will come into effect from *1st January, 1977.*

Continued from page iii

present, any fire started in the adjacent shambas could spread causing considerable damage should it reach the reeds and grasses in the swamp.

I can recommend a visit to this small park outside Kitale as the Sitatunga, which are coming out into the open, can be clearly seen. Also, the bird life is extremely interesting with so many uncommon species being present.

If one is lucky Brazza monkeys may be seen in the forest on the Eastern side of the swamp, especially when a path has been constructed through these forest blocks.

Amboseli Park under pressure

Zebra foals have been dying during the dry seasons to the extent of nearly one third of the reproduction rate. This is a natural cause agravated by the presence of too many cattle. When the rains fail the zebra do not disperse but concentrate on the swamps; the lack of good grass causes the nursing mare's milk to dry up which makes it necessary for the foals to resort to eating grass before they are ready. Owing to the heavy concentration of animals using the swamp areas there is inevitably, a build up of parasites to which the small foals are unable to offer any resistance.

In 1975, there were only eight temporary Masai manyattas but, this year, they have risen to 32, mostly with people from Tanzania, who, strangely enough are allowed to remain within a National Park.

The advent of the new watering points, which were specially put in to help the Masai, have proved a dangerous amenity which has backfired.

Cattle have been concentrating on these centres and the grazing has become non-existant. To find sufficient food for their cattle the Masai have returned to the swamps which is exactly the reverse of what was desired. The extra water has attracted those herds from over the Tanzania border creating a nearly impossible situation which is certainly not helping the wildlife. Under such circumstances, controlled management is impossible until a really strong hand is taken to maintain the law in respect of Masai incursions in Amboseli. If not, the outlook is bleak for this most popular of Kenya's wildlife parks.

Serengeti Births

This is a good season for births in the Serengeti. Reports from there tell of many cubs being born to the seven lion prides around—Seronera. But one pride with 14 cubs in all had lost 10 of them by the end of October, only having 4 remaining. The cause seems to be mainly hunger although the other prides did much better. This poor pride killed a buffalo towards the end of October, so they should not be hungry any longer. A lioness was found dead from Anthrax however, and this may have contributed to the cub mortality although no other deaths from Anthrax have been found. The count of surviving cubs in these Seronera prides stood at 45, at the beginning of November. Two cheetahs have given birth to 6 cubs each and both families have been seen to be in good health. Our cheetahs are very clever since previously it had been stated that a cheetah would be very unlikely to be able to raise more than 4 cubs.

On 18th October, a black-backed Jackal was seen to kill a Thomson's gazelle. He was then joined by two others for the feast. A similar incident, this time catching an Impala, was seen on October 28th. A wild dog pack of 14 was around Seronera early in October, and at this time the Topi were dropping their calves and the Bushbuck too.

Tanzania Rangers Report

Baboon study report

The rangers studying baboons were trained at Gombe and they are doing the best they can in between having to go out on anti-poaching patrols. Towards the end of October they found one male baboon injured and by himself up on Mount Meru, but otherwise the baboons during this time are tending to range much wider owing to the shortage of food. In early November, it was still dry—the rains being expected at any time. During this period baboons especially seek fruit in the forests in order to augment their diet.

In Mikumi, where there is a small team from University of California Riverside, studying baboons the observers also have had a rather difficult time lately, owing to the wide ranging of the troop which they normally observe, in search of food. Much of the plains area has been burnt off at this time so that the troop spends more time in the forested areas where observation is difficult. Early one morning they saw the troop surround an impala faun and attack it. The mother did her best to drive them away and did to some extent succeed for the faun was seen to limp off following her later. This troop has one old male, named Makamu, who has difficulty keeping up with the troop especially at these times when shortage of food makes them travel far. But he is often kept company by a young male named Mifupa, while he is apart from the troop. Towards the end of September the two of them were together away from the troop for three days and then rejoined them.

During October, the observers watched a vulture trying to catch an infant baboon, but the protection of their babies by baboons is careful and the vulture had to look for his meal somewhere else.

Cheetah injured by radio collar

In mid October, a cheetah was found by our rangers with very severe mouth injuries. These had been caused by a radio collar. They cut off the collar but it is doubtful if the poor animal could survive with such wounds. We don't know if this was the result of careless fixing of the collar, but we do at least know that it was the result of a collar being put on the cheetah. The clear conclusion is that our scientists will have to find other methods of tracking our animals if the present methods are going to kill those very animals. The cheetah is especially vulnerable among the carnivores because of its timidity. One wonders how many other cheetahs have died owing to careless interference by man.

At the end of September, the killing of a cheetah by lions was seen in Tarangire National Park. It must be most unusual for this to happen, but on this occasion it seemed that the cheetah was disturbed by a car and running away, went straight to where the lions were resting. It was a surprise for all, but the cheetah being alone and weaker suffered. The lions just jumped on it, and killed it, and then left the carcass and went away, not eating any of it.

Seen also in Tarangire on 21st October, at 8.30 in the morning, a fight to the death between two saddlebill storks. They had a quarrel over a fish in the river and a fierce fight ensued. The fight went on for 1½ hours with the birds using their beaks, wings and legs. The victor finally killing his opponent by pecking him on the head. The body lay in the water, head down, neck stretched out in front and legs stretched out behind. A third saddlebill then came up, chased away the victor who must have been very tired too, and was seen to try to raise the dead one by lifting up its head.



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WORLD WILDLIFE FUND – KENYA

Notes compiled by Ellis Monks

The future for Africa's spotted cats

THE CHEETAH is almost certain to be reduced soon to a "relic species," and the leopard might survive until the end of the century. This, basically, is the conclusion of a survey of the status of the two animals in Africa south of the Sahara published by the International Union for the Conservation of Nature and Natural Resources (IUCN.)

The survey, undertaken by Dr. Norman Myers, was in fact concluded in 1974 but only recently released. It may be presumed that in the interim, significant alterations in the natural environment and in the populations of other wildlife will have further depressed the prospects for the two spotted cats.

The report states: "*The trade in the skins of spotted cats has resulted in the exploitation of wild animals at a rate which, particularly in the case of the cheetah, is likely to bring many, if not all, of their present populations to extinction unless remedial measures are taken. . . . It is clear that the cheetah is in danger of extinction and that urgent action for its conservation is called for on the part of those governments with territories within its range . . . it is unlikely that the cheetah can survive, except as a precarious relic species, within existing national parks and reserves or any probable extension of them.*"

The status of the cheetah within Kenya may be illustrative, not only of the cheetah's prospects, but of wildlife as a whole.

With a growth rate in human population in excess of 3.5 per cent, Kenya's population has increased from 10.7 million in 1969 to more than 13 million in 1976. By 1990, the total will be 20 million.

The amount of good agricultural land available in Kenya is reduced from 4.2 acres per person in 1965 to an anticipated 2.6 acres in 1980.

With a demand for enhanced standards of living, this pressure on land is resulting in an increasing demand for the territories occupied by wildlife. Outside national parks and reserves this is leading to the steady depletion of wildlife and it cannot be long before similar pressures are exerted on the parks and reserves themselves.

Thus the undisturbed rangelands necessary for the cheetah's well-being are steadily shrinking.

Other factors which contribute to the steady decline of the cheetah are:—

●the animal's susceptibility to other predators, both in respect of its young which may be taken by lion or hyena, and by having its food stolen;

●the food preference for freshly killed meat as against the feeding on carrion;

●the necessity to hunt during the day;

●their susceptibility to injury (the cheetah hunts and rears its young alone and if it is injured then it and its young will die of starvation);

●the spread of bush cover.



Picture by Rick Hopcraft

It is an obvious inability to adapt to changed environmental conditions which distinguishes the cheetah from the leopard —the cheetah is extinction, but gives the leopard its capacity to survive.

Cheetah have never been prolific and the indications are that before the competitive land-use patterns were imposed on the landscape the numbers may not have exceeded 100,000 for Africa south of the Sahara. The report points out that this number could well have been matched by the lion population as recently as 1960 and maintains that the present-day figure for leopard is in excess of this.

Thus in merely looking at numbers one can be misled into thinking that a species is rarer than in fact it is. Only when one looks at a rate of decline does the true status become more apparent.

The Fur Trade

The IUCN report indicates that the fur trade has contributed significantly to the cheetah's decline, pointing to Ethiopia and South Africa as the main exporters of cheetah skins, for the most part obtained illegally and from other countries.

The reluctance of dealers to assist the survey has made an assessment of the volume of trade difficult. At the height of the spotted fur boom in North America, 1,283 cheetah skins were imported in 1968 and 1,885 in 1969, speculating that the European demand could account for rather more than as many again suggested figures of 3,000 and 5,000 for the years in question.

Pointing to a disdain for the law an example is given of a New York furrier who, in 1971/2, had in his possession an enormous number of illicit skins including 1,867 cheetah skins. From a study of the figures over a five year period, Dr. Myers comes up with the belief that

(i) the fur trade is not the dominant factor in the cheetahs decline;

(ii) the cheetah would be in far better straits if dealings in skins ceased.

Cheetah populations

On the question of numbers of cheetah thought to be remaining in Africa south of the Sahara, Dr. Myers offers the following estimates.

It is recognised that the appraisal is imprecise, but it is nevertheless put forward as an "order of magnitude". The anticipated cheetah numbers for 1980 are dependent upon so many variables that it is difficult to accept them. What is acceptable is that by virtue of the cheetah's inability to adapt and the growing human pressures the future of the animal is precarious.

Any remedy of the situation must lie in conservation measures—but what these might be is not particularly clear. The existing legislation which is intended to give complete protection is regarded as unsatisfactory due to government's inability to enforce the laws and the inadequacies of the penalties imposed.

The parks and reserves at present in existence tend to give fragmented populations, inadequate protection and constitute a small proportion of the cheetahs' range. The number which the parks are likely to protect would be no more than about 3,000

In contrast to the cheetah, the leopard is reported to occur in comparatively large numbers in certain areas. The species is apparently not in imminent danger of extinction, but it is clearly under very heavy pressure on account of the value of its skin.

The extent of the leopard skin trade

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Kenya	under 2,000	range 1,000–3,000
Tanzania	1,000 or less	range 500–1,500
Uganda	170	range 100–250
Miombo Woodland Zone (Angola, Zambia Mozambique, Malawi)	1,500 plus	range 800–3,300
Southern Africa (Botswana Rhodesia, S.A. Africa, S. Africa)	4,600	range 2,850–7,300
West Africa	1,700	range 800–2,600
Northeastern Africa	2,500	range 1,150–4,500
Zaire	300	range 100–500
Overall	14,000	range 7,300–23,000

constitutes a major and continuing threat to the animal, especially as the commercial incentives involved have led to considerable illegal traffic.

By virtue of its ecological and behavioural attributes, the leopard is an exceptionally adaptable predator. In its undisturbed condition it is capable of existence in every type of habitat in Africa south of the Sahara, in particular the thornbush and woodland areas where it is reputed to reach remarkably high densities.

Where the cheetah is not capable of adapting to changed conditions, the leopard is more catholic in its prey species, acceptable hunting conditions, habitats—and moreover it is capable of holding against other carnivores. A powerful animal, it does not depend on speed for the capture of its prey and is capable of killing much larger animals than the cheetah.

The one agency which represents an over-riding threat is poison. Readily and cheaply available, the agricultural poisons used for tick control, mainly toxaphene, kill indiscriminately. But provided that much stricter control is exercised on the issue of the toxaphene group of poisons, the future of the leopard is reasonably secure. Fortunately more effective and very much less poisonous dips are being introduced and it can be anticipated that the importation and use of toxaphene will be severely curtailed in the near future and a case for its being completely banned can be justified.

Meanwhile, the international fur trade, together with the poaching which it induces continues to depress leopard populations in several parts of Africa. Despite the moratorium in skins recommended by the International Fur Trade Federation in September 1971, demand for them is as strong as ever, notably from France, Italy, Spain, Scandinavia and Japan. Unless a rigorous system of controls which producer and consumer countries would support in good faith, exploitation should not be countenanced in any form. As the system of controls suggested is not likely to be enforced and indeed may well be un-enforceable, the suggestion of establishing exploitation of the leopard on a sustained-yield basis must be regarded as unacceptable.

Leopard Populations

It is regarded as virtually impossible to census leopard populations and accordingly methods have been devised to measure the approximate densities. As a result of the investigation it is suggested that the leopard is able to maintain a density of one per 10 sq. km in moderately suitable habitat, with one per 5 sq. km in favourable ones and even one to every sq. km. in exceptionally suitable conditions. In endeavouring to determine the poaching pressures, the report concludes that it can only be assessed as an increase in the activity of poachers relative to the former situation and that no absolute figures can be determined.

The Leopard's Future

Given that there is unlikely to be much change in the conservation of leopard, it is predicted that the range and therefore the numbers will become steadily more restricted to isolated localities in remote areas—but could survive to the end of the century.

As the future for wildlife in general in some African countries is bleak in the extreme, it can be taken that the leopard is capable of surviving as long as the rest (of the wildlife.

●*Full details of the survey can be obtained from IUCN Monograph No. 5. The Leopard, Panthera pardus, in Africa by Dr. N. Myers and IUCN Monograph No. 4 The Cheetah, Acinonyx jubatus, in Africa also by Dr. Myers).*

WWF around the world

Senegal. Three new National Parks have been established bringing the number to six and occupying 4% of the country's 198,000 sq. kms.

Philippines. Following reports of proposals to release about 60,000 ha. of the 73,000 ha. Apo National Park for lumbering, the President of WWF appealed to Philippines President Marcos not to open up the National Park for lumbering as this was one of the most valuable in the tropics containing samples of unique plants and animals.

Galapagos Islands. Fire ants are posing a grave new threat to the unique Galapagos Islands where they have been introduced accidentally in fresh fruit and vegetables carried to the islands. The danger is to the smaller invertebrate fauna such as snails which provide the food for the Giant tortoises, Land and Sea iguanas and other unique life forms.

Environmental Education. In an effort to educate the general population on environmental problems the National Environment Secretariat has set up a sub-committee on Environmental Education and is in process of establishing an audio-visual library. To assist in this most valuable role of conservation the World Wildlife Fund Kenya has presented a copy of the film which was produced specially for the Tropical Forest Protection Campaign of WWF, "Africa—Forest or Desert".

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THE ELSA WILD ANIMAL APPEAL

by ELLIS MONKS

Negotiations are still proceeding with the Ministry of Tourism & Wildlife for the development of the Njorowa Gorge, more popularly known as Hell's Gate, as a National Park.

The Elsa Wild Animal Appeal have put forward a proposal to purchase the land behind the D.C.K. carnation plantations at Naivasha as a first stage in the development of this park. The area will embrace the valley and larva hills to the edge of the gorges and hot springs in the south.

On the western side of this land is the very interesting larva flow with its hot steam jets which is within the triangle of Government land and in which the Geothermal Project is operating. Government has indicated its willingness to consider including this area within the park.

However, before any further steps can be taken, it is necessary to ensure that the northern strip of what was Akira Ranch and which contains the fascinating gorges and hot springs, can be included in the park. It is hoped that Mt. Longonot itself will also be ceded to the proposed new park.

The Njorowa Gorge[1] from its opening near Ndabibi to its exit on Akira Ranch, together with large tracts of steep, little used and almost unusable hilly country on either side of the gorge itself, is a geological curiosity, being the ancient outlet of Lake Naivasha, and having in its lower portion many steam jets. It is, besides, an outstandingly interesting place for bird life, being particularly notable for birds of prey and swifts. In the cliffs of the gorge breed Verreaux's Eagles, Augur Buzzards, Egyptian and Ruppell's Griffon Vultures, Peregrine and Lanner Falcons and the only pair of Lammergeiers that can be easily observed anywhere in East Africa.

In addition, during the rains, there is a spectacular concentration of swifts breeding in the cliffs. In the early rains thousands of swifts are to be seen every evening coming in to roost and indulging in spectacular courtship flights.

Although it has been constantly poached there is still a fair amount of plains game in the gorge area. If the wildlife was spared from continuous poaching and snaring, and given access to an undisturbed section of Lake Naivasha, it would undoubtedly increase and make the gorge a faunal spectacle as well as an ornithological and geological site of unusual interest.

Scenically, the gorge area is one of the most spectacular places in Kenya, and botanically it is of great interest because of the great variety of succulents and varying plant habitats on its sides.

The E.A. Wild Life Society is interested in co-operating with Elsa Wild Animal Appeal in making available the funds raised for the Kitengela Project. In addition funds raised by the Kenya National Parks for the same project are currently held by the Ministry of Tourism and Wildlife and it is hoped that these too can be utilised for the development of what could be one of the most fascinating National Parks in Kenya.

([1] Extracted from "A Proposal to Establish a Chain of National Parks or National Monuments along the length of the Kenya Rift Valley" by Dr. Leslie Brown and Dr. P. Glover.)

WILDLIFE CLUBS OF KENYA by Sandy Price

'Learn to conserve for a better tomorrow'

WCK will now use this phrase as its official motto, thanks to a student named Irungu Kabachia, of the Aga Khan High School in Nairobi. Irungu's entry won first prize in a WCK Competition to create a motto for Wildlife Clubs. It will soon appear on individual membership cards which are being produced for Club members to purchase at a nominal cost from WCK Headquarters.

The August school holiday found WCK staff members immersed in the organising of three field courses, which were attended by more than 100 Wildlife Club student representatives. This year's courses were financed by the East African Wild Life Society, and were conducted in Amboseli and Tsavo National Parks. One of the highlights of each week was the half day session of "mini" research projects. For these, students were split into 5 groups, each headed by a scientist who is studying in the Park. The groups travelled out into the Park, learning how to make observations and collate information relevant to a particular animal, or groups of birds, or even termites. For example, one group in Amboseli studied groups of elephants to learn more about cow/calf relationships. They were led by Cynthia Moss, who is studying elephants in Amboseli during a 2-year research project.



Most of the students who attend such field courses are then inspired to lead their fellow Wildlife Club members in further trips afield, once they have gained a broader idea of how to organise such an excursion. Over the past six years, Club groups have been able to borrow a set of camping equipment and cooking utensils, adequate for 40 people, from the WCK Headquarters in Nairobi. This equipment was donated to WCK by the East African Wild Life Society. Happily, it will soon be possible to make camping facilities available to more groups at once.

The Canadian High Commission has recently granted funds to WCK sufficient for purchasing two additional sets of camping and cooking equipment. These will be in great demand, and it is likely that this generous gift will result in an even more marked trend of school visits to Kenya's National Parks and Game Reserves. For many Wildlife Club members, it will be their first opportunity in a lifetime to see many of Kenya's wild animals such as lion, elephant, rhino and giraffe.



WORLD WILDLIFE FUND

Continued from page vii

Threat to Leopard

We understand the World Wildlife Fund and I.U.C.N. are concerned over the status of certain species of Kenya's mammals—namely, the leopard, wild dog and black rhino. They would like these animals safeguarded by their being declared locally endangered species.

With some justification, the fur trade in the U.S.A. queries why a leopard can still be legally shot in Kenya by a visiting hunter (for a fee of US$950) but cannot be imported into the States. And they are quite right, of course. This is an illogically which Kenya is required to correct.

Although the leopard may still be a nuisance as a stock killer in certain areas, it is an easy animal to trap—and so can be translocated to National Parks and Game Reserves. Obviously we would like to see shooting stopped not only in Kenya, but in all countries where the leopard still exists. Although it may not actually be a danger of extrication, it ought to be put generally on the endangered list to stop trade in its skin which still persits in a number of recalcitrant consuming countries.

Wild dogs endangered

Wild dogs are in a precarious position throughout their range, as every farmer and rancher's hand is against them. There was a time when the Game Department shot complete packs on sight—perhaps they still do, but the fact remains they are terribly persecuted with no quarter given.

I have heard people express repugnance at the very sight of a pack, merely because they feel their method of killing to be horrid by our human standards. But we are not dealing with people—these are wild animals and cruel through nature may be, and have learned it is best not to interfere. We think that we are helping and all we have done is threaten a species until it has to be put on the endangered list.

The Black Rhino is being persecuted through greed for money and a mistaken notion persisting in the oriental mind that the powdered horn of a Rhino acts as an aphrodisiac.

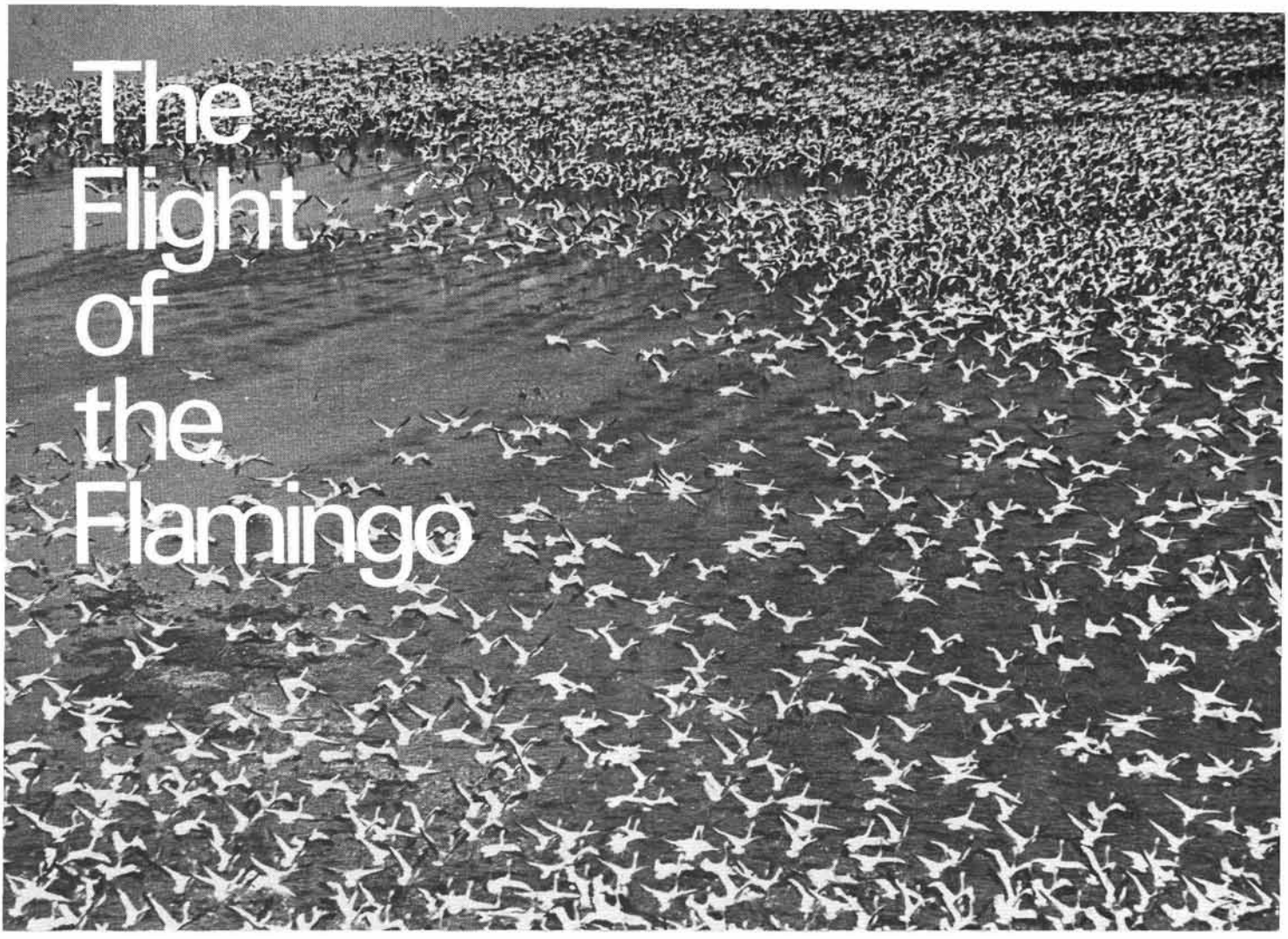
Even in the national parks, rhinos have been drastically depleted through poaching and should be given greater protection.

Ostriches will soon be in need of further protection as the trade has been extended to the sale of their eggs. Another anomaly in Kenya is that the Wildlife Conservation and Management Act places all birds on the fully protected list—but the ostrich is classified a game animal!

The protection for birds includes the taking of eggs, but still the traders have licences to sell these eggs!

Ostriches are also being killed for their skins which are made up into handbags and wallets. If only the tourists realised the damage they are doing when they buy wild animal products, I am sure they would refrain. I therefore appeal to all our Members to dissuade people from purchasing anything that comes from a wild animal.

The Flight of the Flamingo



SINCE early 1974, the number of flamingoes at Lake Nakuru has been significantly lower than for the past few years. This has caused considerable interest, and a number of opinions varying from well informed guesses to wild fantasy have been put forward to explain the change.

The decrease of flamingoes at Nakuru, which was parallel at Lake Hannington (now *Bogoria*), was due to a large decrease in the density of the phytoplanktonic blue-green algae, off which the fllamigoes feed. This was part of a fundamental change in the natural food chain—the blue-green algae, replaced as the main primary producer by *green algae*. There were also other more minor modifications in the chain.

Blue-green algae is a coiled structure, made up of a chain of individual cells, which floats in the water. The size along the shortest axis of these coils is usually not less than ten microns (one hundredth of a millimetre). On the other hand, the green algae, which has taken over, is usually in the form of single cells, less than one micron in size.

The problem is that the filtration structures inside the flamingo bill is not fine enough to extract the smaller green algae, and the birds were therefore forced to move elsewhere in search of food.

Since the massive exodus from Nakuru and Bogoria, the distribution pattern has become markedly more dispersed.

In 1969, 18 lakes were surveyed in Kenya and Northern Tanzania and a total population of about one million Lesser Flamingoes was estimated, of which 900,000 were present on Lakes Nakuru and Bogoria.

—by CHRISTOPHER TUITE, graduate researcher, part-funded by the E.A. Wild Life Society.

During the last two years I have censused more or less the same range four times—and the results, although analysis is still in progress, indicate that not more than 30 per cent of the birds are now resident at any one lake.

Sampling of the water of all of these lakes showed that with the exception of Central Island Crater Lake B at Lake Rudolf; Lake Simbi in Kenya's Western Province; and sometimes Momella in Tanzania, none of them had any measurable standing crops of blue-green algae. It appears that, in fact, lesser flamingoes are not quite so conservative in their food requirements as had been previously assumed.

Under conditions of reduced blue-green algae availability, the flamingoes seem therefore to be able to switch to a different algae food resource, known as *Benthonic Diatoms* which live in the lake floor sediment.

These organisms, which have a skeleton made of silica, are much more widespread than blue-green algae. They are present in both fresh and alkaline water and I have measured good standing crops in most of the main Rift Valley lakes.

The main limiting factor to their growth seems to be light availability—and in the deeper lakes (more than one metre), they are present even at the shoreline areas. However, in shallow lakes, the diatom concentration may be significant, and an example of this is Lake Elementeita—recently host to more flamingoes than Nakuru.

At some lakes, such as Magadi, Natron and Eyasi, diatom growth can even occur in the mud when there is virtually no standing water at all.

Thus, because of the wide range of conditions under which they can grow, diatoms are obviously a more predictable food resource than blue-green algae—but it is also clear that they cannot sustain the same number of "grazing" flamingo.

In my estimation it is these two factors which account for the present general dispersal of flamingoes among all the Rift Valley lakes.

The ability of the birds to use a "fall-back" food supply in times when the preferred food is not available has considerable importance in predicting the future chances of survival of the East African population. It was not previously apparent that the species could survive the almost total absence of blue-green algae by this change in feeding behaviour.

But the key question is what caused the depletion in Lake Nakuru's standing crops of blue-green algae—and the invalidation of its tourism soubriquet: "*the greatest bird spectacle on earth*".

A general misconception seems to be that pollution from agricultural chemicals, and industrial or human wastes, is responsible. Although there has been considerable debate in the newspapers on this issue, the complaint of conservationists is about *potential* pollution and environment destruction from the lakeside factory producing agricultural fungicide, and highly toxic copper-based effluent. There

Continued on page 26

The Rothschilds

Continued from page 13

Nakuru National Park was undertaken by Mr. Simon Taiti who heads the Research Division for the Game Department. Nakuru was chosen because it appeared to contain much of the right food for giraffe and there were no others there with which the Rothschild would cross breed thus losing their characteristics. The Lambwe Valley National Park was also surveyed and approved as a possible destination for the same reasons.

There seemed no purpose in going to the trouble and expense of translocating giraffe only to have them wander away, scattering across surrounding farms and getting into trouble, and the World Wildlife Fund contributed to the cost of a fence to surround the entire 35 square miles of Nakuru Park.

Our involvement began innocuously enough 18 months ago when we obtained permission from the Game Department and the Craigs to move two of the babies to our Langata property where a number of wild giraffe were already living. Jock Rutherfurd captured them for us in hair raising cowboy fashion from a galloping horse—but that is another story.

After living for some months with the adorable creatures, who not only run our lives but fill us with joy and laughter as well—and who quickly destroyed a formerly presentable garden—we became confirmed giraffe junkies and determined to try to help their cousins who remained at Soy. Although a massive amount of groundwork had been undertaken by others, in true Kenya fashion the hard part was finding anyone who would get it all together.

David Craig was no longer sure that the settlers were going to buy the ranch after all. There was talk of a Nandi consortium purchasing the land and turning it into a miniature game park for western Kenya to attract tourists, and that would mean that the giraffe were welcome to stay. The Ministry of Defence toyed with compulsory acquisition to make it into a strategic airfield for the Kenya Air Force, and in the end bought 5,000 acres for this purpose. Foot and mouth disease then spread through the area, threatening any movement at all.

The Game Department were not confident that the fence at Nakuru would really be adequate after all, and in any event there was no provision in their budget for this translocation. The World Wildlife Fund had offered to help originally, but in the light of various uncertainties it was not sure that the money would now be available. John Seago and Tony Parkinson were ready to undertake the work as professional trappers, and while prepared to do the job virtually at cost it was unclear how that cost would be met. Perhaps Government might allow them to do it on a "one for one" basis, whereby for each giraffe moved to Nakuru they could capture one for themselves to export to a zoo.

These initial questions were followed by others arising from the amalgamation of the Game Department and the National Parks. Without intending it we gradually found ourselves the unofficial co-ordinators as it were, between the Craigs, elements of the prospective settlers, the Research Division of the Game Department and the newly formed Conservation and Management Department, the World Wildlife Fund both here in Kenya and in Switzerland, Jock Rutherfurd—who was prepared to do anything and had his horses standing by oiled and greased, John Seago and Tony Parkinson, and as word got around, an increasingly broad spectrum of interested private citizens who at one time and another had driven past the giraffe on their way to Kitale and enjoyed them and simply wanted to help. It would have been easier to run General Motors, we told ourselves.

Blah, Blah

In the end we decided to go ahead anyway and raise some money. We did obvious things like writing to Jake Rothschild in London, prevailing upon him to uphold the good name of the family in this altruistic effort, blah blah blah, and he responded with a generous £1,000.

We then conceived the idea of a Giraffe Ball and put our daughter Dancy Bruce in charge of it—and that was a smart move. As if by magic she found companies like Block Hotels and Kenya Wine Agencies and Cadbury Schweppes and many many others were eager to provide everything needed to feed and drink (drunk?) three hundred people. Alan Root gave a hot air balloon ride for four over the Mara as a raffle prize—and brought along a 10 ft. tall rubber giraffe for good measure. Monty Ruben gave a night for two at the Mount Kenya Safari Club and Ted Gugis offered two nights at the Ark. And so it went.

At midnight a giraffe with four suspiciously female looking legs appeared at the head of the stairs to a roll of drums from the band donated by the Inter-Continental Hotel, and made its way down to the dance floor where it executed a red hot tap dance. The last reveller left for home after 4.30 a.m., and the first count (money is still coming in) next morning cleared Shs. 35,000/- from the Giraffe Ball.

The following week the Acting Director of Conservation and Wildlife Management, Mr. Mutinda, declared that Nakuru Park was ready to receive the giraffe and appointed Dr. Chawdhry, the Department vet, to mastermind the actual translocation in the first quarter of 1977. Tony Parkinson who will assist him set aside two weeks in his busy capture calendar and Jock Rutherfurd began building a massive holding boma at Soy with great expanding wings so that an attempt could be made to drive numbers of the giraffe into a dead-end funnel, hopefully obviating the need to use tranquilising drugs to which young giraffe do not always respond satisfactorily.

Even before the actual movement of a breeding nucleus of 25 to Nakuru is underway, plans are already being discussed about a Wildlife Conservation and Management Department scheme to move another such nucleus to the Lambwe Valley, and correspondence with Rwanda and the World Wildlife Fund has begun about the feasibility of sending some to Akagera Park. Not a moment too soon; already the herd has dwindled by about 30 as people protect their crops from the giraffe—but government has posted two scouts at Soy to keep things under control until the movement is completed.

These days such an apparently simple operation can only become a reality through this willingness of Government to initiate ecological surveys, to erect fences, to co-operate with World Wildlife Fund and other sources of money, to have access to the services of professional trappers of high calibre, and to give the go-ahead when all seems ready.

But then 600 irate settlers somehow heard that their future shamba was to be turned into a game park for the giraffe after all, and Mr. Mutinda had to write an emergency letter which David Craig flew to present to them at a public meeting to dispel the rumour. And now we discover that a gap in the southern part of the Nakuru fence still remains to be closed. . . .

We wondered whether Cleopatra encountered any of these problems when she sent the first giraffe to Europe as a present to Caesar. Did the Chinese have to negotiate endlessly in 1414 before obtaining their first giraffe from Malindi? That they revered the Tsu La, as they called them, is certain, and Chinese emperors declared them sacred, believing that the beautiful gentle creatures represented perfect peace, perfect harmony and perfect justice.

Let us hope that the Rothschild giraffe not only take those qualities with them as they make their way to Nakuru Park to enhance that paradise with their elegant presence, but that they will leave a little peace and harmony for those who have tried to help them over the years. Will they have any notion of the amount of effort and planning exerted on their behalf by so many people for so long?

As we idly ponder these questions we begin to search the office for the telephone number of the man who was going to move them all like cattle in trucks in a single day without telling anyone. It could just be that we ought to talk to him again. . . .

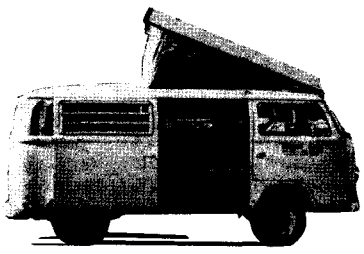
N.B. A second article in a series of three will be written for Africana by Betty and Jock Leslie-Melville after the movement of the giraffe has been completed.

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shall not die

by Derek Bryceson, Director, Tanzania National Parks

AS human population increases in Tanzania, the drive for agricultural development as the basis for economic growth becomes more effective. As this brings better communications and opens up new areas, so the wild animals will become more and more restricted in their movements—and this means that the land available to them will be increasingly limited to those areas specifically set aside for their conservation.

Already some of our National Parks are subject to this pressure—and perhaps the best known Park, the Serengeti, is a good example:—

Since the drawing of the present legal boundaries in 1958, there has been steady development on most sides until now one can say that the Serengeti, together with the Ngorongoro Conservation Area, the Maswa Game Reserve, the Game Controlled areas, plus the small area of the Masai Mara in Kenya, constitutes a closed ecosystem, the extent of which is approximately 25,000 sq. km.

Lake Manyara, at the other end of the scale, is now almost totally enclosed and its system comprises little over 500 sq. km.

As each area becomes more confined, it is more necessary to conserve through management and the old method of "*letting Nature take care of itself*" becomes an abnegation of responsibility.

Management implies knowledge, and so the proper carrying out of our responsibility to conserve requires that decisions be based on knowledge. Unfortunately our knowledge of the needs of our animal and plant life is still very scant.

The biggest of our animals is the elephant—which, when mature at about 20 years old weighs from 4½-6 tons and eats 600 lb. of vegatative matter each day. The average elephant will probably live to between 60 and 70 years.

A recent count in the Selous Game Reserve—a co-operative project involving a Danish aid agency, the Tanzania Government, IUCN and WWF—found 115,000 elephants there—and there are probably more than a quarter of a million elephants in Tanzania as a whole!

In the Serengeti, in Manyara, in Tarangire and Ruaha National Parks, elephants are year by year destroying significant numbers of trees, opening up woodlands and changing habitats for other species, plants and animals. One scientific school of thought is already for the destruction of elephants in order to save the trees and to prevent the degradation of the existing habitat.

This is, next to the control of poaching, the biggest problem in the management of Tanzania National Parks today: *What do we do about the elephants?* Why do they eat and destroy the very trees that they depend upon for shade and which will help conserve rainfall and maintain the normal climate? How can the trees be saved? What numbers of elephant, given the other animal populations can each Park area support? What are the population densities of elephants in the various parks, and what are their population dynamics?

From work done in Manyara and Ruaha, we know that we could probably save mature trees from our elephants by attaching half-inch mesh wire netting to their trunks (the tree trunks, not the elephant trunks). If we know what the elephants seek when they eat the trees we might be able to provide them with some alternative food source.

If we could control bush fires, we could probably reduce the pressure on trees for sustenance in the dry season.

If we develop better water supplies in dry areas, and provide more permanent water there, we could probably cut down wildlife concentrations in the dry seasons and thus minimise habitat damage.

But we badly need to know more of the basic data about our elephants—such as how many elephants does each Park contain; how do they range over the area of the Park, and outside the Park; what do they eat throughout the year; what factors effect their feeding and movements; are the numbers stable or increasing or decreasing; is there immigration from outside areas?

This information could be found by undertaking elephant counts; by monitoring movements; and by watching what they eat. By analysing this information we could obviously begin to get a better picture of the situation.

To do this, we need pilots and aircraft, people to follow and watch, and people to analyse. In fact, we have all the people we need—what we do not have is the money.

We need to meet the costs of salaries or expenses; the costs of running aircraft and ground transport. We could protect more trees by placing wire around them, but we need to buy the wire. We could improve our firebreaks and construct simple small improvements to the natural water supplies, but again running a D6 caterpillar bulldozer costs money.

We could get expert assistance in the analysis of data, but the experts' expenses have to be met. We need to train more of our junior field staff in observation and data collection, and we could do that too—at the Gombe Stream Research Centre—so long as we could pay the travelling expenses and necessary living allowances. Our staff are already very enthusiastic and eager to save the trees, to preserve the habitat, and to keep the other animal and plant species. But we need more than enthusiasm—we need the means to apply action programmes immediately.

For this reason, Tanzania National Parks are seeking funds for the following programme:—

1. **Save the Trees**—Baobabs and Acacia spp.

Wire netting ½" mesh surrounds	US$
Ruaha National Park . .	10,000
Lake Manyara National Park	5,000
Tarangire National Park .	5,000
	20,000

The wire will be placed by our existing staff

2. **Elephant Census**—annual count of elephant numbers together with mapping of concentrations.

	US$
Ruaha National Park . .	2,500

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Lake Manyara National Park	750
Tarangire National Park .	1,500
Serengeti National Park (S.R.I.)	2,600
	7,350

The costs are flying expenses of the consultant, who will be assisted by our own staff.

3. **Observation and Data Collection**—teams of two trained rangers in each Park. The rangers would make a verbal report by radio each week and submit a written report each month. They would also note observations of an interesting nature on other animals.

	US$
Ruaha National Park . .	1,750
Mikumi National Park . .	1,750
Lake Manyara National Park	1,750
Tarangire National Park .	1,750
Arusha National Park . .	1,750
	8,750

(Two rangers at Shs. 600/- per month each for each Park)

3.2. **Seminars:**
It would also be of great advantage to bring them together once a year for a seminar, the cost of which is estimated at . . . U.S.$850.

3.3. **Supervision:**
A Park Warden has been put in charge of the overall animal observation programme. To ensure his most effective supervision it would be necessary for him to visit each Park twice a year for about a month at a time. His travelling expenses would amount to . . . U.S.$1,000, the Parks organisation covering salary and other costs.

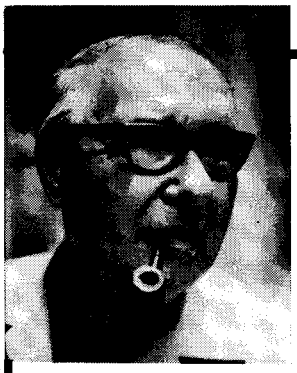
4. **Small dam, etc. water supply development**—The only Park where this is feasible at present is Ruaha. With an area of 1,200 sq.km. and many little rivers and watercourses, the prospect is good. Amount estimated for running the machinery and employing extra casual labour during the dry months is . . . US$10,000.

5. **Cutting Fire Breaks**—Increased activity in cutting firebreaks would be possible if more funds could be made available. Roads act as firebreaks to some extent and a network of tracks would both act as physical breaks and facilitate control of fires that may break out.

Ruaha National Park . .	7,500
Mikumi National Park . .	3,000
Tarangire National Park .	3,000
	13,500

6. **The Total Request** is therefore:—

Capital Development	US$
1. Save the Trees . .	20,000.00
4. Water Development .	10,000.00
5. Fire Breaks . .	13,500.00
	43,500.00
Annual	
2. Elephant Census . .	7,350.00
3. Data Collection . .	10,600.00
	17,950.00



EDWARD RODWELL'S COLUMN

A visit from the Devil

YOU will remember Peer Gynt and perhaps have seen Arthur Rackham's ghostly water-colours depicting the young liar about his adventures. You might have read of how Peer's mother, Aase, reprimanded him:

"Lies: I know, can be so furbished
And disguised in gorgeous wrappings
That their skinny carcases Not a soul could recognise . . ."

A sceptical reader has written from Salem, Mass. saying that I remind her of Peer Gynt.

So mote it be. My reply is to say that the other night I lay on my bed the while a couple of hundred yards away a screaming maddened djinn with feet on the ground and head in the clouds sent houses spinning and snapped off old giants of the forest with its clutching hands; filled the air with palm fronds, boughs, baobab pods and bougainvillea; howled with Bedlamic glee as buffalo, buck and baboons fled in terror.

The destructive monster spat in the moon's eye and doused its light; hurled dust upon the stars until they hid and then raising its whorling umbrella of shredded cloud danced a wild and mad *tarantella* within a few yards of where I lay. . . . Fast asleep.

Nor did I learn of the visitation until two hours had passed. At half-past five I was awake and reading Ibsen's masterpiece. Peer had startled a buck on the brink of a precipice. The animal—

Gave a bound sky-high that sent us
Plunging o'er the edge and downwards Gloomy precipice behind us!
Fathomless abyss below us!
First through clouds of mist we hurtled;
Then a flock of gulls we scattered.
Wheeling through the air and screaming
Downwards still and ever downwards.

'Hodi,' called a voice. My spirit sped from the mountainside of the Norwegian Gudbrandsdal to Mtwapa and an Indian Ocean dawn of yellow-grey stratocumulus.

'Hodi means 'I am here'. During the morning, noon and evening the greeting is a norm of social and business relationships. 'Hodi' in the deep dark hours of night or in the glim of dawn has only one meaning: trouble.

On the verandah stood Juma, the night watchman of an absent neighbour's house. Juma is middle sized-stocky, dour; a man of few words.

"Last night, at five and twenty minutes past three o'clock a *shaitani* came to the place I guard. The house is now broken completely. The *shaitani* ripped off the roof and threw the sheets everywhere. It was as though a bomb had exploded. And so I report to you. I was awake and saw the beginning of the onslaught. Then I closed the door of my room."

I dressed and with Juma walked along the forest road to the drive of his house. On the way I asked what sort of devil had passed by.

It is not only in Africa that gods and devils abound. Deep in the mores of all people lightning, thunder and rainbows have their meaning: punishment and forgiveness. To tread right or left from the razor-edge pathway of rightousness invites reprisals. Sophisticated Britons with Sandford and Merton memories recall their Nanny's admonition:

"No wonder that you get pains in your legs; going out without your Wellingtons on. That is what St. Paul did. He walked on the Damascus road in the rain without his Wellies. He went blind. . . ."

If God had punished Paul, He had no reason that Juma knew to punish the owner of the house. Nor did Juma know the nature of the djinn that had arrived at Mtwapa creek in the dead of night.

From the garden gate onward we stepped through debris: branches, baobab pods, broken sheets of corrugated asbestos. The two-car garage attached to the back of the house was completely demolished; roofing sheets were spread in profusion over a large area. Some of the asbestos had flown high in the air and plunged onto the roof, crushing tiles into fragments. The lovely house was a picture of desolation.

Leaving the house and extending to a periphery of fifty yards the rotating menace passed through the forest, snapping the tallest trees like carrots, dropping doum palms in their tracks. One doum was thrown across the forest road severing telephone wires as it fell. On open land the whirlwind tore doums out by their roots. Then high it leapt and returning to earth fell upon a line of cashew trees crushing them into the ground.

The *shaitani*, as Juma called it, travelled a mile before it lost its puff. Suddenly and gently it subsided, rustling the leaves on trees and earth; leaving a choking dust in its wake.

And like the rainbow's spectrum after a storm so came a shower, short and sweet like an old woman's dance.

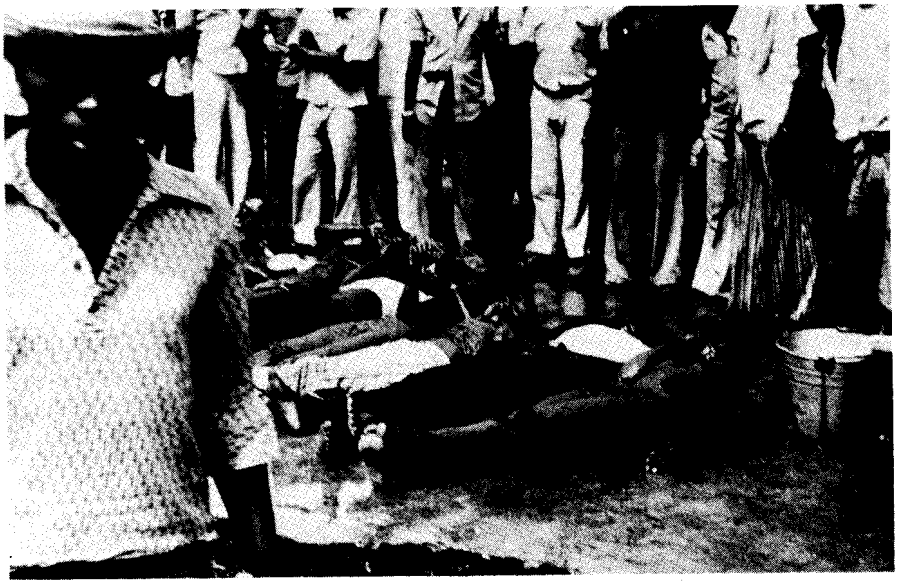
The moon appeared, and the stars. My bantams clapt their wings and cried defiance to the nightmare passover. The *jogoo ya kwanza*, first cockcrow of the morning was repeated from rooster to rooster as the dawn swept westward across Africa from the Indian Ocean to the Atlantic. The muezzins of the creature world behoved us all not to walk upon the road in the rain without our Wellies.

Well done the Society!

Sir—Congratulations on your excellent editorial (in Vol. 6, No. 3) and thank you for at last publishing the facts and taking a stand in the EAWLS journal on what you so rightly termed "the wildlife crisis in Kenya". In view of the broader political ramifications of the question, which were understandably referred to only obliquely (though they have been exposed to some extent in the foreign press, as you know), it took courage to print such a piece in a magazine produced locally but, unlike *The Nation*, widely distributed and read abroad. Irrespective of the potential local repercussions, however, I do think the Society owed it to its members, and particularly the unsuspecting majority in distant countries, to give an accurate picture of what has been going on for all too long in Kenya, once considered one of the leading countries in Africa for conservation and recipient, on these grounds, of the largest share of international aid for this purpose.

While my own enlightenment—and consequent disappointment and disillusionment—preceded the publication of your editorial by quite some time, I would still like to believe that something can be done to reverse the present catastrophic trend. It is interesting and encouraging to know that the local press has launched a compaign and that the Wildlife Clubs are active and doing what they can. But I would like to know what role the EAWLS is playing and can play in the matter. Has it been reduced to helplessness or is it in a position—given continued, even increased support from its members—to take effective action on any major aspect of the problem? What influence can the Society bring to bear in official circles and how can its resources, current and potential, be mobilised and deployed to the greatest effect?

—Name and address supplied



Bizarre punishment for fish thieves

Sir—An unusual incident occurred when I was in Zaire, last October, 1976. I had been watching hundreds and hundreds of hippos (among an estimated 26,000) in Virunga National Park, the former Albert Park, and then drove to the village of Vitshumbi, situated on Lake Edward. This squalid village is inside the Park and is allowed to remain since the fishermen of Vitshumbi provide large quantities of fish for the Goma market, 130 kilometres away.

Upon arrival at Vitshumbi, just after 9:30, I saw a small crowd of people standing around. I approached them and noticed that there were seven men lying down on their backs, with no shoes on, eating raw fish. It seemed very odd to me, and at first I thought it must be some sort of religious festival. I asked some of the people standing watching what it was all about and was told that the men lying down had apparently tried to overpower a fisherman to steal his fish. They were caught by other fishermen and brought back to Vitshumbi. The people thought that an appropriate punishment would be to force the would-be thieves to eat raw fish, bones and all. The culprits were in the process of choking down bites of the fish, but after a while the police led them away and I drove back to the Headquarters of Virunga National Park. I asked both junior and senior officials of the Park about this incident and they said they had never seen anything like it before. As Pliny wrote, "there is always something new out of Africa".

—Esmond Bradley Martin, Nairobi.

Blind, blinkered economists

Sir— Any shop trading in wild animal products must be popular with those bureaucratic economists who advocate "an optional cash return" from wildlife.

They speak blandly in terms of "consumptive wildlife utilization". This they term to be sport hunting, live animal capture for export or, for restocking other areas within Kenya, cropping for meat and trophies, and game ranching.

Working within their concrete jungles, gazing over chimney pots they envisage hunting to be the most profitable, large scale "consumptive" form of wildlife utilization. In their excitement over killing animals they go further, advocating, even, intensified hunting will be profitable to secure additional off-take through cropping.

This all seems to add up to extermination by easy stages!

They speak of the large and secure export market and, from what can be seen, local market as well, which must not be foreclosed or interfered with by ignorant 'preservationists', who may put pressure on overseas Governments and firms. They contend that if wildlife is to pay its way, prices must not be allowed to drop through such influence or interference.

Wildlife *is* paying its way. It is a valuable natural resource—while it is alive, at least that is the view of the "ignorant preservationists trying to depress the markets".

To maintain the all important wildlife nucleus required as the basis for tourism means carrying out dedicated conservation. It also means that the animals are not subject to the blinkered economists' theory on "maximum returns from the wildlife capital"—which is merely to reduce it to zero!

The amount of ivory, skins, teeth, claws, horns and other wildlife "curios" in the ever increasing number of shops appears to be carrying out the teachings of bureaucrats to kill everything in their zeal to make utilization work.

It is this policy that can be blamed for the serious shortfall taking place amongst the capital stock of Kenya's wildlife.

C. E. Norris, Nairobi.

Cheetah killed—by mistake

Sir—On the night of 25th. November 1976 a mature female Cheetah was stoned to death at the site labour camp for the new Nairobi International Airport Development project which is under construction just three kilometres east of the Nairobi National Park.

To the police, who removed the dead Cheetah the following morning, and all of the many bystanders, the animal was "Chui", the dreaded Leopard.

This is yet another example of the necessity to educate the local population in wildlife conservation if the virtually harmless, and now very rare, Cheetah is to survive into the twenty-first Century.

In the event that anyone has pursued Cheetah identification, along the lines described in "Africana" (Volume 5, number I, 1973), the animal's tail markings consisted of a white tip with fifteen white bands.

—D. G. Hutchinson.

Continued on page 26

FLAMINGO *Continued from page 21*

is, in fact, no evidence *at present* to suggest that pollution of the lake water is responsible for the blue-green algae "crash".

Rather, it seems that soda lakes are naturally subject to cyclical changes in species composition—similar occurrences have been observed at Bogoria and the "Big" Momella Lake. However, there is a certain amount of both theoretical and experimental evidence to suspect that chemical changes in nutrient availability could be a contributory cause. One particular nutrient that seems to be susceptible is carbon, the availability of which can be altered by fluctuations in the acidity of the water.

In addition, at Nakuru, there is some reason to suppose that "grazing" by fish might be responsible for the failure of the cyclic recovery of the blue-green algae. Fish are in fact a completely unnatural component of the Nakuru ecosystem as they were artificially introduced in the early sixties. Considering the generally disastrous results of biological introductions, the fish initially seemed to be a great success as they brought in many species of fish-eating birds, which had formerly not been present. But now, perhaps, they may be in part responsible for the comparatively low flamingo population at Nakuru.

The implications of all this for management of the National Park are basically two-fold:

- either leave the lake and the fish and the flamingoes to sort themselves out—a major drought and drying up of the lake would reduce the fish numbers, or;
- deliberately reduce the fish population in the hope that the blue-green algae will increase rapidly.

If the absence of flamingoes continues to reduce the Nakuru tourism revenue, then a major fish culling experiment could be economically justified. Even if the fish were not in fact inhibiting algae growth, to an appreciable extent, the fish population would in any case recover in a couple of years.

It is, of course, outside my belief, but some general comment on Lake Nakuru may be helpful.

It will be remembered that, during the late sixties, a large fund-raising campaign was carried out by the World Wildlife Fund to purchase extra land for the national park and approximately a quarter million dollars was contributed towards the expansion. This clearly improved the tourist viability of the park and, hopefully, secured its future.

The additional land included a variety of habitats—acacia woodland, grassland, bush and euphorbia forest, which support a great variety of bird species and several populations of large mammals. In particular, densities of Reed Buck and Water Buck are probably higher at Nakuru than at any other tourist area in East Africa.

The expansion also protected the Park against agricultural and urban encroachment which was clearly essential for the "ecological health" of the Lake and the maintenance of its "wild" or "natural" appeal.

Thus the WWF scheme was clearly a success and entirely worthwhile, but in retrospect perhaps the project was sold to subscribers on the wrong premise.

There is considerable evidence of exceptionally high flamingo occupance at Nakuru during the sixties—probably the result of heavy rains at the beginning of the decade which raised the Lake to an abnormally high level. But before that—although no figures were recorded before 1969—the Lake dried up occasionally, and there were probably fewer birds there than there are today. For this reason, it was probably unwise to promote the lake as essentially a "flamingo spectacle".

The image of Lake Nakuru National Park should therefore be more diffuse—a superb sanctuary for more than *400 bird and 50 mammal species.*

When the million plus flamingoes are "in residence", this would be merely a bonus attraction.

There would seem to be no obstruction to incorporating lake Elementeita in the National Parks system, administered of course from Nakuru. The lake itself is already Government property and a change of status would be simply an internal administrative matter. The present riperian land-owners might not object since the lake water is too brakkish for watering cattle or irrigation and the grazing along the shore is poor either because of the high soda content of the soil or because it's too rocky.

At present, the majority of visitors to Nakuru are of the day-trip variety, often spending less than one hour in the park. Nakuru could in fact be sold as a "safari destination"; generating more tourist revenue from longer stop-overs and demonstrating to the people of Nakuru that tourism is the most profitable land use for the lake area. This concept of Nakuru as a main stop-over on the Mt. Kenya tourist circuit would be even more realistic if Lake Elementeita were also made accessible to visitors and declared a park or reserve area.

As was pointed out earlier, Elementeita is shallower than Nakuru and is therefore characterised by benthonic diatoms as a primary food resource. This means that flamingoes will tend to occupy Elementeita when conditions at Nakuru are unfavourable—which means visitors to the area would be assured of a flamingo "spectacle" at all times.

In any event, Elementeita has several of its own attractions and ought not to be made generally inaccessible by a barricade of private land. It is an important breeding ground for Great White pelicans and Greater flamingoes; and it supports large numbers of resident and palearctic waders, especially avocets which are more easily observed there than at Nakuru.

The geographical location of Elementeita is ideal, logistically, for conservation and tourist exploitation.

It is also essential that ecological monitoring of the Nakuru lake ecosystem should be continued and expanded to a far more sophisticated level than is presently undertaken. There is also an obvious need for a full expert study of the reasons for the blue-green algae decline—and why the wildlife authorities haven't brought in an algaeologist before now is quite baffling.

However, in spite of the various problems facing Nakuru, the future for flamingoes themselves looks fairly bright—whether they will again favour Nakuru for their greatest concentration, or not. In general, their habitats are remote, desolate, low rainfall areas, in which there is little or no agricultural or industrial potential. If they are going to be seriously threatened in East Africa it would have to be caused by a significant climatic shift, causing a general drying up of the Rift Valley lakes. There is a precedent for this in Australia, but under such circumstances, flamingoes would be the least of the local government's concerns.

LETTERS *Continued from page 25*

Sir—Your enlightening editorial represented undoubtedly a major contribution to the problems of Wildlife Conservation. There are, however, a few aspects of the Conservation which were not brought up in the article, to mention only:

1. *General:* The explosion of population all over the World and in Africa in particular, puts the Man and his survival above everything else. The drive for the utilization of land to get food for the human population will leave no free place for any other purposes, however noble the purpose could be. If the Wildlife has to survive it must supply the money of more value than the agricultural or ranching utilization. In the National Parks the tourists will supply the big Income. On private land, we must introduce a different solution: namely, the sport hunting for tourist hunters.

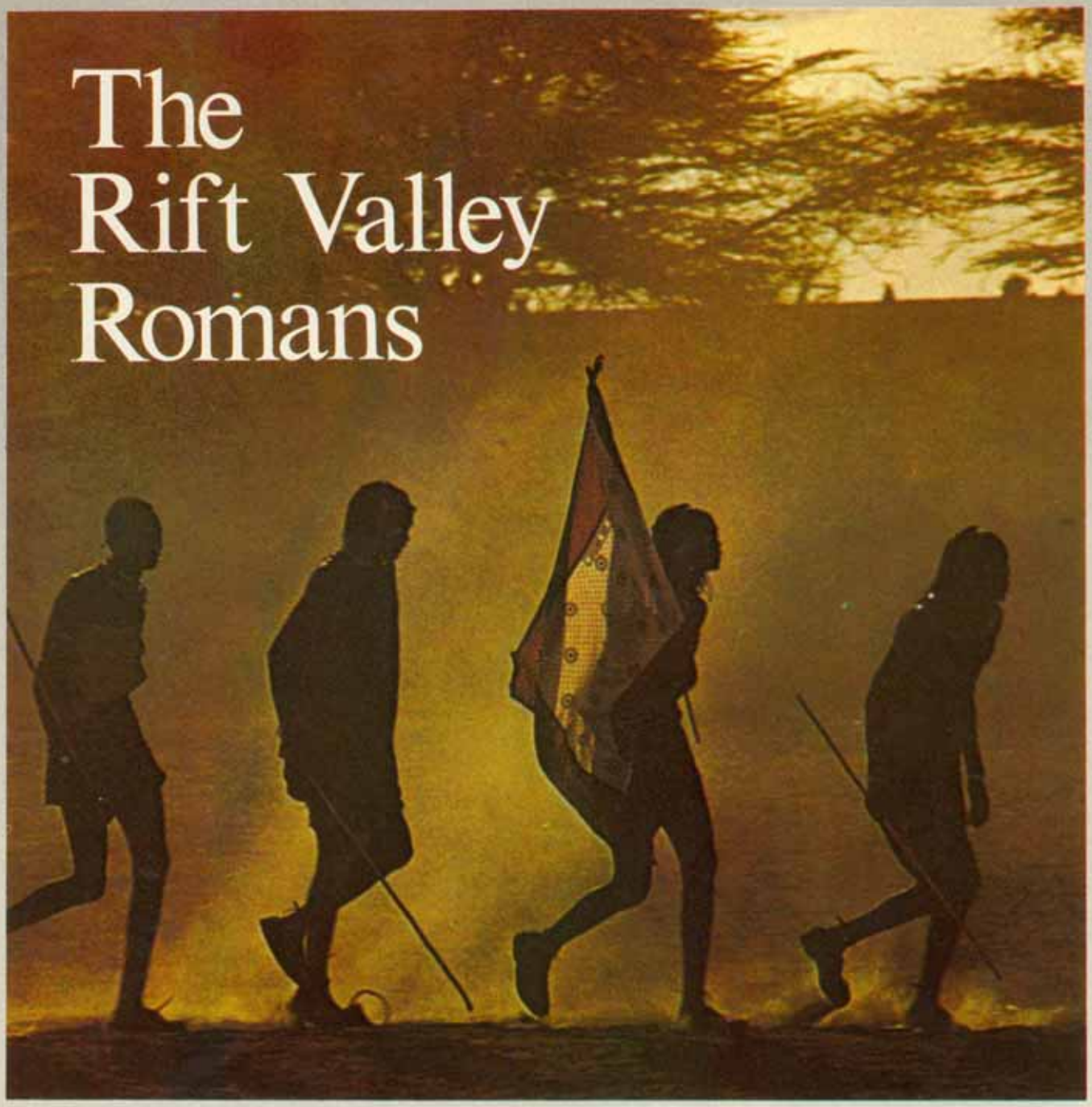
   It is a *proven fact* that in the U.S.A. and especially in thickly populated countries like Germany, Austria and Belgium the hunters saved the Wild animals, moreover, the animals there at present are much more numerous than they were years ago. In our neighbouring country on a small Island of Mauritius there was no Game, until the Sportsmen hunters introduced the Game from Europe and they are keeping it intact.
2. The Funds can come and *are coming* from private hunting companies in hunting Concessions. The administration and antipoaching activities in the concessions cost the Concessionaires a very heavy money which definitely will never be recovered from booking fees and is in reality a contribution towards the Conservation. In this connection I must point out that the allocation and the distribution of hunting concessions could have two entirely opposite results: if given to people who are aiming only to make quick money and do not really know anything about Wildlife — the concession system would be to say the least — useless, but on the other hand if given to experienced and honest organizations (or persons) it would secure the Conservation and thriving of the Wildlife. In this connection I must mention that the world known East African Professional Hunters Association was never consulted. This Association in her nearly 50-years history has always fought for the conservation and it was this organization which helped and contributed to the establishment of the Wild Animal Protection Act in Kenya and Tanzania.

The very good review in the article of the situation in various Parks and Game Reserves and particularly, in Mara must be corrected: Before the concessions came into force on April 1st, 1976, the whole of Narok area was terribly over booked and no quota set for Lion and Zebra. This resulted in over killing of the Lion. Since the introduction of strict quotas in concessions (very small indeed for Lion and Leopard) the position improved considerably and the population of Lion increased visibly.

In my opinion the two Conservation minded organizations namely: The East African Wildlife Society and the East African Professional Hunters Association should meet together and have an exchange of ideas and unify their efforts towards the Conservation of Wildlife in Kenya.

W. Wincza,
Professional Hunter.

The Rift Valley Romans





THE wide metal road from Nairobi to the Black Mountain of the Maasai takes less than two hours in a Mercedes—about 12 dollars' worth of Arab petrol; ten machine-made cigarettes; and two European operas on the car stereo.

It has a distinct political alignment since it rots expressively into potholes before its destination just across the border in Socialist Tanzania.

Another way of looking at it is as a Mall to the grave of Mbatian, the Laibon who prophesied the coming of the white men and their civilised contraptions, such as the steam train and the written word which divided and requisitioned the Maasai's Rift Valley estates.

But Mbatian's unmarked cairn of stones high on Namanga Mountain is irrelevant, as is his ambition that the people of Maa and their culture should remain intact.

The road bisects a Maasailand which is now hardly more than a name on out-dated maps, crumbling at the edges with immigrant settlers and heavily eroded by useless cattle. The people's traditions are similarly dying, mostly from government disapproval.

But there is one irony on the road, which might have amused the Maasai a few weeks ago when the Kaputiei *ol-osho* or legion celebrated the passing out of an age set of warriors. The signpost to this irrelevant Roman holiday was a burned-out car wreck.

It pointed to cattle-tracks leading to a village of dung and leleshwa huts deep in

Photo report: JOHN EAMES

Kajiado District where the traditional *e-unoto* ceremony was staged.

Unfortunately the Triumph was not all it should have been since the warriors are denied their warring and even a modest hand-to-mouth lion kill.

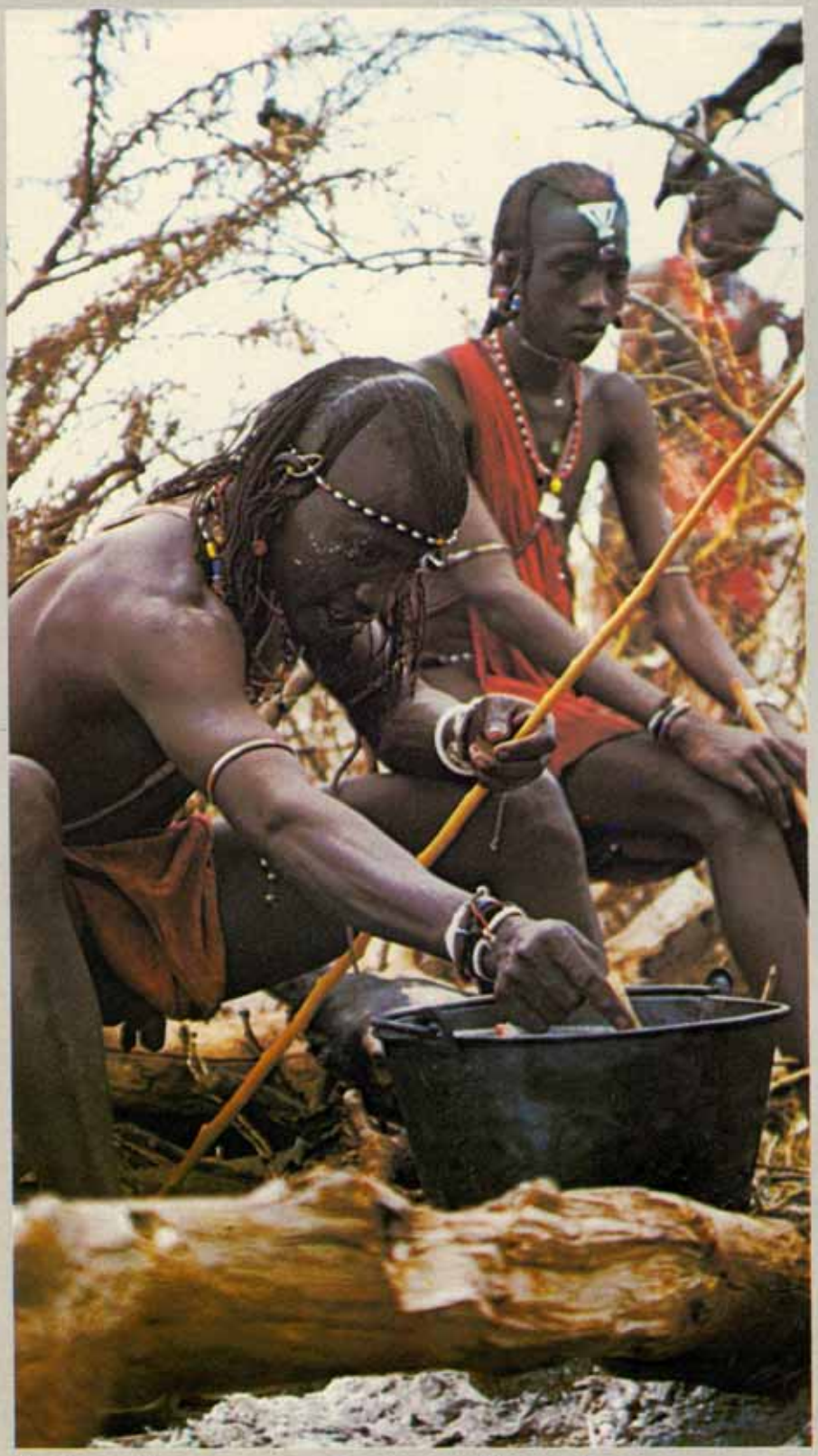
Still the *moran* were more or less as Herodotus described them in Egypt in the fifth century before Christ. Their hair was shaped with ochre and mutton fat into the bronze cockaded helmets of the fighting legionnaire. They wore the

Non equidem invideo, miror magis *

Roman chiton, but lengthened to cover bare buttocks and other embarrassments by order of the government.

For this reason, the short-swords or *simis* were not evident and sticks substituted for spears as the moran danced in their battle-square *testudo* formations.

It was an impressive military display nonetheless, with the battalions of moran stirring the dust with their ululating or high-jumping to the drumming cadence of a war chant. Great banners of Dutch-printed sarongs tied to sticks were waved in the air. Occasionally moran fell out like guardsmen, but foaming and rigid in a traumatic fit.



More restrained, and solemnly religious, were the Praetorian Guard of the moran who were away on the plain, sitting under a solitary wild fig tree, bowing their heads to a blessing on behalf of their wilder age mates.

These were a select group of 49 moran led by three newly elected "colonels of the legion" who would function as protocol, cultural and social service officers of the new set of junior elders. Their insignia was a cowhide mantle, but the honour is not exactly popular since the tradition and apparently the historic fact is that one of them will die young as an obscure signal from *Ngai* that all is well with the age set.

However, they were brave enough as venerable elders of the *ol-osho* prayed over them while offering the pieces of the heart and lungs of a freshly-slaughtered ox. The moran took one bite and spat it out, then swallowed the next bite.

This most secret part of the *eunoto* is full of Bergmann symbolism. The moran are enclosed in a circle of small thorn branches which relates to their impending move from the unprotected warriors *manyatta* to the fortified *en-kang* of married elders. One of the strictest taboos is that no woman should touch or even see the meat a moran eats, but on this occasion four matriachs watched from two or three hundred yards away—pre-empting the marriage of the moran and the sharing of meat with their wives.

Hours later, the praetorians returned to the main camp for the concluding ceremonies, principally the ritual urinating in a special *sinkira* hut which is the privilege only of the moran who have obeyed the commandment not to sleep with married women.

This particular ceremony was watched with interest by the *en-toyie*—young uncircumcised girls decked out like debutantes in their best beads and bangles eyeing their former bed-mates now eligible for marriage.

These girls, aged between eight and thirteen, are the vestal noviciates of the Roman system. At least they are supposed to remain virginal, and probably would do except that the moran's virile energies are not now dissipated by murderous internecine and conquering wars, rustling, and looting throughout most of Kenya.

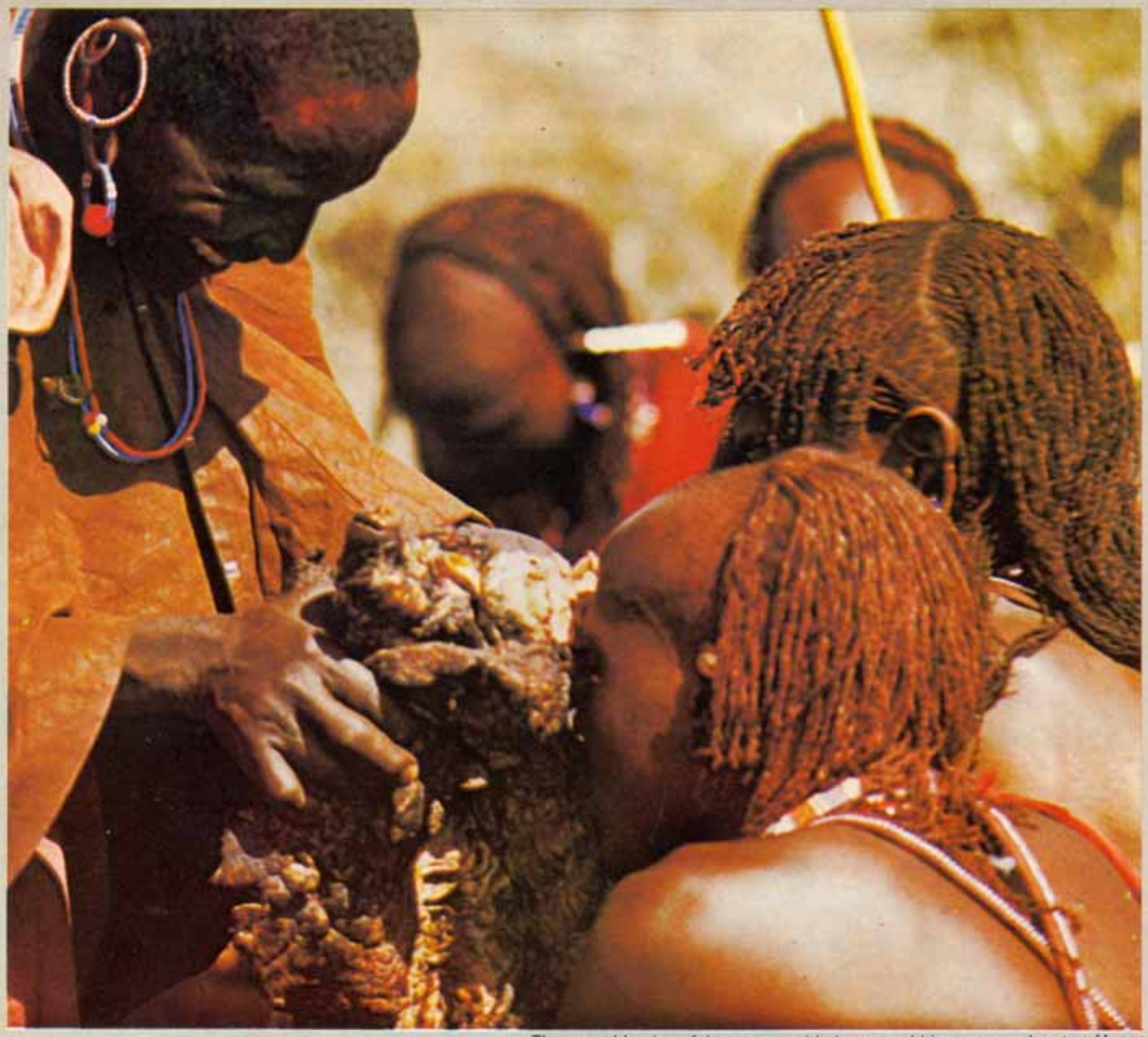
Another interested observer was a fat-bellied Maasai in a suit and shoes. He was a politician, urging the elders to break their word and extort more cash from the despised *il meek* or strangers at the ceremony. On the other hand, he was lamenting the "damn poor show" of the *e-unoto*, which sported only one lion mane headdress and was generally a tatty exposition of the tradition.

In a sense, the fat man was two currently warring Maasai politicians in one. These are the two present ambassadors to the outside world in Nairobi who are following the party line and demanding change of the tribe. One orders his people into trousers and otherwise to civilise themselves; the other preaches "modernisation" but not at the expense of a social system based on decency, justice and mutual protection.

The man in the suit, fattened on the untouchable maize meal of lesser peoples, looked incongruous among the moran. But in fact he fits the scene in Kenya and the conservative Maasai do not.

Continued on page 30

**As for me, I grudge thee not - rather I marvel!*



The secret blessing of the age set, with the moran biting on an ox heart and lungs

Moran with the en-toyie





Mother courage

THE excitement of wildlife photography in East Africa is the unexpected—of suddenly being confronted with momentary drama or rare wildlife incident. These pictures, for example, are of exceptional animal behaviour, as a giraffe mother's instinct to protect her young overcomes her terror of predator lions. The cats had killed her baby, but for several minutes she stayed with the body and successfully kept the lions at bay. Eventually she realised that her courage was for nothing, and moved off.
PICTURES: by Nigel Dundas.





MAASAI concluded

Their distain of underpants is described as "primitive;" their moran about as useful as "aborigines on a walkabout." Their cattle are too bulky to be viable as currency; moreover the cows are a tax dodge and are over-eating the countryside without the slightest benefit to the national economy. Worse still, in the middle of the recent drought in Kajiado, they took to eating the lawns in suburban Nairobi, offending the high-minded delegates to an UNESCO conference.

The Maasai are altogether an embarrassment to some people. They are arrogant, aggressive, and ridiculously stubborn about accepting the fruits of economic development and enterprise—such as the plunder of wildlife on their well-stocked land.

It is typical of Maasai intransigence that they should now refuse legitimate poaching on their land, and should threaten to skin the next non-Maasai who strays from the metal road for this purpose, including U.N. "experts."

For this reason and others, the Maasai amount to an anachronism in modern Kenya. This may well have been the last of the *e-unotos* and, as Mr and Mrs Hinde wrote *sixty* years ago, "The Last of the Maasai."

BOOK REVIEWS

Anatomy of the 37 wild cats of the world

WILD CATS OF THE WORLD. C. A. W. Guggisberg. London: David & Charles, 1975.

Dr. Chryssee MacCasler Perry Martin

GUGGISBERG'S latest book is a comprehensive compilation of information on every known wild cat in the world today. I would not recommend reading it from cover to cover, as I have done, because the material is arranged in an encyclopaedic manner which minimises the enjoyment of such a mine of information. This is not to say that *Wild Cats of the World* is not a good book: it serves a useful purpose in puting together the accepted facts on the characteristics, distribution and habits of cats in one handbook. Guggisberg has also included a very detailed chapter on the origin and evolution of cats along with a short study of the myths and cults surrounding the cats.

Despite man's fascination of the cats, he knows very little indeed about them. Fifteen of the thirty-seven in existence were only identified in the nineteenth century, and one was discovered as recently as 1967 (the Iriomote cat). The habits in the wild of the Chinese Desert cat, Pallas's cat, the Marbled cat, the Bornean Red cat, the Flat-Headed cat, and the Kodkod have hardly ever been noted. Even photographs of eight of the cats are lacking in this book. On several of the species, Guggisberg has had to rely on descriptions reported by only one or two observors of them in the wild. Budding young animal behavioural scientists obviously have the opportunity to write scores and scores of original Ph.D. theses on wild cats, not only in Africa and Asia, but also in America. Let us hope, though, that the new scientists will not further decimate their populations.

I counted at least eleven instances in *Wild Cats of the World* where the author berated fashion designers for instigating the cult of cat pelts for coats, but he does not have anything to say about the thousands and thousands of cats that have been killed for "scientific study purposes" or to replace moth-eaten specimens on exhibit in museums. It seems to me that a certain hypocrisy is herein permitted. A lesser evil, but still inexcusable, is one perpetuated by the very existence of national parks and reserves where the cats have become fairly used to cars and try to carry on their activities obliviously to them, with the result that their hunting

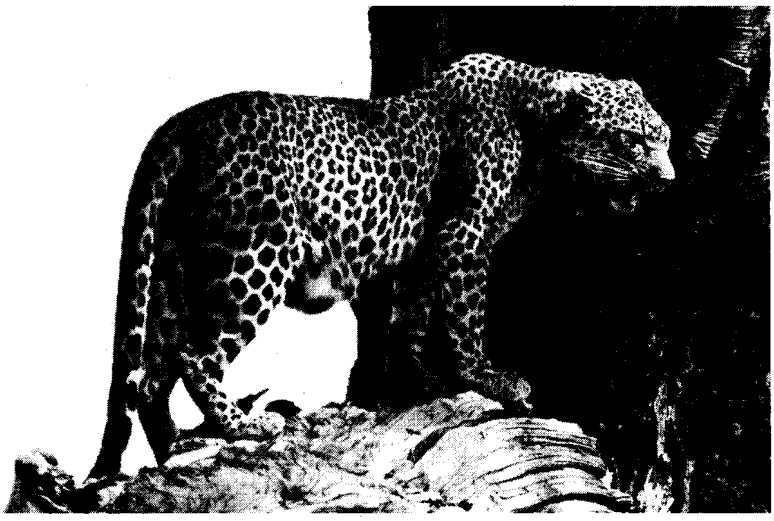
successes are remarkably less than they should be. Guggisberg notes that "one cannot escape the conclusion that in the merciless struggle for survival, the cheetah is up against heavier odds than other members of the cat family". He also states in respect to the cheetah that "every run after game thus means an all-out effort of the highest order, and if it ends in failure—as it very frequently does—the animal will have to recuperate for half an hour or so, preferably in the shade of a bush or a tree, before it is capable of hunting again".

The cheetah depends not on concealment and stealth but on speed alone to make its kill. Nonetheless, Guggisberg himself thwarted one cheetah kill which he describes in *Wild Cats of the World*. He had seen through his field glasses one morning in Nairobi National Park a mother cheetah carrying a prey in her mouth, followed by five little cubs; Guggisberg quickly started his car as the family made its way toward a strip of riverine forest, hoping that he might "cut the animals off from cover and get some photographs". In her fright over the car heading towards her, the mother dropped the impala fawn she had caught and yet another meal for a family was lost. How many other visitors to parks and reserves have inadvertently caused predators to go hungry for much the same reasons? It is a thought to ponder, especially now when there is so very little supervision of visitors to Nairobi Park.

In my opinion, the very best chapters of this book are those in which Guggisberg includes his own observations of the cats. He has been particularly fortunate to have observed leopard so frequently in the wild. He has learned that "the species is highly flexible in its habits", and its behaviour is not exactly the same in all localities. He has found that among the big cats, the leopard is "certainly the most accomplished stalker". He includes superb descriptions of leopards feeding upon their kills. His observations on cheetah are excellent, and he makes an interesting suggestion that the grey mantle of young cheetah cubs might serve as protection for them by its resemblance to the honey badger or ratel, which is one of the most aggressive African mammals and one which most other animals shy away from.

Wild Cats of the World is a well produced book, printed on good paper and with an attractive, easily-read typeface. It is remarkably free from typographical errors; I caught Amboseli mispelled, but that was just about the only mistake in printing which I noticed. I found it rather odd that there should be as many as three title pages to the book, but publishers do have their whims! It would have been far nicer had the photographs of the cats accompanied the sections pertaining to them in the text and would have also made for a much better lay-out of the book. I am getting rather tired of book publishers telling us how much cheaper it is to put all the photographs together in the middle, and I do not really believe it is so much a matter of economy as of laziness, particularly in this instance where the photographs are printed on the same quality paper as the text itself.

Since so many of the cats are little known (how often do we see Geoffrey's cat or the flat-headed cat?), it should have been understood as necessary to have the pictures accompanying the descriptions of them. The photographs are adequate, but not very artistic aside from the one of the very strange-looking Pallas's cat peeking out from beautifully shaded vegetation (this picture was taken by Bernhard Grzimek). All the photographs are in black-and-white, aside from the one of the front cover of the dust jacket, which, unfortunately, is not a particularly good picture in the first place and furthermore is poorly reproduced.



The leopard—photo by C. A. W. Guggisberg

I recommend *Wild Cats of the World* to collectors of books on natural history. It is a thorough work and brings together many observations on wild cats that only one who has spent many years of methodical research would find. There are over 460 entries in Guggisberg's bibliography to this book, a very handy reference source. The author has truly done an admirable job in compiling the available material on wild cats and he has also discussed controversial accounts of animal behaviour with astute criticism.

Self-destructive man and the African grasslands

East African Grasslands by D. Vesey-Fitzgerald, East African Publishing House, Nairobi, 1975, price: Ksh. 35/-.

THE GRASSLANDS of East Africa support a huge population of several million mammals, including more than one million wildebeest in the Serengeti. Although there has been a considerable amount of research carried out on various aspects of the vegetation of East Africa, surprisingly little is known on the origins of the grasslands. There are two schools of thought. One group believes that the grasslands have replaced forests which have been destroyed by man-made fires. The other thinks that the grasslands owe their origin and distribution to the nature of the soils, climatic patterns and topography of the area.

Vesey-Fitzgerald believes that although fires have destroyed vast forest land in tropical Africa, thus permitting annual and perennial grasses to take the place of trees, there are as well specific areas such as along rivers and on deltas where grasses originated due to the specific soils and drainage conditions. It is very likely that Vesey-Fitzgerald's thesis which incorporates ideas from both schools of thought is one which scientists will come to accept in the future.

This short book of 95 pages is divided into eleven chapters for the purpose of discussing the different types of grasslands in Kenya, Tanzania and Zambia, which include among others the Rukwa Valley, the Miombo of Western Tanzania and the fringes of deserts of northern Kenya. The major conclusion is that man is ruining the environment of East Africa through his continual burning of the grasslands.

For example, in the Miombo, the inhabitants seasonally burn the trees and bushes for the purpose of clearing a a small area for cultivation. However, more often than not, the fires get out of control and destroy much woody vegetation unnecessarily. The rain follows and causes severe soil erosion because the land has no grass cover or bush to hold back the soil. Eventually, the area becomes covered with a coarse and fibrous grass which provides poor grazing not only for domestic stock but also for many wild animals. Mr. Vesey-Fitzgerald believes that now is the time for the governments of East Africa to implement a rational plan to conserve the grasslands and forests. The most important step is to control indiscriminate burning which is changing the ecology of the woodlands.

It is a pity that Vesey-Fitzgerald died before this book was published for he probably would have supervised the printing of the photographs and would have insisted on some improvements. Many of the colour photographs are out of focus and the contrast of the black-and-white pictures is weak. While the text itself is well printed on good quality paper, the lay-out is sloppy. The first page shows a map with many arrows on it and no label to tell the reader what he is looking at. It is impossible to read the name of the publisher on the title page because the type face has been covered by an illustration. These imperfections are annoying and should have been spotted by the publisher. However, despite these defects, Vesey-Fitzgerald has written a good short introduction to the grasslands of East Africa which will be especially useful for secondary school students.

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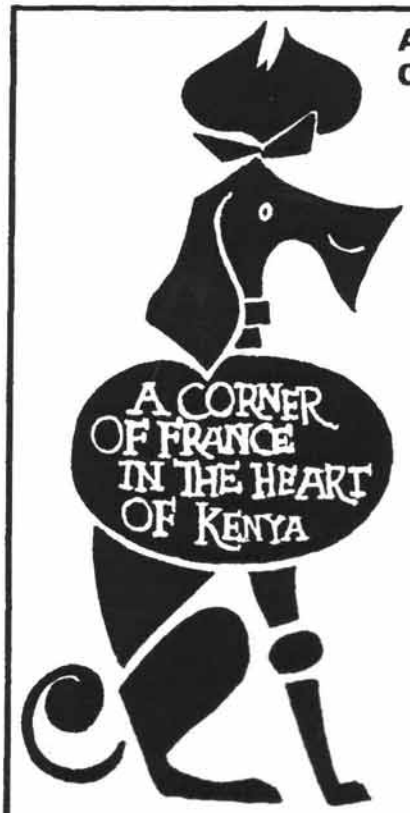
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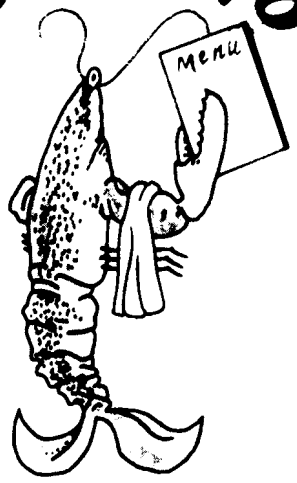





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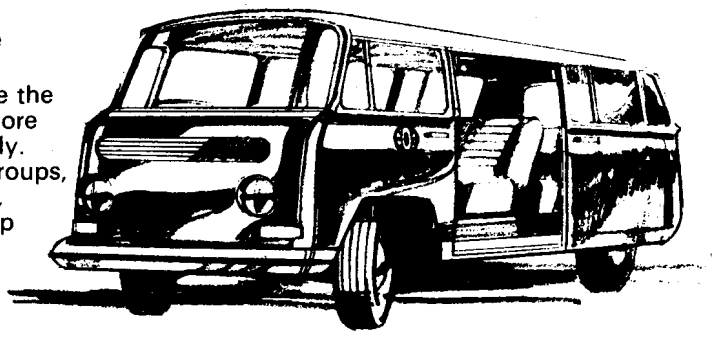
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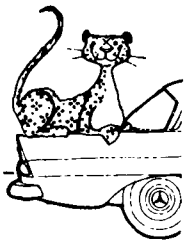
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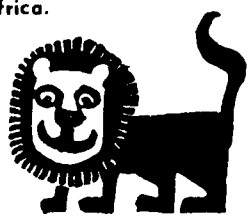


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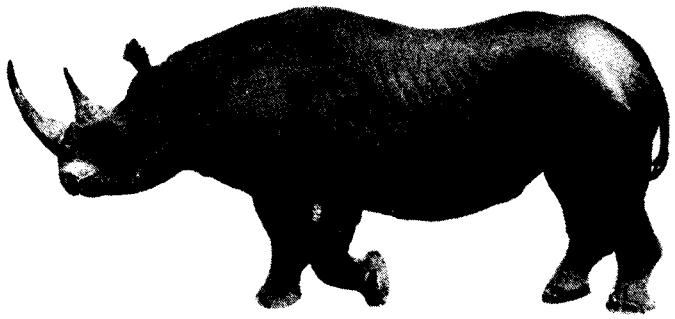
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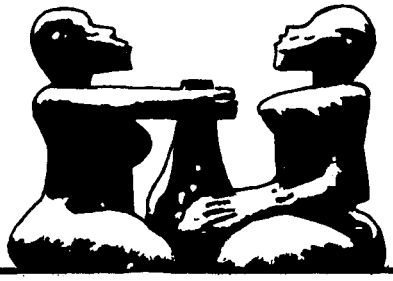
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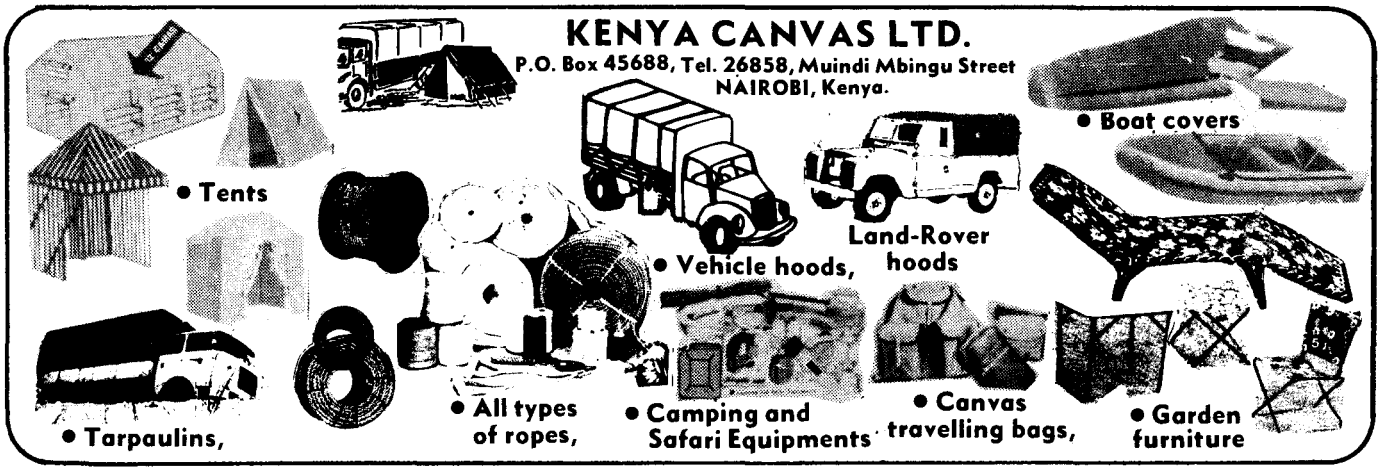
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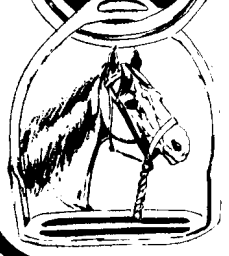
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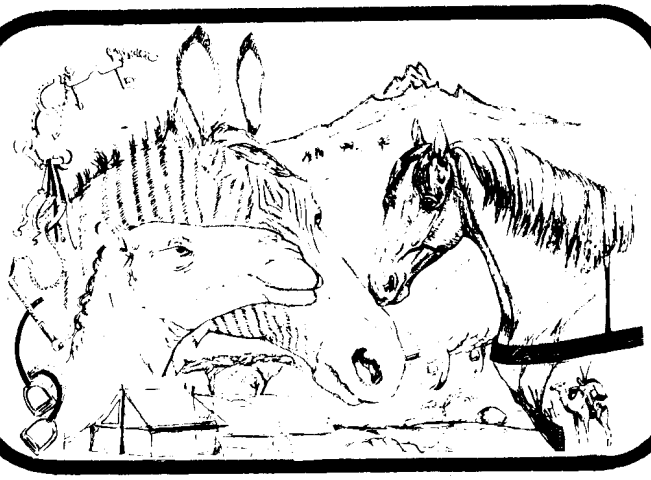
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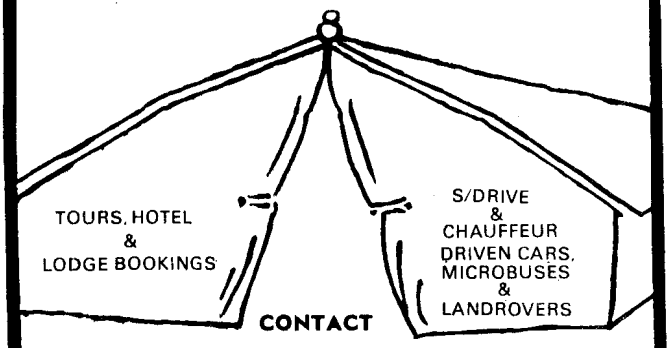
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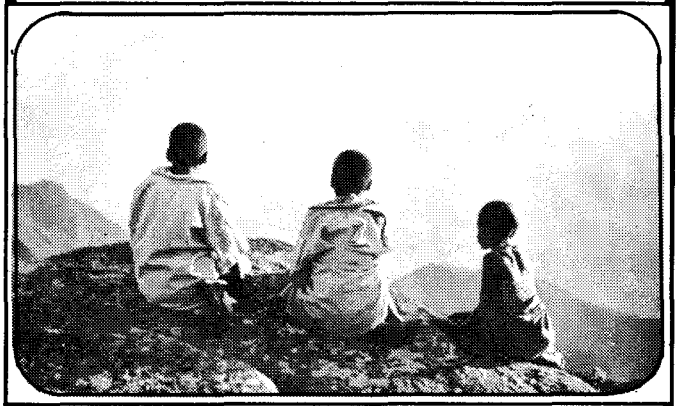
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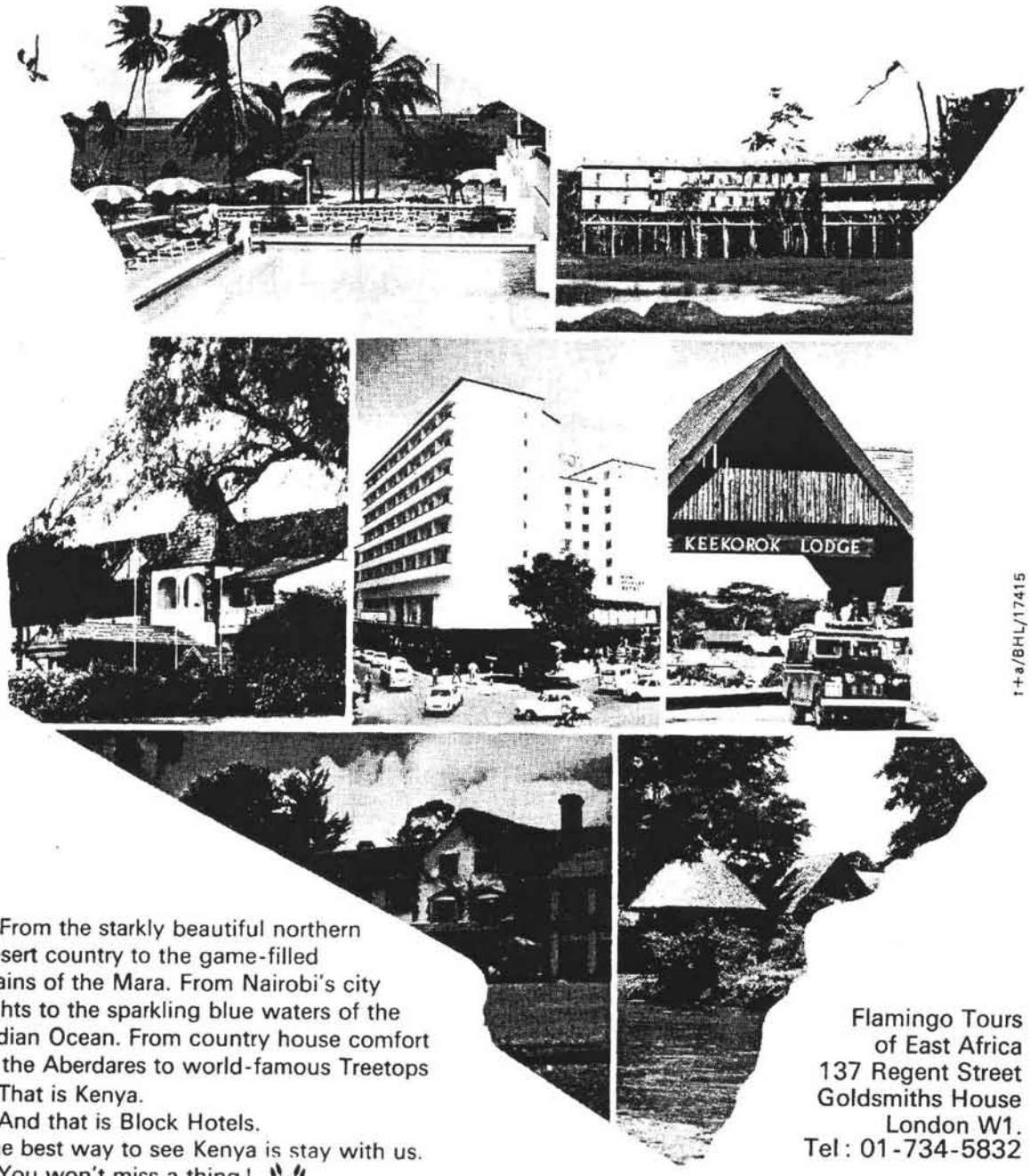
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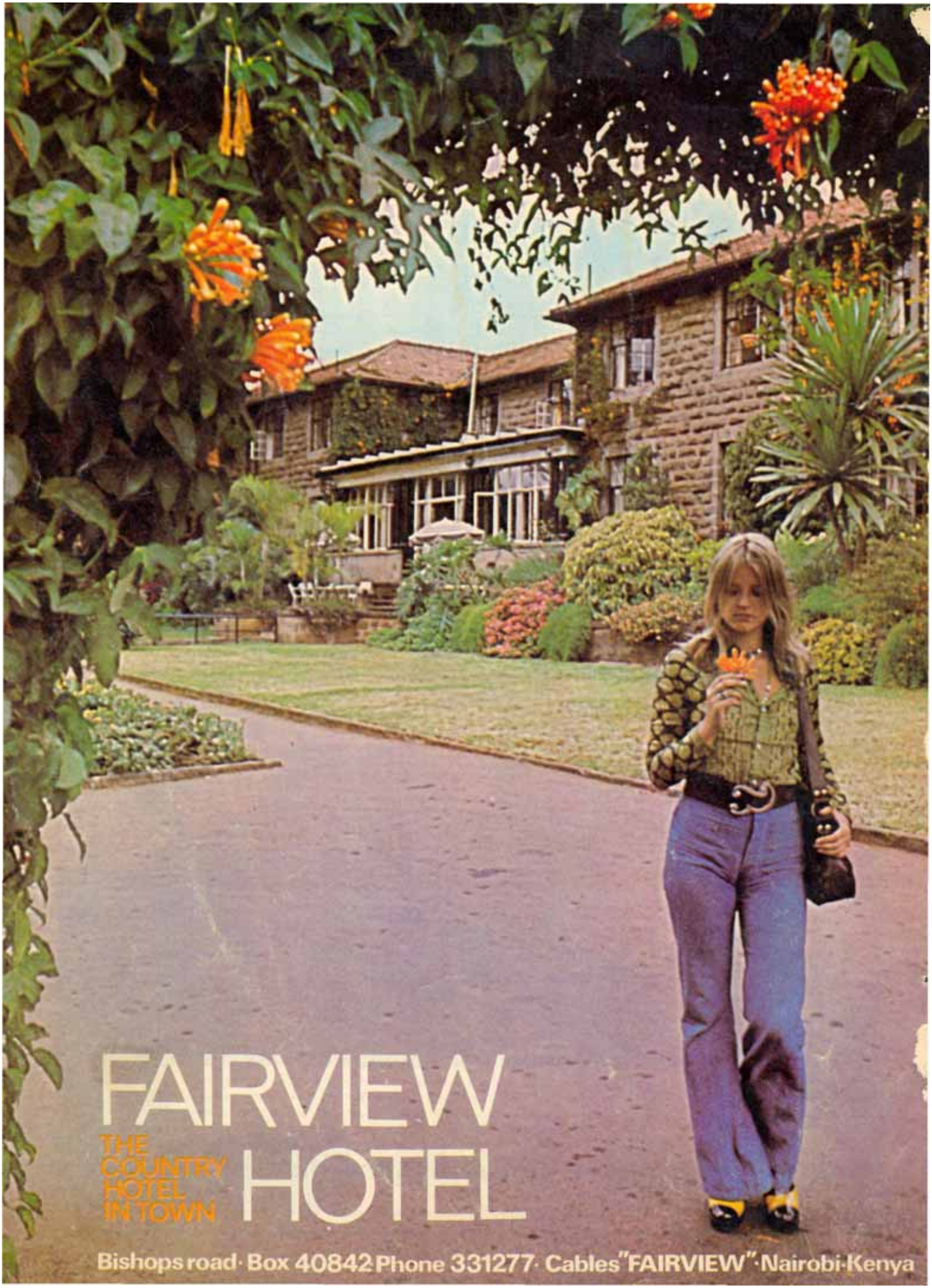
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