

on the south-western slope of Nganda. Here we found not only the iron ore, a mixture of magnetite and limonite, but some of the iron which the smiths must have overlooked. It appears that the method of smelting was to make a clay hearth, covering it with alternate layers of ore and charcoal, the mound then being covered with clay. Into the bottom of the mound a number of clay pipes, of which many dozen specimens were found, were inserted, and to these were attached the skins of game to form primitive bellows. Lumps of charcoal are still found scattered over a considerable area, indicating that the wood, which now covers less than half an acre, was much larger within relatively recent times; the pit on the bank of the nearby stream, from which the smiths obtained their clay, is still clearly marked. The old ironsmiths may well have made a considerable contribution to the deforestation of the Nyika, a word which in the local tumbuka language means "to burn well".

UGANDA

(From the 1952 Report of the Game Department.)

Distribution of revenue from licence fees.—It was decided during the year that African local governments should receive a proportion of the revenue accruing from game licence fees to increase their interest in faunal matters, and thus encourage them to render greater assistance in the preservation of game and the enforcing of the game laws.

Game Assistants.—The creation of the post of game assistants in the General Division of the local Civil Service was approved at the beginning of the year. This post is designed to offer some incentive to game guards, scouts and gun-bearers to better their position and accept greater responsibility. A game assistant will have the opportunity of eventual promotion on merit to assistant game ranger and game ranger.

Elephant Control.—The estimated total elephant wastage for 1952 is approximately 800 which is 600 less than 1951. This figure allows for deaths from natural causes and wastage due to poaching. It is the lowest since full records have been kept and has been due to a drive to reduce unnecessary killing on "control", to the big reduction in the number of elephant licences taken out as a result of the increase in cost per licence, and to the abolition of special licences for third elephant.

The number of elephants killed while protecting crops and cultivation was 477 which is by far the lowest ever recorded

since the department was started in 1925 and is a reduction of 34 per cent on last year. Despite this crop protection does not appear to have suffered as the number of genuine complaints about damage caused by elephants has been no more than normal.

Illegal Killing of Game.—With the valued help of the police, considerable success has been achieved in efforts to reduce poaching and bring offenders to book. Game guards and scouts have been frequently threatened when attempting to apprehend offenders. However, the increase in staff which has now been authorized should do much to remedy this unsatisfactory state of affairs.

An unusually callous and blatant offence occurred in April when a European, driving along the main road through the Lake George game reserve, fired at a buffalo from the safety of his car. Seeing the buffalo fall as a result of his shot he drove on without even troubling to leave his vehicle to make sure the animal was dead. In actual fact it was only severely wounded. Luckily his actions were observed and when he was prosecuted it was discovered that his rifle licence had expired and that he did not possess a game licence. A worse case of wanton waste of animal life is hard to imagine and the offender was severely punished.

A P.W.D. headman in Kyaka, Toro, had a lucky escape when, after he had given information to a game guard, he was shot at in a P.W.D. hut by a poacher who put the barrel of a shotgun in a crack in the wall and fired, narrowly missing the headman's head. The poacher ended in jail.

An epidemic of lorry-borne poaching in Ankole by "butchers" from Masaka district reached serious proportions early in the year. These people drove across country shooting down all types of game, either by day or in their headlights at night. Their trucks, often 5-tonners, returned after dark loaded with eland, topi and other game, the meat being finally sold at great profit. Energetic action by the game ranger, Fort Portal, resulting in the conviction of several of the ringleaders, had a salutary effect, and this menace has, for the moment at least, been curbed.

Shot Guns.—"When the contractors who put up the bridge at the Katonga on the Masaka-Mubende road used gas piping for the hand rails, little did they think that before very long the piping would be sawn off and turned into firearms; but such is the case" reports the senior assistant resident, Masaka.

He goes on to stress that there is no point in advising contractors not to use gas or water piping for such purposes, since

anyone can get as many lengths as they can pay for of this type of crude "gun barrel" from any hardware shop that stocks piping.

Poachers have no difficulty in obtaining ammunition for these weapons as a proportion of the holders of the 2,958 shot-gun licences in the Protectorate are only too willing to sell them shot-gun ammunition, albeit at a handsome profit.

Poisoned Arrows.—The use of bows and poisoned arrows appears to have developed in Ankole, particularly in the southern half of that district and along the Katonga river. The poison is alleged to come from a tree locally called "Musegwe" found across the border in Tanganyika.

The game ranger, Fort Portal, caught a poacher who had just killed a buffalo with a poisoned arrow and on searching his hut, over thirty tails and skins of buffalo, eland, topi, waterbuck, bushbuck, duiker and other game were found.

Snares.—The use of wire snares is particularly popular as wire is easy to come by and a snare quickly made with little effort. Buffalo frequently get caught in these snares and if the wire is too thin they break away with the snare deeply embedded in their flesh. In this state they are unpleasant customers to meet in the bush. In Acholi an elephant got caught by its trunk and the unfortunate beast tore itself free, leaving part of its trunk in the snare.

The cruelty of the wire snare is well illustrated by the following incident reported by an honorary game ranger in Busoga. He was hunting buffalo in thick bush when one of these beasts suddenly crashed away from him. He saw signs of a heavy branch being dragged behind the animal and following up he found the buffalo lying resting on its side. Having shot the wretched beast he found that there was a three-eighth inch wire cable between its horns and half round its neck, while at the other end a stout branch was attached. This branch hit the animal's hind leg or got under its hooves when running; as a result the leg was much swollen and the hoof malformed. The poor beast must have suffered in this manner for at least three weeks.

Tribal Hunting.—Efforts to impress on those concerned the urgent necessity for the stricter control of tribal hunting, if this traditional sport is to be able to continue, has resulted in the Acholi local government taking action to reduce by 50 per cent the number of hunts which may be held annually and issuing instructions designed to prevent the slaughter of female and immature animals. This is a most noteworthy step in the right

direction for, although it is not desired to stop tribal hunting altogether, the animals could never hope to survive for long at the previous rate of hunting.

NOTES ON THE FAUNA

Chimpanzee.—These animals appear to be very numerous in the Budongo forest where the game ranger reports that three large troupes, amounting to about 30 in each, can frequently be seen taking fruit from the tops of the trees in front of his house.

The game ranger has observed an amusing habit which is worth recording. Large numbers of the black and white casqued hornbill (*Bycanistes subcylindricus*) roost in a large tree in front of his house and the chimpanzees seem to take a great delight in rushing up and down the tree shaking the branches on which the hornbills are roosting, at the same time shrieking with delight as they chase them out of the tree.

There is apparently one extremely large male, at least a third bigger than any of the rest; he, presumably the "Bwana mkuba", can often be seen during the heat of the day fast asleep at the top of the roosting tree. There is also a number of their nests each consisting of a large platform of sticks, usually about 50 feet from the ground.

Although the Budongo chimpanzees thrive almost unmolested by man, those in parts of Toro and Kigezi are not so fortunate as fair numbers are poached and eaten by the peoples of Bwamba and the Bakonjo.

The game ranger, Budongo, reports that nearly every troupe of chimpanzees in the Budongo forest appears to have an old male blue monkey with them; whether he is there as a servant or a guard is not known.

Elephant.—The game ranger, Budongo, reports an interesting incident which he observed on the Nile near Fajao in November. A small herd of cow elephants with calves was climbing a steep bank leading away from the river, but a very small calf was quite unable to make the grade. His mother knelt down at the top of the bank, caught hold of the little chap with her trunk, and very gently pulled him up the bank.

There is frequent controversy about elephants swimming but, below the new national park camp site on the Mweya peninsula, there is a crossing place where elephants regularly swim the Kazanga Channel. Recently an American film unit filmed the event and this will show "doubting Thomases" the manner in which it is done.

Buffalo.—The warden of the Queen Elizabeth National Park

observed an unusual sight in August. He saw an old bull buffalo with a broken back leg, obviously very sick and in pain; there were three other bulls with him. He decided to put the sick animal out of its misery and dropped it with a shot behind its shoulder, just missing the heart. One of the other bulls immediately came up and started, as the warden thought, to gore the fallen animal with his horns. It was soon apparent, however, that he was only trying to assist it to its feet which, to the warden's surprise, he actually managed to do before the wounded beast collapsed and died.

Lord Derby's (or Giant) Eland.—In April a game ranger saw a herd of about 30 of these magnificent antelope east of the Midigo hills in West Nile district and in June another herd of about 50 near the Sudan border west of the Jale hills. There is no doubt that they are visiting Uganda in increasing numbers.

Wart-Hog.—A game ranger walking through the Budongo forest came upon five wart-hog at a salt lick—a boar, a sow, and three piglets about a week old. The moment danger was sensed the sow let out a loud grunt and she and the boar made off while the three youngsters lay flat in the grass, so still that it was practically impossible to see them. When a game guard picked one of them up it promptly started the most terrible squealing, whereupon the sow burst out of the forest making loud snorting noises. The small pig was dropped and all three piglets rushed to the sow while the game guard disappeared rapidly in the opposite direction.

Hippopotamus.—The hippo continues to thrive in many areas though in others it is extensively poached for the sake of its meat. Its value to fisheries by manuring the water and thus promoting the growth of phyto-plankton on which *tilapia* feed, besides helping to keep open waterways that would otherwise become choked with papyrus, is of course very great.

White Rhinoceros.—The white rhinoceros continues to flourish in West Nile and West Madi both inside and outside the two sanctuaries of the Mt. Kei and Mt. Otze Crown Forest.

Black Rhinoceros.—These cantankerous animals are still present in limited numbers in various parts of northern Uganda. A game ranger moving down a track towards the Aswa river in Acholi in his Land Rover, came upon a black rhinoceros which appeared unexpectedly out of the long grass. He reversed slowly and the rhinoceros disappeared. Thinking it had gone he drove on until he came to a culvert that was obviously too weak to bear the weight of his vehicle. He reversed again and, while doing so, another rhinoceros appeared and charged down the

path towards him. The situation was becoming embarrassing when the rhinoceros ran on to the culvert which immediately collapsed in a shower of earth, dust and dried sticks. Somewhat shaken the rhinoceros ambled off into the grass again to the profound relief of the game ranger.

Giraffe.—An albino giraffe, which appeared to be a full grown specimen apparently almost pure white in colour, was seen from the air on the north bank of the Victoria Nile, some 25 miles east of the Murchison Falls in August; it was observed by both the provincial commissioner, Northern Province, and Captain Cartwright, the pilot of the aircraft, who circled to make sure of a good view. It was apparently in company with a more normal, but also light coloured specimen. It has not been heard of again, but it is hoped that it will be located when the new Murchison Falls National Park becomes more extensively patrolled.

NATURE PROTECTION AND TOURISM

WITH PARTICULAR REFERENCE TO AUSTRIA

A summary of a paper prepared for the Salzburg conference of the International Union for the Protection of Nature.

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Man is dependent on his natural environment, and not all the modern developments of science can alter this fact. This, the ecology of mankind, may be considered in three ways: the economic, which is the use of the soil and mineral wealth; habitation, which is living space; and recreation. Modern man, during a short time each year travels and becomes a nomad as his ancestors were. Sometimes he wishes to be at one with nature, to visit mountains, valleys or the sea shore, and this is the only aspect of his travels with which "nature protection and tourism" is concerned. To what extent then can nature protection co-operate with tourism and, where they seem incompatible, how can their difficulties be resolved?

Nature protection depends upon the knowledge and love of nature in contemporary mankind and finding this rather meagre, acknowledges in tourism a means of arousing it. In the schools of Austria, hiking and touring trips are organized several times a year. Thus children from cities see flowers and animals in the