

GAME AND THE TSETSE FLY

INTRODUCTION

This is an old topic and a battle in which our Society has been fighting for the past thirty-five years on behalf of wild life. Here is some new scientific light upon it.

First, we reproduce with permission, a letter from A. M. Harthoorn, D.V.Sc., D.V.M., F.R.C.V.S., of the Department of Veterinary Physiology, Makerere College, Uganda, published on 15th November, 1958, in *The Veterinary Record*, the journal of the British Veterinary Association. It would be right to mention that the veterinary profession has never been accused of bias in favour of preserving the wild game of Africa, when it has been suspected of spreading cattle diseases.

Dr. Harthoorn's work on the buffalo is, as far as we know, the first of its kind and is of great importance to nature conservation; for what is the sense in killing, at great expense, thousands of buffaloes and other animals in tsetse control—the total destroyed in these operations throughout Africa must now reach millions—if in fact the cattle with which it is hoped to replace the game will never produce an equivalent amount of protein food? If, moreover, even this lesser food value is produced, at the cost of soil erosion, of which game is hardly ever guilty but cattle very often are—then is the policy of game destruction still supportable?

To bring out this ecological aspect we publish a comment on Dr. Harthoorn's letter by Professor W. H. Pearsall, F.R.S., the world-renowned botanist and ecologist. But that is not all. The reason given for destroying not only buffalo, but almost every other ungulate, is that they are carriers of trypanosomiasis and that the tsetse fly takes the disease from game to cattle. On this aspect of the matter we have consulted Dr. Edward Hindle, F.R.S., a world authority on the transmission of disease by blood-sucking flies. We publish his reply which, to say the least of it, throws grave doubt upon the efficacy of the destruction policy except as regards wild pig. Dr. Hindle seems to question whether there is any value at all in destroying very many of the common species of ungulates.

The scientific case for the preservation of wild life in Africa for the direct benefit of humanity is very strong—the provision of meat, the conservation of the soil and of vegetation. If we add the æsthetic, recreational and educational value of wild life and even its economic value as a tourist attraction, is not our

case overwhelming? We ask for a reconsideration everywhere of the policy of slaughter, so that wild life, for its own sake and for the sake of humanity, may remain alive in the environment to which it is so beautifully adapted.

Comparison of Food Intake and Growth-rate of the African Buffalo (*Syncerus caffer*) with Indigenous Cattle: Preliminary Report

To The Editor, *The Veterinary Record*

SIR,

During the last eighteen months one of our research projects has been a study of the African wild buffalo and a comparison of its gain in bodyweight with that of domestic cattle. The object of this work is to make an evaluation of the feasibility of utilizing the buffalo as a source of meat. In countries such as Uganda where malnutrition is rife and protein deficiency among the human population is general, an immediate way to increase the nation's protein supply may be worth many long-term projects.

Studies on the African buffalo have been and are being made although not, we believe, on the comparative lines we are following here. It is generally believed, however, that with careful selective cropping, existing herds of buffalo in certain areas of Uganda may be made to yield large quantities of meat without depleting their numbers. Our studies indicate that these animals thrive and put on weight on grasses which do not support native cattle, and gain weight faster than either indigenous or exotic cattle when the fodder is poor. They are known to be extremely resistant to most of the cattle diseases including trypanosomiasis.

Figures obtained from the Uganda Game Department of meat produced from game animals is some 3,870 tons annually. The value of this in 1956, calculated at the very low value of 1s. per lb., is £433,440. Meat from cattle, sheep and goats slaughtered is 25,168 tons, giving a proportion of 13·3 per cent of game meat as the annual contribution in Uganda, including towns. (In some country districts the contribution is as high as 60 to 70 per cent.) Of this amount some 2,070 head are buffalo at an average bodyweight of half a ton each.

It is believed that the figure of buffalo harvested annually could be immediately raised some fivefold without depleting the

herds. Buffalo meat is acceptable by almost every African tribe and fetches a high price when sold in the open market.

Our work on these lines would by now have reached a much more advanced stage had it not been for the difficulty in obtaining accurate weight-gain figures through lack of weighing facilities, and consequently our full report may not be ready for publication for several years.

This preliminary report has been precipitated through the tragedy of the indiscriminate slaughter of these buffalo (among numerous other animal species such as antelope) in an attempt to eradicate the cattle tsetse fly. It is very doubtful if some of the areas in which buffalo and other game are now being eliminated will ever be of use in ranching native cattle, and when one hears, for example, that 8,000 buffalo of both sexes and all ages have been slaughtered in the Katonga marshes alone, one cannot but feel that a valuable source of meat in the hand is being squandered for a dubious source in the bush. When one considers that in Uganda there is only one veterinarian to some 1·6 thousand square miles, and one veterinarian per 8·4 thousand square miles in Tanganyika, the difficulties of consolidating any land won from the bush can be imagined, and there are many experts in East Africa who would advocate absorption and better farming of utilizable land rather than a wholesale exploitation of irreplaceable natural resources.

It is to be hoped that the scientists in various parts of Africa working on problems such as the proper utilization of existing natural fauna may be in a position to publish results before the object of their research remains only a curiosity in game reserves and zoos. It is our confirmed belief that were more scientific workers able to study buffalo closely, as we are doing, they could not but be convinced of this particular animal's robust power as a meat producer, and, in many areas, his greatly superior capacity to that of the native stock for whose introduction he is being eradicated.

DEPARTMENT OF VETERINARY PHYSIOLOGY,
MAKERERE COLLEGE,
UGANDA.

Yours faithfully,
A. M. HARTHOORN.

27th October, 1958.

Game Protection as a Form of Land-use

By Professor W. H. PEARSALL, F.R.S., F.L.S., D.Sc.

Dr. Harthoorn's letter on the subject of the high protein-food yields which might be obtained from the proper control of buffalo in Africa draws attention again to the short-sighted policies which are often being pursued in the various attempts to "develop" the less productive parts of the dark continent, and not least to those being used—indiscriminate fire and slaughter—in attempts to control tsetse.

The figures Dr. Harthoorn quotes as to what is actually being done in Uganda are impressive. Still more impressive were they fully known, would be the data for the numbers of various breeds of game animals poached. Dr. Harthoorn makes two points in favour of the conservation and "cropping" of the Africa buffalo as protein food—their ability to thrive on poor diets and their resistance to disease.

It should be pointed out also that these are only a particular expression of the general argument for "cropping" game animals *as a form of land-use*, valuable both in preserving the game and in providing protein as food—where protein-deficient diets are common. The general argument is that the conditions which prevail over large areas in Africa have produced ecological systems including both plants and animals, which are successfully adapted to produce living material (i.e. protein) in unfavourable and often extreme habitats. These systems and the breeds of plants and animals they contain have taken ages to evolve and it is somewhat improbable (at the best) that we shall be able to replace them at short notice with others equally efficient under the hard conditions in which they work.

There are two facets of the problem. It is extremely unlikely that we can find domestic breeds of animal which are equally well "tuned", as it were, to the peculiarities of the habitats. Those who are familiar with the problem on the ground have commented on the superb condition of the game animals at times when the domestic breeds, native or exotic, only survive with difficulty and in the poorest physical condition—a condition which is indicative of their lack of resistance to drought and disease.

The second aspect of the problem is that the herding and local overgrazing always associated with domestic stock and the constant use of fire by pastoralists, are liable to degrade the vegetation from types selected naturally for protein production

to those whose only virtues are fire-resistance or unpalatability to stock. The maintenance of productivity often depends on the survival of the native vegetation cover.

There is a very strong case for detailed study of the natural ecological systems in their entirety before they have been wholly destroyed in favour of alleged improvements. This would be coupled with attempts to estimate the productivity of the game they contain. Game conservation areas in particular should be regarded as a form of land-use to be studied to find out how far they can be extended or improved both in the interests of the game populations and of native Africans living on protein-deficient diets.

Game *versus* Tsetse

By EDWARD HINDLE, F.R.S., M.A., Sc.D., Ph.D.

It is very much to be hoped that the results of game elimination as a tsetse control measure recorded for certain areas of Uganda, will not be accepted without further investigation as an excuse for the general slaughter of big game in that country. Apart from the strong æsthetic reasons for preserving wild life, one of the greatest attractions for tourists, the results of careful studies by Dr. Weitz and Dr. Glasgow on the natural hosts of various species of *Glossina* in East Africa show that wart-hogs and bush-pigs provide about half the food supply of *G. morsitans* and *G. swynnertoni* and nearly 88 per cent of *G. austeni*. The wart-hog seems to be by far the most important host, which is all the more remarkable as from spoor records they are much less common than many other mammals. About 36 per cent of the blood was derived from ruminants, comprising at least a dozen species. Buffalo seems to be an inconsistent but attractive source, but its blood was present in only 5 per cent of all the feeds; roan antelope was a more reliable source and provided about 15 per cent and kudu and bushbuck each about 14 per cent of the ruminant feeds. Domestic animals such as cattle, sheep and goats were regularly attacked. On the other hand, eland, duiker, waterbuck, baboon, monkey, dogs and cats, hyaena and birds were rarely bitten. No flies at all were found to have fed on hartebeest, topi, zebra and wildebeest, and only very few on impala, although these were very numerous in some of the areas examined.

These results are based on the examination of 1,590 smears from tsetse collected in seventeen different places in the Sudan,

Uganda, Kenya, Tanganyika, Zanzibar and Southern Rhodesia, and therefore may be considered as fairly representative of the sources of food for tsetse in East Africa. Similar studies in the Belgian Congo also show the overwhelming importance of wart-hogs and bush-pigs as a source of food.

A recent report by A. G. Robertson and J. P. Bernacca, of the Tsetse Control Department, Uganda, contains a description of the measures taken to control the southward advance of *G. pallidipes*, which is said to be associated with seasonal large-scale southward movements of buffalo. The active control measures introduced include the development of game elimination, coupled with fierce late-burning and intensive pig-hunting. The hunting measures included the killing of all the ungulate game animals, except giraffe and roan antelope, which are very rare, and in some areas, the Uganda cob. Whilst there may be some reason for the destruction of wild pigs there would seem to be little if any justification for the widespread destruction of *all* ungulate game animals since many species are rarely, if ever, bitten by tsetse.

THE KARIBA LAKE

By REAY H. N. SMITHERS

Director, National Museums of Southern Rhodesia

On 3rd December, 1958, the two ports in the Kariba Dam, through which the whole volume of the great Zambesi River was then flowing were closed. This heralded not only a major step in this vast engineering project but also the commencement of the greatest environmental upset ever to befall a population of animals and birds within the African continent, in the memory of man.

The lake so created along the border between Northern and Southern Rhodesia will, by 1961, be by far the largest artificial body of water anywhere in the world, and will have a surface area of some 2,500 square miles. It is as though water stretched from London to York with a maximum width of 35 to 40 miles. The area of this lake will equal that of Devonshire.

Because of the nature of the Zambesi Valley, flat and wide with innumerable rocky kopjes and hills, the process of flooding will, over the next two years, produce many islands. Some will disappear under the rising waters; others will become permanent land, from a few acres to some 1,600 acres in extent. The great