

- (1.) Possibly too wide a statement. I think elephant only really became involved in the latter part of the period under review, although there were probably not many elephant present in the early years of the operations.
- (2.) You could possibly say "in favour of the modification of tsetse habitats by discriminative bush clearing methods and the use of residual insecticides", vice the present wording.
- (3.) As the Branch of Tsetse and Trypanosomiasis Control is the organisation which is immediately responsible for the records and is the direct successor of the "Jack/Chorley period", I think it would be more correct to say "extracted from the records of the Branch of Tsetse and Trypanosomiasis Control of the Department of Veterinary Services". The word reclamation does not come into the name. This is a relic of when the organisation was a full Department in the late 'fifties/early 'sixties before joining up with the Vets.
- (4.) I think that the word apparent is a trifle too critical. The record indicates that the tsetse receded twice in the face of hunting in this area, once in 1919 and again in 1923. I believe it might be more satisfactory to say "and in view of the fact that the problem as it affected the Gwaai Valley settlers cleared up and drawing the obvious conclusion, the technique was applied more widely by Government", or some similar wording.
- (5.) The oryx were probably shot on the Dett Vlei which probably fell within what must have been a rather arbitrary hunting area. And in the case of the wildebeest the Karna Block area would have been a very satisfactory habitat, particularly to the north of the Shangani between the Mzola and Kana rivers and extending up the firstnamed river. There is a record of a wildebeest on Dandanda, on the headwaters of the Mzola, by Hemans in his "Log of a Native Commissioner".
- (6.) See my note (1.).
- (7.) As regards buffalo, there may not have been very many in those earlier days, possibly having taken longer to recover from the decimation of rinderpest - see Jack's paper "Tsetse Fly and Big Game in Southern Rhodesia, 1914", p. 108, where he makes this observation at some length. There is also a map in that paper showing buffalo records, which might be of interest.
- (8.) Deleted.
- (9.) Have you looked at hunter numbers generally?
- (10.) Hunting was much curtailed during 1957 whilst fences were being built, e.g. in Sebungwe along more-or-less the same line as the Southern Sebungwe Game Fence, beginning on the Nagupande and terminating on a small escarpment to the north of the Sengwa river just east of Sai, in Urungwe from the Gache Gache to the Rekomitjie river, and in Mtoko. Hunters were used as labour, but were allowed to hunt in the vicinity of the fence camps as the work proceeded.

- (11.) 1. Hunting operations on the old style were terminated as follows:
- Sebungwe - end of October, 1960.
 - Sanyati (S.W. Lomagundi) - end of November, 1960 (hunting had been suspended from March to September, 1960, inclusive, whilst the game fence was constructed).
 - Urungwe - end of November, 1960, in Urungwe West and end of December in Urungwe North and East.
 - N. Lomagundi - end of May, 1960.
 - Mtoko - end of June, 1961.
 - Sabi-Lundi - end of January, 1960.
2. The only hunting thereafter was along fences until the Nagupande Operation was commenced during October, 1962, followed by the selective game elimination operations as we know them now which were initiated during the period October/November 1964.
- (12.) The bounty was initiated early in 1952 and was terminated about 1956. I seem to recall that it was the Commission of Inquiry, 1955, which recommended its termination. The bonus was £10 per elephant with a maximum of £200 p.a.
- (13.) I mention for interest sake that strenuous efforts were made to catch the main culprits, but we were unsuccessful. It is unlikely that the earlier one got away with any unwarranted bonuses because I was running the area and had close tabs on him. The second, however, was another kettle of fish. I have good reason to believe he misused his position.
- (14.) It is of interest that there was still a sprinkling of rhino throughout the area known in Tsetse circles as West Urungwe (Kanyati and Rengwe T.T.L.s when I worked in the area, 1952 to 1954, inclusive and also along the foothills of the Zambezi escarpment from the Sanyati to the Naodza and Tsororo rivers, which was quite remarkable when one considered the hunting ability of some of our older hunters. One hunter, in particular, by the name of Msokoto, claimed he had shot 50 rhino in the Zambezi escarpment foothills as described above and I had no reason to doubt him as he was an outstanding hunter. The point is that I don't think all animals killed were reported.
- (15.) I think you should put in "for tsetse control purposes" bearing in mind that there were still a few rhino present in the hills above Rupisi hot springs until very recently. I know Rupisi is some way away from the tsetse operations area but the general use of Sabi Valley might lead to misunderstanding.
- (16.) See (14.) above.
- (17.) A hunting supervisor was stationed at Cewali during 1955, together with a team of hunters, to cover the Mzola area because of the deteriorating trypanosomiasis position in the Kana river area, to the south, and a quick look at the monthly figures for the period 1955/56 has indicated that this development boosted the tsessebe kill very considerably. The Mzola drainage, including Dandanda carried a relatively large population of tsessebe. As mentioned in (9.) above I think hunter numbers is an important factor.

- (18.) I think "from the Zambezi Valley area of Zimbabwe" would be clearer than "from the north of Zimbabwe".
- (19.) See (3.) above. It should be Branch of Tsetse and Trypanosomiasis Control.
- (20.) CEWALI?
- (21.) You have obviously corrected to the approved name, although this could lead to problems for others when relating records at a later date. It would be as well to include the name Cewali in parenthesis after the first time you use Chiware.
- (22.) I do not recall tsessebe as being reasonably common north of the old game fence. We have a record of one being killed in the Nagupande Operation and there was a small group which were seen from time to time near Muzaze Hill (Muzaza). And it was not until you got into Chizarira, from the Mbelele headwaters on that they became common.
- (23.) My records indicate that there was a relic population of four rhino in the Nagupande Operation area during the 1963/64 period. It is of interest that we collected tsetse bloodmeals from rhino during the period we were collecting bloodmeals in Nagupande.
- (24.) It will be of interest that immediately prior to the commencement of the Nagupande Operation five hunting parties were permitted to hunt the area during the period late June to the end of August, 1962, and they killed 16 elephant, 17 buffalo, five eland, eight roan antelope, 20 kudu, 15 impala, 22 warthog, two bushpig, eight duiker and one grysbok. I recall the hunters were satisfied with their bags. Mr. de Beer of your Department was a member of one of the parties.
- (25.) Why not just "hunters"?
- (26.) I hunted with many of them. They seldom took chances with their shots because replacing their ammunition was not straightforward; they had to account for each shot and many supervisors tended to make life difficult as regards excessive expenditure of rounds. And also they appreciated their limitations as shottists and therefore got as close as possible. My experience was that they seldom chanced a shot over 100 m and mostly it was 75 m or less. I might add that they preferred the old Martini Henry, which rifle was replaced by the ,303 in 1952.
- (27.) I think 1965 should read 1956 if it is the paper/report I am thinking of, namely "A survey of the tsetse and game position in the Chirundu area of the Zambezi Valley" by R. Goodier, August, 1956. He left our organisation very early in the 'sixties.
- (28.) Possibly add "in order to hasten the elimination of the small antelope within the newly created fenced corridor", because, of course, our objective was a game free - cattle free corridor. In hindsight this was an impossible task as we found out very quickly, but we were faced with a rapidly deteriorating trypanosomiasis situation along the Kana and to the south of this river at the time and there was therefore an urgent need to get the most out of our

limited resources. It is noteworthy that the bloodmeal work was still very much in its infancy in 1957/58 and we had no collections from the fenced corridor.

- (29.) It is of interest that fourteen warthog were shot in that first year of hunting with shotguns. On reflection one wonders whether they were not shot in daylight hours by the shotgun hunters.
- (30.) The shotgun hunters were not very effective against reedbuck. We shot twenty-four in that first year, but this species was very numerous on the vleis in the fenced corridor, particularly along the Mzola and we were disappointed at the results. Of interest was my comment in the annual report for 1958/59, to quote "Reedbuck have proved a difficulty since they will not stand for a bright light. There is a suggestion, however, that a weak light is more attractive and experiments are in progress along these lines".
- (31.) If the reference (Cockbill, 1964) relates to the cyclostyled report "A Second Review of the Tsetse and Trypanosomiasis Position in Southern Rhodesia, 1964", then this figure is 64,8 per cent. (warthog 22,5%, bushpig 0,3% and warthog or bushpig 42%, although one can take it reasonably for granted that the majority of these feeds were warthog, on the basis of our present knowledge.
- (32.) Warthog, of which there was a large and very obvious population and kudu to some extent were regarded as the main sources of sustenance for tsetse flies in Nagupande and the hunting was therefore directed against these two species accordingly. And, I am even inclined to add that the emphasis was on warthog.
- (33.) There was no obvious persistent decline of the tsetse population in this country during the 'fifties despite the hunting operations. Advances were occurring on every front with the appearance of new fronts in Mudzi (then Mtoko)/Inyanga North and the Sabi/Lundi region. It is also relevant that *G.pallidipes* became a species to be reckoned with in the Zambezi Valley's general area during this period. Prior to then it was only known to occur as an isolated focus on the Sebungwe river, Binga district. As a result we entomologists were totally disillusioned by the operations and were thinking in terms of either refinements in hunting or other methods, including bush clearing and insecticides, although in my own case bushclearing was anathema. As regards the hunting operations, I think, we saw an urgent need to intensify these, firstly by increasing control, although this was not a straightforward matter (there was little or no transport available to use and only minimal access and, of course, we had to change attitudes, which was not easy), but mostly we believed there was a need to increase hunter density. At that time this was about one hunter per ten square miles, but we felt this should be halved. In the case of West Urungwe I flooded the area with hunters in the middle 'fifties by using those from what was then the Urungwe Reserve Section and obtained fairly rapid results and, of course, later at Nagupande we worked on one per four square miles (please excuse my not metricating).

- (34.) There is no doubt that the hunting influenced the behaviour of the hosts species. I came to this conclusion many times when working in the operations areas during the early 'fifties, particularly Urungwe and more recently as regards the Sipolilo and Lomagundi operations areas, which were initiated in late 1964, as I racked my brains to explain why we were not getting the desired results. On the other hand, though, there is no doubt that the tsetse flies themselves must have adapted, because somehow or other they continued to meet up with their hosts and thrive in a number of situations, e.g. West Urungwe in the early 'fifties where a G. morsitans population of incredibly high density existed, such as I have experienced nowhere else in Africa and the only indication of host animals was spoor, particularly that of warthog. I have never arrived at a satisfactory explanation, although it might be possible now using Cumming and Vale's various studies. Unfortunately, we had no bloodmeal identification system in those early years in Urungwe; identifying bloodmeals would have helped.
- (35.) The reported deterioration in the tsetse situation after the reduction in the sizes of the hunting areas as far as the Chiware Section of Sebungwe was concerned was without any doubt the result of an incorrect siting of the fenced corridor, i.e. we hunted the wrong area. The corridor straddled an area of generally Kalahari sand woodland, interspersed to some extent by Kalahari sand type vleis, a habitat which had never been satisfactory for tsetse in the long term, or certainly that is our impression (there is good reason to believe that the frequent lower minimum temperatures of the Kalahari sand areas are a limiting factor for successful pupal development). Instead, we should have dealt with the favourable Nagupande headwaters area immediately to the north, where tsetse recovered very rapidly following the withdrawal of the hunting early in 1957. Also in this context, it might be of interest if I quote a statement I made in the 1959/60 annual report, as follows:
- "It would be as well at this stage to discuss the hunting results in relation to tsetse figures obtained from fly-rounds throughout the area. The fly-rounds which have now been in operation for well over a year, indicate no obvious change. It was quite unexpected that this intensive hunting, which had been continuous over a period of two-and-a-half years, should have made no impression on the tsetse population. Control has been obtained over elephant and considerable inroads have been made into the larger game animal populations, but evidently there has been little effect on the smaller game animals. The persistence, perhaps even the increase, of smaller buck is not likely to have accounted for the failure of the tsetse population to collapse, a conclusion strengthened by the analysis of bloodmeals published below. A recent consideration of the problem has rather suggested that the shooting area is too limited. The present arrangement is such that the game fence follows the very edge of the high tsetse density area, better termed the "parent population" area. The shooting has therefore only been directed against the "fringe population" or what could be called the "overflow population" and it would seem that even if it were possible to achieve complete eradication of the game between the fences as these stand at present, the "fringe or overflow population" would still

continue to exist./6...

continue to exist. On the other hand, however, had the shooting been carried out so as to include the areas of high density, that is to say, had the entire habitat been attacked, then it is probable that with game eradication of an order similar to that already obtained between the fences the tsetse population would by now have been appreciably reduced. Western Urungwe is an excellent example of an area in which control has been achieved by attacking the game throughout the entire habitat."