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ANNUAL REPORT OF THE CHIEF ENTOMOLOGIST.

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General: Reports from various districts during the year have indicated continued extension of the tsetse fly areas at various points. The districts involved include Darwin, Lomagundi, Hartley and Sebungwe.

Influence of Game Elimination Experiment on Gwaai R. In the portion of the Wankie District along the Gwaai River, where the outbreak of fly disease amongst the game from that river to and beyond the Shangani, the report continues to be satisfactory. Fly disease has not been recorded in this locality since 1921 and there are apparently more cattle there today than at the time the outbreak started. There is no record of retirement of the fly in any other part of the colony, but it is to be noted that local retirement might have occurred in remote areas without being recorded.

Experimental Operations in Lomagundi. The outstanding activity of this branch during the year has been in connection with the Tsetse Fly situation in Lomagundi, where an attempt is in progress to establish a game-free buffer zone, by means of a double line of fences, ten miles apart, between the occupied farms and the Tsetse Fly area. This experiment is dealt with in detail in an account submitted for publication in the Rhodesia Agricultural Journal and should appear in the issues for February and March, 1926.

The undertaking has absorbed the whole time of Mr. Shorley from July 31st to December 18th, a preliminary examination of the country by the Forest Officer and myself extended from May 4th to June 5th and a number of visits between August and December have been necessary in connection with the operations. A final inspection of the completed fences was made between December 10th and 18th. Mr. R. Hutchings is now in the fenced area in the capacity of ranger with eleven native hunters under his direction, his duties including maintenance of the fences and elimination of the remaining game.

It gives me great pleasure to acknowledge the invaluable assistance rendered by the Native Commissioner, Sincia, and his staff in reference to these operations.

EXPERIMENTS IN TRANSMISSION OF FLY DISEASE AMONGST CATTLE IN THE ABSENCE OF TSETSE FLY. Arrangements were made with the Chief Veterinary Surgeon for three field experiments in associating "fly struck" cattle with healthy cattle away from fly infested

country in the 1924/1925 wet season, but of these only one was carried to a conclusion. The districts chosen for the experiments included Nyamandhlovu, Lomagundi and Hartley. The unusually heavy rains and swollen state of rivers precluded that exposure of cattle to the fly by the time arrangements were completed in the first named district. In Lomagundi the cattle exposed to fly failed to contract the disease. In the Hartley district, under the supervision of the Cattle Inspector, Gatoona, the experiment was carried out successfully and two out of the four herded with the two fly struck cattle contracted the disease, which was diagnosed from blood smears by the Director of Veterinary Research. The remaining two contact cattle died from other causes before sufficient time had elapsed for them to contract trypanosomiasis. The animals were, apparently slightly too old even for the purpose for which they were purchased.

I take this opportunity of expressing my appreciation of the way in which the Chief Veterinary Surgeon has cooperated in these experiments.

Mr. Chorley visited Hartley (once) and Lomagundi (twice) whilst the experiments were in progress and made a collection of prevalent blood sucking flies, which included two species of *Stomoxys* = *S. calcitrans* and *S. braunipes*, the latter being particularly abundant in Lomagundi in April. Tabanids were represented by a very few specimens of *Tabanus* and *Haematopota*. The most abundant blood sucking fly was, however, a species of *Gulicoides* swarming round the cattle in the evening. This species was a great pest throughout the season at Salisbury and, from reports, elsewhere. Unofficial statements were received concerning the death of calves from its attentions and the conditions of cattle generally was unusually poor.

Three further experiments have been arranged for the present wet season but had not yet been commenced at the end of the year.

It is to be noted that so far in these experiments we have missed the big incidence of Tabanids (Hippo Flies and Blind Flies) which occurs in the spring months in many localities i.e. September onwards. This remark applies also to the present season's experiments. There is some reason to think that these insects may be of importance in connection with "mechanical transmission" and it is to be hoped that, next season, experiments may be arranged in time to furnish some information on this point.

Mr. Chorley's service in connection with the Tsetse Fly Operations in Lomagundi calls for special notice. His duties involved a very prolonged absence from headquarters under conditions which, as the season advanced, became distinctly arduous. The successful prosecution of the undertaking was in a very large measure due to his supervision in the field.