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15th October 1925.

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REGULATION

DEVELOPMENT OF INLAND AND COASTAL FISHERIES.

Submit views on recommendations of E.A. Commission. Enclose copy of a memo prepared by Dr Bruhl prior to the war, dealing with fisheries of Lake Tanganyika.

Previous Paper

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Subsequent Paper

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GOVERNMENT HOUSE, DAR ES SALAAM, NOV 25

15 October, 1925

TANGANYIKA TERRITORY

No. 741.

Sir,

With reference to your despatch

co. 33919/25 ca.

No. 446 of the 7th of August regarding the remarks of the East African Commission on page 93 of their Report relative to the possibility of developing the inland fisheries of East Africa, I have the honour to transmit for your information the accompanying copy of a memorandum with regard to the fisheries of Lake Tanganyika by Dr. Brühl who was in this country prior to the war with the object of advising the German Government on fishery questions in general.

Memorandum by Dr. Brühl

in and outside the water after the the over -

2. From the data contained in Dr. Brühl's Report I consider that the somewhat sweeping statement of the Commission that "with a little encouragement from the Government the methods of hauling and curing, transporting and marketing could be vastly improved, with immediate return to the country, both in revenue and in the improvement of health of the native population" to be unduly optimistic. I should be glad to have some indication.

RIGHT HONOURABLE

L. C. H. S. AMERY, P.C., M.P.,

&c., &c., &c.,

DOWNING STREET,

S. W.

indication of the methods of encouragement which the Commission had in mind. The most practical step in my opinion would be made if a suitable person could be found to start fish curing in a small way in order to prove what can be done and to teach the native.

B. In this connection I may mention that the question of a survey of the ocean fisheries of the East African littoral is already receiving the consideration of this Government and on this subject I am in communication with the Governor of Kenya, who has already addressed to me his question in his despatch No. 83 of the 3rd July 1928. This Government has expressed its agreement in principle that a survey of the ocean fisheries should be undertaken with the assistance of the Fisheries Adviser to the Government of South Africa and has also agreed to discuss participation with the Government of Kenya when the cost of this survey is known.

I have the honour to be,

Sir,

Your most obedient, humble Servant,

David Lawton

G O V E R N O R.

Dr. Brühl's Report on Fishing in Lake Tanganyika.

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Up till now I have investigated the fishing in the most northerly part of Lake Tanganyika, between Ujiji and the mouth of the Ruvuasi. This according to the opinion of practical persons, is the richest part of the lake as regards fish. The local physical conditions also bear out this opinion; the number of fishermen domiciled along the shores of this part of the Lake is extraordinary large. There ought however in addition to be individual spots in the southern part where the quantity of fish would equal the northern portion, such as at the Kilimani and near Kivando. During the next few weeks up till the 1st July, I intend to investigate that part of the Lake.

As a result of my latest investigations the opinion previously expressed by me and which dealt exclusively with the fishing industry conditions around Kigoma and Ujiji (to the effect that the Lake was abundantly stocked with fish) can now be confirmed, now as far as the northern section is concerned. The quantity of fish in places exceeds by far any previous description. For the most part they are edible fish very free from bones.

The chief object in the catch everywhere is the scallied "DAGAA" which are a small sprat-like fish of various varieties and which are caught at night time by torch light. The very frequent large hauls could be considerably increased if the natives only confined themselves more to catching them. The best method for obtaining better markets for this catch would appear to be in conjunction with a mild form of pressure on the part of the administration. At the present time after a rich catch, the natives remain idle for several days, until hunger and the pressure of having to pay their taxes drives them back again to their fishing. In addition to this the espionage regulations along the Lake shores during the war have undoubtedly the effect of keeping the natives away from their fishing.

In a fresh condition the Daga are eaten in extraordinary large quantities by the dwellers of the Lake shores as a condiment with their food. They also form a very pleasant nutriment for Europeans if properly treated. Very large quantities are in addition cured in the most primitive fashion (this can be easily removed) and sent to the markets of villages along the lake or into the neighbouring hill country. These dried Daga are only to be taken into consideration as far as concerns native food (also as bait for the coloured shark). If properly cured they could be exported long distances. I cannot as yet state with any certainty what the factors are that govern the periodical appearance and disappearance of the Daga or how lucrative the dried Daga, also fresh Daga which can be cured later, I shall be in a position to supply the market, especially if the local administrative authorities support the efforts. To supply the exact quantities of fish monthly, as required by the supply corps in their letter of 2nd June, neither I nor a person occupied the whole year round in catching fish on the lake would be in a position to guarantee the catches, especially when it is a matter of periodical appearance, of which man has no control, and far more varied than the already known great decline in the agricultural products (corn, young cattle, milk, animal fat, etc.). However, the quantity which may safely be expected will run into many cwt per month if the industry is organised. The fear that by an increase in the catches and their sale an important article of food will be withdrawn from the local population, need, in my opinion, not be thought of. Very often when the markets close there are such large quantities of Daga left unsold that the suggested organisation would much more mean the opening up of a very welcome source of revenue for the local natives.

The organisation should, I think, be rather on the following lines:

At a fixed

At a fixed place the fresh catches should be bought in off the fisherman at a fair average ruling price (for cash). In addition to the fisher folk resident at this place, fishermen from other places could also bring their catches here. The fish should then, according to my idea, be dried, packed and put ready for removal, to begin with under my personal supervision, later on under the supervision of a trained third party so as to leave no time to establish other fishing centres. At the more remote fishing centres the fish dried by the fishermen themselves can be bought up (preferably by the local government clerks or persons in charge of the post who are at the moment entrusted with many other outside jobs) and be forwarded to the central station mentioned above, or in the case of large catches be sent direct to the individual military companies. A bleeding and sorting of the dried fish is purchased, and in cases of necessity even a further curing, may be made at the sub-stations or central stations. The central station will, in my opinion, after a short space of time, be in a position to also manufacture from the salted Dagan a good lasting article somewhat similar to anchovies in character and in all probability there can also be taken into consideration as a ration for the Europeans. The manufacture of oil preserves somewhat after the style of hard-ness should also be possible if autoclave (used in cooking high steam pressure) and preserve boxes or tin boxes and solder free from lead for the manufacture of such boxes are available in the colony. As to the price to be fixed for the purchase of Dagan, that is to say what capital will be necessary, I am at the moment unable to estimate. The fish are not bought according to a fixed quantity or weight but by heaps, the size of which vary according to the fishing conditions. The price for these heaps at places visited by me has fallen so low, that at all events an obtainable and comparatively lasting article of food, much appreciated by the natives, can be supplied at a very small cost. I shall return to the question of other factory and running expenses later on.

The selections

The selection of the suggested headquarters (further central stations can be made if the whole scheme works well) must be dependent upon the abundance of fish and further as to whether it is intended to dispatch the fish long distances (for example to the northern boundary of the Protectorate) or whether it is mainly only a question of supplying fish to the troops gathered in the southern portion of the Lake area behind Bismarckburg. In the latter event -*paribus*- Kirando should be selected in other cases Rumonge should be chiefly considered as there are a sufficient number of empty buildings at our disposal in the sleeping sickness camp which for the time being has been evacuated.

It is of the greatest importance that the steamers - long in to the Marine Expeditions Corps "Hörs", plying on the Lake, should be available for the transport of the fish. Fish, even in a preserved condition, is a commodity which deteriorates more easily than other kind of food. It is therefore necessary to have quick transport available for forwarding it to the place where it is required. Those with practical attention it could at any rate be stored for a longer period. The sailing vessels and canoes on the Lake require too much time on account of contrary winds and seas and thus by reason of the primitive packing methods which for the time being can only be thought of in the Colony the fish will in addition easily become rot. The overland transport along the Lake to Kigoma (for forwarding by rail) or up to Bismarckburg (for consumption) would be best avoided owing to time it takes, as a still further road transport (via Morogoro-Handani or to the troops) has to be surmounted. The use of motor lorries, where such are available, is to be recommended in order to lessen the time in the transport of the fish. To a very large extent the success of the experiment will rest on the celerity of the transport of the cured fish. Transport by the steamer must to commence with depend in each case on its recall,

but later on

but later on in the season good well on specified days. After the Daga larger fish are to be found in Lake Tanganyika weighing many pounds and in large and in many places extraordinary quantities. With respect to this of the places examined by me, Burunge comes first, then Uvumbi, Uigora, Usunura and lastly Kidussa. The spot alleged to be richest in fish - Ras Ngalla - I was unable to examine for reasons which will be given in another place. Fish weighing from 10 lbs. in large should not be any amount exceptional for the abovementioned places, although the greatest weight of the south-west season is the 10 lbs. fish of the year for the fishing season. They will weigh in much larger quantities.

This abundance of fish can scarcely be exhausted by the natives and the necessary population of a purchasing capacity does not exist in any large. In addition to this the native can only sustain without the necessary and more expensive fuel for obtaining these fish and the amount of labour involved in this catch exceeds above all to be too much for him since the Daga which are cheaper and easier to catch supplied for his own requirements. Even in such places where larger and more expensive nets do exist, large catches are very seldom made on account of the inevitable construction of the nets. Should more fish be caught on any one day than are required for the day's consumption, the balance is salted or smoked in the most primitive fashion and are thus always preserved from decaying for a few days.

By the employment of modern European nets the conditions are very different as my experimental fishing attempts showed. Catches of 50-60 lbs. in one trawl of about half an hour were always the rule in places where there was an abundance of fish. Very often the hauls were much larger and on one occasion near Burunge a single trawl resulted in a catch of 250 lbs. By the employment of my nets, the work in catching large quantities of fish of one pound and several pounds each is thus very light.

It can be proved that there need be no fear of an over-fishing within a long time to come, that is to say from a continual removal of the stock of fish from the lake, and thereby labor damage to the local fishermen, if any such question should be brought up at all for discussion under the present circumstances where we are only concerned with the provision of sufficient rations for the troops defending the country.

The utilization of the larger fish for the use of the Protectorate forces can only be done by drying, salting or smoking if certain precautionary measures are followed. The commodity can be made so durable that it will permit long storage. At the commencement delays are likely to occur in the curing when it will be easy to come to the assistance of the natives for the purpose of preventing the rotting of the fish. The following measures should be taken.

In order to arrive at a suitable result it is as possible that is to say to create a durable and palatable preparation for the coloured natives, it appears indicated that at first the simple methods employed by the natives since long ago in the curing of drying, salting and smoking should be organized and only slightly modified in order to make the commodity more tasty and durable. At the same time experiments can be undertaken on a small scale with the methods employed in Europe and America, the direct use of which in the preserving of fish is not possible here as the climatic conditions necessitate modifications in these methods to guard against failures and these can only be discovered by experiments. These experiments appear to be also as very necessary as the war will possibly last for many months more and thus the provision of cured fish, fit for European consumption, must be regarded as an urgent need. The organization of the utilization of the larger fish will have to depend closely on the erection of the above suggested central station for the purchase and curing of the Daga. There the fish will be caught with my European nets by my experienced and newly trained native fishermen

all under my personal supervision and according to my directions, salted, dried or smoked and packed. As soon as the whole concern is in full swing and a body of experienced staff available, I can, if necessary, leave the main depot in the hands of a competent manager and establish a second similar depot at a more distant place on the Lake. The experiment can also be made of supplying the natives of the fishing villages close to the main depot with ^{These can} ~~nets, which are to~~ be made by the local funds after the style of nets from the vegetable fibres of which there is an ample supply, and thus they will be able to make deliveries of the larger fish caught with these nets to the main depot against payment.

The only things required for the initial outfitting and temporary working of the main and sub-depots are such, which can be made at a very small cost locally or respectively purchased from the Indian shops, as well as the things brought out by me from Germany in my very complete fishing outfit. In this respect the following are required:- flat wooden trattles, the so-called ^{trattles} ~~curdies or wickers~~ covered with "Mateto" (papyrus) and with low grass roofs (as sun shades), mats or bark cloth for spreading out of the fish and their packing, salt, shallow wooden ladles for stirring up the salt and fish, fish cleaning knives, baskets for carrying the fish to the curing depot, string and thread of suitable fibre for the hanging up of the fish whilst curing for fastening the loads, curing hooks (these can easily be made from old umbrella frames which are available everywhere here) good, canoes, mats, ~~and~~ ^{and} ~~parts~~ ^{parts}, ~~large~~ ^{large}. If these articles are not to be had here, they can be easily obtained from the supply depot or any other curing supply depot. It is also necessary to have ^{and} ~~some~~ ^{some} ~~shades~~ ^{shades} ~~in~~ ⁱⁿ ~~the~~ ^{the} ~~depot~~ ^{depot} ~~for~~ ^{for} ~~protection~~ ^{protection} ~~against~~ ^{against} ~~rain~~ ^{rain} ~~is~~ ^{is} ~~imperative~~ ^{imperative} for the preparation of preserved fish, it is desirable that I should have a number of corrugated iron

nets. My nets will only last for a certain length of time.
As a substitute for these I have, in addition to the nets already
mentioned above, which had to be locally made by funds from vego-
nile fibres, also some nets at my disposal belonging to an exhibi-
tion at the Agricultural Exhibition in Darassalam. As I have a 301
right of disposal over these nets I have already by way of pre-
caution taken them to Kigoma. In the event of their having to
be used, the exhibitor will have to be paid for them at a later
date by the military authorities. In addition it may perhaps be
necessary to requisition or to purchase offhand from the Europeans
earned, such fishing nets which are to my knowledge now lying
only in Kigoma, partly in Darassalam. Should later on the pre-
paration of a better quality of preserved fish for European con-
sumption be undertaken it will be necessary to procure buckets,
tubs - if possible - wooden casks or boxes, even earthen pots
and stone jars could be utilized. The following staff will be
necessary:- fishermen and men for loading, firing, boiling and
salting fish and porters for the transport of the fish. It
is a known fact that the monthly wages on the Lake are very low.
The number of the abovementioned staff depends entirely on the
quantity of preserved fish to be manufactured respectively the quantity
required by the Protectorate Forces. As regards the better paid
staff only the following need be taken into consideration:- 1-2
men as my personal assistants and my former head fisherman in
Darassalam who has a vast experience in the catching and curing
of fish but who perhaps will not be willing to come to Lake
Tanganyika. With my best will I cannot at yet estimate what the
initial expenses of the establishment and its regular running
expenses will be in accordance with the organization proposed
above. Here in the bus I have to remark that the initial and
I must report that these expenses are entirely dependent on the size
of the scheme. Moreover it is a matter of complete misunder-
standing which, contrary to all other undertakings established by
the Protectorate Forces, is lacking in all precedents and all
essential facts. Therefore I

...which are already engaged in cutting wood, collecting taxes,
 ...for the purpose of organis-
 ...Further I propose that a certain
 ...be conferred upon me even if
 ...There need be no apprehension about the executive
 ...finds very little taste
 ...of the natives. I must however be in a
 ...without incurring the risk
 ...to answer for my actions before a
 ...and being compelled to send the delinquents to a several
 ...distant Rome.

To be brief I must state that:-

It is quite possible to prepare on Lake Tanganyika a durable
 supply for the provisioning of the Asárias. Such preserved
 (fish) can be regularly supplied in large quantities. The
 material and personal expenses for the working and establishment
 of the plant will be less in comparison with the value of the
 provisions supplied.

J. M. ...
 ... K. ...