

- Plan  
11.
- (c) Levelling (details and special knowledge)
  - (e) Railway survey
  - (g) Hydrographic survey
  - (n) Town planning
  - (1) Estate plans
  - (1) Map construction.

The examination would be in all the subjects of Class I and, say, in two subjects of Class II.

You will no doubt <sup>also</sup> consider <sup>farther</sup> this suggestion <sup>in due course</sup> and furnish me with your observations on it.

On a minor point in connection with the syllabus <sup>referred to</sup> enclosed with your despatch, it has been pointed

out that the subjects included under

the head of "Levelling" are for the most

part not actually connected with levelling.

I am transmitting a copy of this despatch to the Governor of the Tanganyika

Territory and the British Resident at

Zanzibar, who have <sup>already</sup> informed me of their

compliance in the draft syllabus which you have <sup>submitted</sup> communicated to them, was forwarded to them with the amendments with the amendments suggested by the <sup>with</sup> indicated in your despatch under reply. <sup>with</sup> Government of the U.K.

You will no doubt consult them

with regard to the suggestions made in

this despatch before <sup>furnishing me with</sup> submitting your

your observations

(Signed) L. S. AMERY

1925

E. AFRICA  
TANGANYIKA

46775

REF  
RL 16 OCT 25

Gov.  
Tanganyika 666

DATE

17 Sept, 1925

PROVINCIAL

*Cotton Industry*

U.S. of S.  
*W. Shillington*

U.S. of S.

U.S. of S.

Secretary of State

*Submits observations on Col. French's Report*

*(Related with Sir H. Egge's attached regarding irregular seed distribution in T)*

Proceeding Paper

*RA  
G.P. 45805  
Uga*

MINUTES

*W. Shillington*

*Perhaps you will help us by advising us*

*whether it is not that the 10 mile radius*

*which is really a five mile radius*

*question of the "five mile" policy (No. 11*

*of Col. French's Report)*

*W. Shillington*

*Eqm 5/1/25*

*I suggest that the five mile*

*radius be kept as a rule, & that*

*the 10 mile radius be regarded*

*as a desirable option subject*

*to consultation to suit circumstances.*

Subsequent Paper

*RA  
O.A.C. 47897  
K*

*This will be put in the file I think*

importance to the competitive price of  
 2. grainy sites - it is - I imagine -  
 only a small fraction of the capital  
 cost of erecting a grainery.

I have thought this a convenient  
 paper to which to attach my  
 comments with Sir H. Leggett about  
 irregular and distribution in T.I.  
 Justice that Sir H. Leggett thinks it  
 impracticable to import Uganda  
 seed; but Mr. Francis' point (5) was  
 that if Uganda seed is used it  
 would be the best available.

We shall have to send something  
 to the E. & G. L. but that can I  
 think wait till we have the  
 outstanding Uganda reply.

There may be some on the Kenya  
 reply (47897).

W. H. Leggett

7. XI. 25.

Is answer to  
 Uganda reply?

Kenya reply

Selected  
 LMS  
 3/2

See also Minutes  $\frac{Co.}{50589}$

CS

Nov 17. 25

Notes Comments on 539/36

1st

STACE

12/11

aface

1/11

46775

R.  
F. 16 OCT 25

GOVERNMENT HOUSE,

DAR ES SALAAM.

TANGANYIKA TERRITORY

No. 666.

RECEIVED  
1925  
GOVERNMENT OFFICE

17 September, 1925.

Sir,

*incl. 34555/25 ea*

Referring to your despatch No. 463 of the 15th August, I have the honour to state that as Colonel C.N. French, Assistant Director of the Empire Cotton Growing Corporation, has been good enough to send me an advance copy of his report on cotton growing in East Africa I had an opportunity of studying it with my advisers before the receipt of the copies which you have sent me.

2. I annex one copy in which I have numbered for convenience of reference the paragraphs referring to this territory.

3. The Director of Agriculture informs me in regard to paragraph 3, that although three qualities of seed-cotton have been defined for use by his Department, ginners and buyers in Mwanza have preferred to handle seed-cotton on the basis of the first two alone. What has been described by Colonel French as 'useless; unsaleable, immature and dirty cotton' is, however, not included in the second of these

RIGHT HONOURABLE

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

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

DOWNING STREET,

S.W.

these qualities, but is rejected.

231

4. The Director of Agriculture reports as follows with reference to paragraph 5 :-

"It is understood in the Department that "all so-called Hindi cotton in the Territory is "removed when discovered, wherever possible; "where it is comparatively common (as in Lindi, "where, however it grows chiefly on the higher "plateaux which are little used for growing "cotton for export), its organised quick removal "would be a costly matter. This cotton is not "grown by the Wanyamwezi as a definite feature "of their farming; but is mostly accidental."

Before introducing the cultivation of exotic cotton in any area the Agricultural Department should make sure that the indigenous cotton (if any) is not infested with pink boll worm. They failed to do this in the Tabora district, but, as I have already reported in my despatch No. 550 of the 4th of August, this occurred before the present Director of Agriculture came to Tanganyika.

govt 29092/25.  
(in cipher)

5. Paragraph 6. The Director of Agriculture states as follows:-

"The circumstance that cotton buying in Uganda usually opens in January, the month itself in which sowing begins in Mwanza, has made it necessary to acquire the earliest available seed, without reference to origin as long as it was of the best quality obtainable. In any case, it can never be hoped to eliminate green-fuzzed and partly naked seed. (The most carefully selected and bred seed, received by this Department from the United States of America, "always contains a proportion of these kinds)."

6. Paragraph 7. Colonel French was informed in conversation of the proposal to use Ukerewe Island as a seed farm and this has been done in connection with this year's crop, all the cotton being sold on the island and ginned there.

7. Colonel French states in his paragraph 10 that it is not clear that the difficulties of the ginners are always realised by the Government I am not clear myself what the difficulties are to which he

alludes

alludes, but the context suggests that one of the difficulties is that the ginners cannot, for the reasons he mentions, give so large a price for cotton as Administrative Officers and the Agricultural Department may expect. His statement in the same paragraph that some of the companies had to pay very high prices for their sites needs the qualification that they were under no obligation to pay those prices. They competed with others and presumably thought that the sites were worth the sums that they paid for them.

8. I do not write these words in any unsympathetic spirit: the industry cannot exist without ginneries and it is in the interests of the country that the ginners should be able to pay as liberally as possible for seed cotton. It is probable that there are too many ginneries in the greater part of the Mwanza district and I am prepared to subscribe to the view of Colonel French that in new areas in future the radius from a ginnery in which no cotton markets may be established should be increased from five to ten miles. But the effect of this will probably be a still keener competition for the sites when they are sold at auction.

9. Mr. Kirby appears to be opposed to any such change and writes as follows:-

"A five-mile or ten-mile minimum radius does not ensure any cotton for a ginnery: the grower can take his cotton where he pleases; but a five-mile minimum ginnery-market radius gives assurance to a ginner that he will not find a market 'on his doorstep' (so to speak), intercepting cotton that should in fairness go to him as long as he gives a reasonable price for it. It is not possible for the system described by Colonel French to be adopted in the regularity recommended, for the following reasons: (1) the sites of the markets are

chosen

"chosen in the first place for the convenience  
 "of the native producer (who is discouraged if  
 "he has to carry his produce very long  
 "distances; but would not object to the maximum  
 "of ten miles suggested); (2) both ginneries  
 "and markets are confined to areas useful for  
 "the production of cotton, both actual and  
 "potential; (3) these centres must be selected  
 "where conditions of topography and water-  
 "supply are suitable; (4) they must be as near  
 "as possible to roads (markets are actually on  
 "roads); (5) for sanitary reasons (chiefly  
 "connected with plague) cotton markets are not  
 "allowed within a mile of a trading centre, and  
 "none of them can become such a centre. The  
 "statement at the end of the paragraph is, again,  
 "due to misunderstanding: the five-mile radius  
 "for markets is a minimum distance, and its  
 "prescription cannot in itself effect the  
 "number of markets that will be brought into  
 "existence."

10. I am unable to endorse Colonel French's statement in paragraph 11 that the natives should be encouraged to carry their produce for themselves as far as possible. Markets should be as near as possible to the cultivation (whatever it may be) and should be on roads on which motor transport can be used. It is on this policy that my recent recommendations for improving the road communications in the Tabora and Mwanza districts were based and I have received your approval of those recommendations with great satisfaction.

11. Paragraph 12. I am not in favour of attempting to fix prices for seed cotton unless the Government is prepared to take the unbusinesslike step of going into the market to maintain that price in the event of a ~~sharp~~ sharp fall in the world's markets. If it did not do so the natives would consider that they had been deceived by the Government.

12. Paragraphs 15 and 16. An Agricultural Officer is now stationed at Bukoba and I am informed that recent results with cotton are sufficiently encouraging

5.

encouraging for fifty tons of seed to be supplied for next year's sowing.

13. Paragraphs 17-25. There are the strongest possible political objections to Colonel French's proposition that a portion of the country should be handed over to a development company with powers of self-government and the monopoly which he suggests. is, in my view, contrary to the spirit of the Mandate. I do not anticipate that you will desire me to set out at length my objections to the proposals. I have indicated in separate correspondence the manner in which I think that a development company might assist in the cultivation of cotton on a large scale in this Territory, that is by a tri-partite scheme on the lines adopted in the Sudan.

I have the honour to be,

Sir,

Your most obedient humble servant,

*Donald Houston*

G O V E R N O R .

1/ALV.

**Enclosures of**



# EMPIRE COTTON GROWING CORPORATION

## REPORT

On the Cotton-Growing Industry in Uganda, Kenya,  
and the Mwanza District of Tanganyika

With Map of the Eastern Province of Uganda

BY

COLONEL FRENCH, C.M.G., C.B.E.,  
Assistant Director, Empire Cotton Growing Corporation.

VOLUMES I. AND II. BY

MR. V. C. JACKSON

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LONDON

1925

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THE COTTON GROWING INDUSTRY  
IN UGANDA, KENYA, AND THE MWANZA  
DISTRICT OF TANGANYIKA

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# The Cotton-Growing Industry in Uganda, Kenya, and the Mwanza District of Tanganyika

## UGANDA

### INTRODUCTORY

THE extension of cotton-growing in Uganda during the past twenty years has been a remarkable development in Central Africa. That it has been brought about in spite of the fact that the people are not naturally good agriculturists or particularly hard workers, and that it has included the construction of an admirable and most exceptional road system through a difficult country intersected with marshes, compels a high admiration for the combined work of the administration, the Agricultural Department, and the Public Works Department of the Protectorate.

In this connection I should like to pay a tribute to Mr. S. Simpson, who, as Director of Agriculture for so many years, has guided the now established industry with such sound wisdom and foresight.

Further, I should like to take this opportunity to express my grateful thanks to him and to the many officials and others for the help they gave me and for their unvarying hospitality, which made my journey in Uganda as easy as it was delightful. Without exception they have placed their time and knowledge at my disposal, and have made it possible for me to see and hear a great deal in a very short time.

Unfortunately, the late Governor, Sir Geoffrey Archer, at whose instance I was visiting Uganda, left the Protectorate to become Governor-General of the Sudan within a few days of my arrival, and I was able to have only very little conversation with him. I thus lost the opportunity of discussing the future of the industry and the developments he desired with one who had greatly stimulated cotton-growing during his term of office.

To understand the industry with any degree of thoroughness,

and to grasp the reasons which have caused it to develop along certain lines, obviously requires more study and more knowledge than it was possible to give and acquire in a few weeks. I can only record impressions and make suggestions for what they are worth, and it is for those on the spot to say whether such suggestions are practicable or possible. Most, if not all, of them, are based on the opinion and advice of Mr. Simpson and of administrative and agricultural officers in the Protectorate.

Before going into any details I will summarize my impressions very briefly. They are as follows:

Uganda has now won for herself a secure and definite position among the cotton-growing areas of the world; she is producing nearly 200,000 bales of good cotton, and can produce considerably more. In my judgment it is probably desirable that this position should at the present time be consolidated and made secure before attempting any further extension of area. I believe that this can be done by studying how the present acreage can be made to produce more cotton of better and more uniform quality by the application of science and the gradual introduction of improved agricultural methods.

Although it would not be difficult to increase the acreage, it seems to me that development on such lines would intensify both labour and transport difficulties. Moreover, although the Protectorate is singularly blessed in its climate and in the absence of any serious pests, it would not be prudent to cultivate under conditions being permanent. For reasons which I venture to mention later, a mere increase of acreage might make the crop liable to pests, and quite apart from this possibility, it should be remembered that at present Uganda is almost a one-crop country, and that insurance by scientific safeguards and the development of productive and pest-preventing relations are of the utmost importance.

For these reasons I suggest that the most immediate need is a further strengthening of the scientific side of the Agricultural Department.

The following are the headings under which I propose to report:

The General Agricultural and Cotton Policy of the Protectorate.

The Essential Unity of the Different Parts of the Cotton-Growing Industry.

Transport.

The Agricultural Department.

The Existing System of Agriculture.

Seed Selection and Distribution.

Buying and Marketing.

Labour.

Suggested Reorganization of the Agricultural Department.

#### Appendices:

- I. Note by Mr. Jackson on ginneries in the Eastern Provinces.
- II. Note by Mr. Jackson on the respective merits of saw and roller gins for Uganda Cotton.
- III. Extract of a letter from the Bomby Uganda Company on Foreign Competition and the need for more definite values for Uganda Cotton in Liverpool.

#### THE GENERAL AGRICULTURAL AND COTTON POLICY OF THE PROTECTORATE

The policy of the Director of Agriculture is as follows:

- (a) The production of cotton shall be increased to the fullest extent in any locality where there is a sale for it.
  - (b) The quality of the cotton shall be improved and the yield increased.
  - (c) The Agricultural Department shall ensure that, by means of the rotation of crops, an increasing cotton supply shall carry with it an increasing food supply.
  - (d) The Department shall do everything possible to bring the grower and the ginner into direct contact.
  - (e) The Department shall, by means of regulations strictly enforced, keep down pests and diseases.
- It will be observed that this policy, formulated in 1923, is in no way inconsistent with what I have suggested, except that the Director then intended to increase the acreage under cotton. This he has since done successfully, and I think that for the moment at all events a halt might be called as far as this particular is concerned.

With regard to the improvement in quality and increase in yield, the Director does not give details regarding the actual methods by which these desirable ends may be achieved, but I shall touch on them at some length in subsequent pages of this report.

I need hardly say that I am in the fullest agreement with the remaining points of the Director's policy, although it is possible that the means that I have suggested may not be identical with those which he has in mind.

A memorandum outlining the Government's policy was issued in April, 1924. As this deals primarily with the marketing of

cotton, it will be more convenient to deal with it under that part of this report which deals with buying and marketing:

#### THE ESSENTIAL UNITY OF THE DIFFERENT PARTS OF THE COTTON-GROWING INDUSTRY

It is perhaps gratuitous to state that there are several links which make up the chain that binds the growing industry with the spinning and weaving industry in Lancashire and elsewhere; and that it is not always easy to distinguish where the problems of growing and those of spinning begin. In other words, there are many links, but they are all of the same chain.

I am not sure that this is everywhere recognized in Uganda, for there are some who would be prepared to allow unrestricted and almost unlimited competition between the ginners by allowing them to erect factories wherever they wished. In my opinion this would result in serious over-capitalization of that part of the industry which provides the cash for the grower, and might lead to failures and loss of confidence, which would be most unfortunate. I was glad to learn, just as I left East Africa, that the Cotton Control Board of Uganda have recommended that the number of ginneries should not be increased for the present unless it is proved that any are required in new areas, and to ensure a reasonable amount of cotton to each ginner by a consequent reduction in overhead charges, which I understand. Additional ginneries, which would be unnecessary even if the number were considerably larger, would moreover complicate the trading question and intensify the labour difficulty. They would also make it harder to supervise buying, and would make it increasingly difficult to inspect the actual ginning. Such inspection seems to me essential, and I would urge the administration to give Ginneries Inspectors every possible facility to inspect ginneries for cleanliness before the buying season starts, so as to ensure that if there is any of last season's seed in stock for fuel purposes, it is properly stored and will not be mixed with the seed of the coming season. There should also be frequent inspection during the season, so that not only can bad ginning be stopped at once, and licences withdrawn, if necessary, but so that Inspectors can give advice and assistance to ginners should they ask for either. In this way much could be done for the reputation of Uganda cotton, for I know from personal experience that at some ginneries good cotton was being ruined by inefficient ginning. My opinion regarding the importance of, and necessity for, better and more uniform ginning was strengthened by my subsequent visit to India. The question seems to deserve special

consideration in Uganda, because the cost of transport from there is so high that it is essential that the cotton bales exported should contain a minimum of waste material, dirt, etc. (In this connection see Appendices I and II.)

#### TRANSPORT

Another most essential link in the chain is transport. So far as interior communications go there are comparatively few difficulties in Uganda. The roads are excellent, and there is a most efficient and well-organized Government transport service, which ensures that the prices charged by commercial transport services are reasonable.

The only suggestion I have to make is, that during the period when seed is being distributed to the growers, a considerable amount of transport should be placed at the service of the Agricultural Department, in order to ensure that seed from the best areas is distributed throughout the country in good time for sowing. To distribute seed from bad areas in order to save transport is a wholly false economy. Further reference is made to this matter on pages 21 and 22.

I have already referred to the good road system in Uganda. The country is fortunate in having abundance of laterite gravel which makes an admirable road surface. The roads, however, are not heavily trafficked, and have not deep foundations. I am of opinion that "half-truck" vehicles, if they prove successful in Nigeria or elsewhere, might well be introduced in Uganda, as they should save a good deal of the cost of maintenance of roads. The Albion lorry with paraffin fuel is, according to the Director of Transport, the most satisfactory form of lorry, and if the Albion chassis could be fitted with half-trucks instead of rear wheels, it might be convenient, as there are many mechanics in Uganda who thoroughly understand the engine.

It is proposed to convert the molasses from a sugar factory, situated between Kampala and Jinja, into commercial alcohol, and the manager told me that he felt confident that, as soon as the plant arrived, he could produce 20 gallons an hour and sell it for about 2s. a gallon. If this can be done it will be of immense advantage to road transport in Uganda, and the Corporation will no doubt await with interest the report on this fuel.

The real difficulties begin at the lake ports. It was calculated that the total export of lint and cotton seed in the season 1925-26 would amount to over 47,000 tons, and that, as a great deal of this would come via Lake Kioga ports, down the Busoga Railway to Jinja and thence across Lake Victoria, and would, therefore, be rehandled several times, the total amount to be dealt with at the

different ports in Uganda would be nearly 55,000 tons. At the same time a very large quantity of material for the new railway was to be imported at Jinja and Mjanji. It will thus be realized that the problem is a very difficult one. Mr. C. N. Felling, General Manager of the Uganda Railway, wrote to me on this point, and stated that, while admitting that delays had occurred on the lakes during last season, cotton had arrived at Kilindini faster than it was exported.\* He doubted, however, whether the transit of cotton to the coast would ever be really satisfactory until the railway is through to Mbulamuti (on the Busoga Line), and said that there was no doubt that there were serious difficulties ahead of the railway this season. The principal of these was labour shortage, and although the Uganda Government were doing their best, the labour supplied was "raw" and of very poor quality. At Kisumu there was serious shortage when Mr. Felling wrote (January, 1925), because no voluntary labour was obtainable and the Railway and Marine Department had to depend on convicts. Unless more labour became available, further delays and congestion were unavoidable. There was no shortage of rolling stock, but a number of cranes which had been ordered had not been delivered in East Africa, and a steamer ordered in January, 1924, had not yet been delivered in England.

All the lake piers that I have seen were very ill equipped with labour-saving devices and of weather-proof storage everything had to be man-handled by labour which was rightly described as raw. It seemed to me that much could be done by more efficient organization of that labour, and that it might have been wise to postpone the import of railway material until at least Kisumu, Jinja, and Mjanji piers had been improved. This, however, is a matter on which I am reluctant to express a more definite opinion, as I did not have time or opportunity to discuss it with those who could give me full information.

Even when the new railway is completed there will be considerable traffic on both lakes for many years to come, and although Jinja and Mjanji will lose much of their importance as ports, money spent on the immediate equipment of these ports would probably not be wasted, as part at least of that equipment could be transferred to other ports such as Bukakata or Mwanza or the ports on Lake Kioga.†

\* The B.I. boat on which I travelled to India carried 1,500 bales of cotton. This, the captain told me, was a record amount of cotton for this season of the year, in spite of the fact that the cotton season had opened a fortnight later than usual. He also told me that his company were prepared to put on an extra boat during the cotton season, but that they hitherto had had some difficulty in finding out whether it was required.

† The conditions this year (1925) and the congestion at the lake ports have been worse than ever, and demand immediate attention.

Another point which occurred to me as worthy of consideration was whether it would be advisable to delay the transport of cotton seed for a few months after the bales of lint had begun to move down to the coast. Seed is not a high priced commodity and could afford to wait for a time. At present no preference is given to lint over seed, and in fact the latter is often moved first because it is easier to handle. The Director of Agriculture has recently forbidden the exportation of seed cotton from any port of the Tanganyika district situated on the shores of Lake Kioga, in order to reduce the bulk transported on that lake, and it might be possible to go a step further and to delay the export of seed from the Protectorate until most of the lint had left the country. Considerable previous notice should be given of such a step which obviously presents considerable difficulties.

The ideal, of course, would be to convert the seed into oil in Uganda. I understand that there is no great demand either for the oil or for its by-products in Uganda or Kenya, and that the oil would have to be exported. The practical difficulty is said to lie in the matter of containers, which would have to be imported. Possibly this difficulty may be overcome when the new railway is built, and it might be practicable to pump the oil direct from the factory into special trucks and from the trucks into steamers alongside the new Kilindini pier.

THE AGRICULTURAL DEPARTMENT

In order to understand the present functions of the Agricultural Department, and any desirable extensions to it, it is necessary to explain briefly the administrative system of the Protectorate. Uganda is governed by the Governor, assisted by various technical departments, and by the Secretariat which co-ordinates their work. There is also an Executive Council consisting of a few heads of departments, and a Legislative Council made up from heads of departments and a certain number of unofficial members. On this Council the Government have at present a permanent majority.

The Protectorate is divided up into large areas called Provinces, each of which is in the charge of a Provincial or Senior Commissioner, while the Provinces are subdivided into districts under District Commissioners. The districts are further subdivided into counties and the counties into *gombololas*, or village groups, which are the smallest administrative units in Uganda. The counties and *gombololas* are administered to a very large extent by native chiefs, who are practically salaried civil servants, and can be changed if they are unsatisfactory.

It will be readily understood that the men whose words and

influence most readily reach the natives are the District Commissioners, and to a very large extent the development of cotton-growing is due to them. Hitherto, owing to the shortage of Agricultural Officers, it has not been possible to attach one to each district. As these officers become available they were sent to the areas where they were most needed. For instance, in the Eastern Province there were only four of them a few months ago. At the moment of writing, however, the arrival of students from the Empire Cotton Growing Corporation has made it possible to increase this number to eight. Although the exigencies of leave will shortly reduce the number to five, this will mean that the Agricultural Department, without denuding other areas of its officers and without depending solely on the administration, will be able to exert a continuous influence on the agriculture of the Province which, as far as cotton is concerned, is at present the most important in the Protectorate.

These officers depend very largely for the success of their efforts on the support and co-operation of the District Commissioners, and I have found that everywhere this co-operation is a very real and close one. It depends, however, on personal relations more than on any organized or systematic division of responsibilities.

The headquarters of the Department are at Kampala, under the direction of the Director, Assistant Director, and Chief Inspector. There are entomological and mycological officers who are lately reinforced by a chemist and another officer who were formerly of the Corporation. There is not at present, however, any laboratory, and the facilities for scientific work are therefore very few.

At Kampala also there is the recently constituted Cotton Control Board, consisting of the Chief Secretary, who is *ex-officio* Chairman, the Attorney-General, the Provincial Commissioners of the Eastern Province and of Buganda, two representatives of the ginners, one of the Chamber of Commerce, and the *Kabaka* (King of Buganda). The Assistant Director of Agriculture has hitherto acted as Secretary, but I understand that in future an officer of the Department will officiate as permanent Secretary to the Board. The principal functions of this Board are the selection of central markets and consideration of applications to erect ginneries. It also acts in an advisory capacity to the Governor on all matters relating to the cotton industry.

There is also the Serere seed selection farm in charge of Mr. Harper, who has worked, at first with very slender equipment, at plant selection in the Eastern Province since 1911. He has done a great deal for Uganda cotton in the face of difficulties which, to a less sanguine and persevering personality, must have seemed

well-nigh insuperable. It was not until 1919 that the Cotton Excise Tax provided funds to build and equip an experimental station at Serere, where there are now, in addition to experimental plots, about 200 acres under N17 cotton, which is the type lately selected as most suitable for the whole Protectorate. Serere is therefore a seed farm as well as an experimental station. It is dealt with at greater length on pages 18-20.

For a country which depends wholly on agriculture for its prosperity, the expenditure on the Agricultural Department can hardly be called excessive. I understand that the Director proposes not only to increase the personnel of the Department, but has allocated a sum of £7,500 for the building of laboratories in the immediate future.

At places like Surat and Dharwar in the Bombay Presidency, where the local type of cotton is being improved by selection and where experiments in plant breeding are being carried out, the staff of the farm usually includes a botanist, an entomologist, and a mycologist, with one or two assistants each, and a farm manager. At Lyallpur and Coimbatore, which are Agricultural Colleges as well as experimental stations, the staff working on cotton includes at least one British officer in addition to the above. In Africa, where at present there are no qualified native assistants, such experimental stations must be relatively more expensive, but they are even more necessary because there are not, as is the case in India, various other scientific stations to which reference can be made.

#### THE EXISTING SYSTEM OF AGRICULTURE

The Baganda, who are remarkable among African natives for their intelligence, are not, however, agriculturists by tradition or instinct. They live mainly on bananas, which are not annuals, are easy to grow and, in Uganda, practically free from diseases. The original heavy work of clearing the ground of elephant grass is done by the men, but all subsequent cultivation and weeding of the bananas is done by the women. In this part of the Protectorate, therefore, there is practically no rotation of crops, and if the natives want to grow more cotton or to grow it on fresh ground, they clear a fresh patch. There is, at present no difficulty about this as only a small proportion of the land is under cultivation.

In the Eastern Province bananas are grown to a lesser extent, and the natives depend more on millet, sweet potatoes, and ground nuts, crops which need more regular and systematic cultivation. The people are perhaps somewhat harder workers and easier to influence than the Baganda, but not so intelligent. In both areas



they did not in the past grow more than was necessary for their own consumption, and, in the case of millet eaters, to fill the grain stores, which are their famine reserves.

It is therefore no small achievement to have induced them to grow a crop which they "cannot eat," but it will be obvious that twenty years have not been sufficient to create a class of instinctive though uneducated agriculturists, such as is found in India, Egypt, and other places where agriculture has been an industry for generations. The natives of the Protectorate are probably uniformly bad judges of the cotton they grow, and very few of them have opportunities of seeing how improved cultural methods might increase yield per acre or the number of bolls per plant. Their seed is given to them, and therefore, apart from other reasons, practically none of them recognize the value of pedigreed stock. I came across only one instance of a man who had obtained seed from a chief in another part of the country (an illegal transaction in any case). He brought the resultant seed cotton to a ginnyery which I happened to visit (and where fortunately it was kept separate), and it proved on examination to be both short and uneven in staple, but probably prolific in flower and fruit.

Mr. Howard, in his book on "Crop Production in India," writes: "The average cultivator rarely devotes much attention to the seed he sows. He is too poor to pay the necessary premium for improved seed." This is even more true of Uganda, where poverty so much as ignorance which prevents the cultivator from realizing the importance of good seed. In India the cultivator at least pays something for the seed he sows, and there are indications that in some areas he is learning the value of and paying the premium for improved seed.

That the yield per acre is on the whole small is probably partly due to poor cultivation, though there are other contributory causes. The spacing of cotton seemed to me wide, and the few plots which I measured had not much more than one plant per square yard. I suggest that this is a subject which is worthy of investigation and experiment.

Tree stumps are probably another cause of the low yield, as they must rob the soil of much of its nourishment. The natives do not like the work of removing them with a stump-jack, and it is worth enquiry whether it is possible to introduce some simple form of jack, as until the ground is thoroughly cleared it will be impossible to plough effectively. I suggest that it might be worth the consideration of the Corporation to offer to Uganda an efficient stumping machine equipped with tractor and engine complete, or even to undertake stumping on a large scale.

It is at present too early to foresee what will be the effect of

ploughing and of deeper cultivation. At first the results may seem disappointing, but the opinion of those best qualified to judge is that in the end it will lead to better crops.

In a country like Uganda, where it is impossible to get accurate acreage figures, except at a prohibitive cost, and where the estimates of the Agricultural Department are bound to be based on calculations which cannot be wholly reliable, it would be unwise to lay too much stress on figures of yields. I think, however, that the Department have made as accurate an estimate as is possible and practicable of the crop of 1923-24, and I include it herewith as illustrating the variations in yield in different parts of the Protectorate.

District.	Population.	Tax-Payers.	Total Acreage.	Area Acreage Per Tax-Payer.	Total Crop (Tons).	Average Yield per Acre (Lbs. of Seed Cotton).	
Buganda	Mengo	331,001	70,115	70,000	49	19,323	275.010
	Entebbe	185,433	34,054	16,370	48	3,317	204.150
	Masaka	147,031	23,373	10,000	33	2,510	250.750
	Mubende	139,228	24,374	10,866	44	1,567	322.370
	Leso	220,000	50,000	25,000	138	6,400	311
Eastern Province	Busoga	222,000	57,000	57,000	197	15,500	266
	Bugwala	190,000	39,180	21,210	75	5,350	247
	Tororo	150,000	30,100	37,500	1-01	9,150	278
Mwanza	Mwanza	200,150	50,000	45,000	80	2,500	128
	Budama	129,200	26,000	45,000	2-22	2,800	138*

The figures for the total crops were:

Province.	Total Crop (Tons).	Average Yield per Acre (Lbs. of Seed Cotton).
Buganda	25,500	311
Eastern Province	47,800	328

It will be noted that were it not for the Busoga district of the Eastern Province, where conditions of climate and soil are very similar to those of Buganda, the yield per acre in the Eastern Province would have been considerably smaller.

I was unable to get any figures or even records of experiments showing the result of manuring, which, save in the form of green manuring, is hardly a practicable proposition at present. I believe that lime of poor quality can be obtained near Tororo, and it might

\* It is believed that the apparently very low yield in the Budama district was due partly to an over-estimate of acreage.

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District.	Population.	Tax-Payers.	Total Acreage.	Area Acreage Per Tax-Payer.	Total Crop (Tons).	Average Yield per Acre (Lbs. of Seed Cotton).
Mwanga	331,901	70,115	70,000	99	18,293	528-610
Eatobbo	155,533	34,054	16,370	48	3,171	326-450
Mtaka	147,931	26,373	10,000	38	2,519	564-764
Mindede	130,218	24,374	10,868	44	1,597	323-370
Teo	230,000	50,000	38,000	130	9,500	319
Busoga	329,000	37,000	61,000	167	15,800	566
Eastern Province	180,000	38,150	23,210	55	3,350	247
Busoga	180,000	30,100	37,500	124	9,150	278
Teo	200,150	50,000	45,000	90	8,500	428
Busoga	120,250	20,000	15,000	225	2,800	198*

The figures for the total crops were

Province.	Total Crop (Tons).	Average Yield per Acre (Lbs. of Seed Cotton).
Busoga	25,500	511
Eastern Province	47,800	328

It will be noted that were it not for the Busoga district of the Eastern Province, where conditions of climate and soil are very similar to those of Buganda, the yield per acre in the Eastern Province would have been considerably smaller.

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be worth while to carry out some experiments with it. The difficulty at present, however, is for agricultural officers to find the time and labour to carry out experiments even on a small scale.

A characteristic feature of agriculture in Buganda is the small irregularly shaped fields generally surrounded by elephant grass. This is the case to a much less extent in the Eastern Province, but even there the fields are very small. This form of cultivation, while difficult to supervise and making accurate estimates of acreage impossible, has the advantage of getting the maximum amount of shelter for the crop, and probably is a factor in making the Uganda crop as a whole practically free from serious pests. The fields are without ridges, and I saw no instances of ridge-planting in Buganda or the Eastern Province. It seems, however, to be a common practice in the cultivation of ground nuts in the Bukoba district of Tanganyika, where the annual rainfall is about seventy inches and much heavier than in Uganda.

Another matter about which the people have much to learn is picking. I refer later to the question of grading by the grower (see pages 24 and 25). In no case did I see a native using two bags, one for dirty and one for clean cotton. They either put the cotton into a small basket, or, as is more frequently the case, they clasp the cotton to their greasy breasts until they have as much as they can hold, and then walk to their basket and put it in. Any sorting that is done is carried out in the native huts after picking.

To improve methods of agriculture and cultivation is, of course, primarily the work of the Department reinforced by the administration, but there is a third influence which might be brought to bear, and that is general education. At present education in the Protectorate depends on the different bodies of missionaries rather than on the Government, and there is, so far as I am aware, no co-ordinating body and no general, or what might be called national, system of education.

Since Uganda is dependent primarily on agriculture for her prosperity, and the great majority of her people are directly, if intermittently, engaged in agriculture, it would seem desirable to train the natives as a whole in simple agriculture and to select the best qualified as superintendents under the chiefs in every *gombolola*. Admittedly this will be a very slow process, and it may be necessary to maintain existing agricultural schools as a short cut to the desired end, but even such schools should be fitted into the general scheme, and they should not aim too high. They might even serve as the nuclei of *gombolola* or county national schools.

The question as to whom such native superintendents shall be responsible is an arguable one. Some authorities urge that they

should be directly employed by and responsible to the Agricultural Department, but in most cases these men derive their authority from, and work through, the chiefs. A multiplication of salaried and uniformed native officials in Uganda unfortunately may mean multiplied opportunities for petty tyrannies and regulations. These opportunities a chief is better able to frustrate than is a white official.

For higher types of native agriculturists, and particularly for native assistants in the laboratories, etc., of the scientific side of the Agricultural Department, there is the native Training College of Makerere, which will be in close touch with and in near proximity to the projected laboratory and plantations at Kampala. The Director of Agriculture has asked me whether the Corporation could see their way to making a grant of £250 per annum to the Department to enable him to give scholarships to students at Makerere, and I gladly submit this request, which I have already acknowledged. I have asked him to let me know whether he wishes to modify it when he has had an opportunity of discussing it with the newly appointed Director of Education, who by now will have reached Uganda.

#### SEED SELECTION AND DISTRIBUTION

touching on existing methods of selection and distribution will quote the report of Mr. Jackson, with whom I visited an fifty per cent. of the ginneries of the Eastern Province. He writes as follows:

"To treat the Province as a whole in the first place, the general average of the cotton is good, with occasional lapses due to bad ginning or deteriorated seed.

"In Busoga, which is considered to produce the best cotton in the Eastern Province, the average condition of the lint appears to be good, the staple is about 1.7 inches and strong, the cotton is a little leafy, with not much stain, and is usually of a good but rather creamy colour. Busoga has a good cotton-growing soil, and the land as a rule is well looked after and cultivated. There is some irregularity in the seed, as at one ginnery the staple was uneven and at two others the cotton was harsher than the average.

"In Bugwere, Budama, and Bugishu the cotton in comparison is poor: the best staple I could find was good 1.7 inches, but the greater part is, at the outside, no better than 1.5 inches. Three ginneries had 1.5-inch staple, four had good 1.5 inches, one was irregular, chiefly 1.5 inches, with some 1.7 inches among it, and one was barely 1.5 inches. The cotton was only of medium

strength, weak at times, without much stain or leaf, and generally of a creamy tinge. This comparative shortness and irregularity is due, I am informed, to seed deterioration. Seed from this area has been supplied to the growers for a considerable number of years without any mixture of fresh seed from better localities, and consequently there has been deterioration.

Teso shows a considerable improvement on Bugwera, etc., possibly because Serere is close to Soroti, the administrative headquarters of the district. The staple is generally  $1\frac{1}{8}$  inches, with occasionally good  $1\frac{1}{4}$  inches and full  $1\frac{1}{2}$  inches to  $1\frac{3}{4}$  inches. It is fairly strong, comparatively free from leaf and stain, and of a good but slightly creamy colour.

This, however, is the only district in the Province where I have seen any nep. In one ginney this was due entirely to faulty saw-gins, as there was no trace of it in the seed cotton. At another factory, with roller-gins, there was a certain amount visible in the seed cotton which, of course, showed up much worse in the lint.

In Lango I was unable, through lack of time, to see as much cotton as in other districts, but what I did see both in the fields and in the gineries appeared to be fairly good. The staple was generally full,  $1\frac{1}{4}$  inches to  $1\frac{1}{2}$  inches, fairly strong, and, where well ginned, almost free from leaf or stain. Colour slightly cream.

The cotton on the whole appears to be of sufficient quality to help to fill the gap caused by the shortage of  $1\frac{1}{8}$  inches American. Where it is below that standard it should be capable of improvement by scientific methods.

It should be noted that, as the buying season in Buganda did not open until the middle of February, Mr. Jackson had not much opportunity of examining the cotton there: it is, however, safe to assume that throughout Buganda the cotton is very similar to that grown in Busoga.

The Corporation have already had Mr. Wood's report on seed selection at Serere and Mr. Harper's comments on this report. I am not competent to offer more than a general opinion on this question, but I would remind the Corporation that Mr. Wood was convinced that, by careful selection, a cotton more suited to the different parts of Uganda than any grown at present could be evolved, and that proper provision for seed selection should form a strong feature of the programme of the Agricultural Department. Mr. Wood did not define what he meant by a cotton more suited to the country, but I have no doubt that he meant something similar to what I have in my mind—viz., a cotton suited climatic

ally to Uganda, of fairly compact growth, which, throughout the area, would produce a larger number of bolls with uniform staple of  $1\frac{1}{8}$  inches.

The present type of cotton grown in the Protectorate is a variety of Nyasaland Upland, known as N32, which was distributed in Serere county in 1921 and throughout Uganda in 1923. Presumably, it is this cotton which forms the basis of the crop which I have seen. I counted the bolls on a very large number of plants and the average was about twenty. It should be remembered that there was an exceptional amount of rain in January, 1925, and there may have been more boll-shedding than usual. This will not be known until the end of the season, when it will be possible accurately to calculate the number of bales exported. My impression is that there is a strong strain of the original Sunflower cotton in Uganda, and that the present crop is not yet pure—that is, that there is an admixture of types and some cross-fertilization. At present this mixture has had no very serious effects, but it is bound in time to lead to lack of uniformity and deterioration.

I noticed on more than one occasion markedly different types in the fields which I was inspecting, and in all ginneries there was a distinct proportion of naked and green-fuzzed seed mixed with the ordinary white fuzzed seed. The contrast between the ordinary Upland seed and the very uniform quality of the seed of the pure types of pure line selections in India was most remarkable.

Harper is now developing another Nyasaland variety (N17) which produces good cotton of  $1\frac{1}{8}$  inches staple, and under good cultivation should have about fifty to sixty bolls. This has been tested at the experimental station and is now being grown as a seed crop, preparatory to issue in the segregated area of Kadunguru (2,000 acres) next year. Serere is therefore, as already mentioned, a research and experimental station and, on a small scale, a seed farm. For the ginning of special cotton Mr. Harper has to depend on the goodwill of neighbouring ginners. I consider that a small gin for the main crop and a miniature gin for the botanist are essential, and that the former be set up at Serere without delay. I was able to obtain a small hand-gin for the botanist through the kindness of a member of the Indian Central Cotton Committee.

As regards the "segregated area," arrangements have been made to have the cotton grown there ginned at the Kadunguru ginney. It seems to me that there are the following weak points about this arrangement:

(a) It will be difficult to ensure that no other type of seed is grown in the area. If more than one type is sown it will be impossible to enforce either careful picking in the field or to prevent mixture of seed cotton after picking.

(b) It is impossible to ensure that the whole crop will be taken to Kadunguru ginnery, for there are four other ginneries and one central market within comparatively easy reach of the natives in that area.

(c) The purity of the seed will depend on the seed cotton being kept separate before ginning, on the Kadunguru ginnery being thoroughly cleaned before the crop of N17 is ginned, and on there being no subsequent mixture of seed in the seed store.

(d) Finally there is a possibility of seed being mixed during the process of distribution.

Before putting forward any alternative suggestions, I will touch briefly on the question of treating Uganda and other parts of the Lake Basin as a "one variety cotton community." While hoping that this may be practicable, I am bound to admit that there are, even to the untrained eye, considerable differences in soil and vegetation, and that seed, all supposed to come from the same source, suffers different degrees of deterioration in the Budama, Bugwera, and Bugishu districts of the Eastern Provinces in the Kavirondo area of Kenya, and in the Mwanza district of Tanganyika. I am not prepared to say whether this deterioration is due to physiological response to environmental factors or to unsystematic distribution, but am inclined to think that both causes have led to this result. In any case, I would advise the establishment of trial grounds where the questioned pedigree can be tested in several different localities, if necessary, of seed-farms which can be treated as depots of pure seed for as many areas as are proved to require their own type in order to ensure the best results. These seed-farms should be of such a size that the Agricultural Department can produce directly a large volume of seed.\*

I suggest that the Botanical Section of the Agricultural Department be strengthened and be established at a central research farm, which, for reasons mentioned hereafter, should be at Kampala. Further, as in botanical work continuity is absolutely necessary, I think there should be at least two botanists and possibly more if my suggestions with regard to Tanganyika and Kenya are accepted.

The number of experimental plots and eventually of seed-farms must depend on the experiments and recommendations of the botanical staff. It will probably prove convenient that Serere with its equipment should remain as it is, and I recommend that it should be equipped with a small ginnery which can deal with its own crop and possibly with that of the segregated area also,

\* My opinion as to the necessity for large seed farms has been confirmed by what I saw in India.

but that it should be a seed-farm rather than an experimental station.

The experimental plots and seed-farms would presumably be in the charge of agricultural officers who with the assistance of the administrative staff would decide in which chiefs and natives the pure seed should be distributed in order to widen the circles in which pure seed was sown and so to increase the supply available for further planting.

Whether every seed-farm can have its own small ginnery must depend on the administration. It may not be possible to achieve this arrangement immediately, but it is essential if the farms are to be sources of really pure seed, and, as such, is an ideal to aim at for the future; nor do I think it extravagant in view of the great possibilities of the Lake Victoria Basin, and the fact that a well-managed seed-farm ought to pay for itself, even if the seed is distributed free to cultivators. I hope that for this area, where geographically and agriculturally conditions are almost uniform, it may be possible for one Botanical Section to carry out all the research and experimental work in connection with cotton, and that every agricultural officer in the area may be in close touch with the Central Cotton Botanical Section. Throughout the whole area it will be possible to conduct experiments and make observations, and agricultural officers in the field will form a valuable reinforcement to the Botanical Section. They can collect individual plants which show promising characteristics, or can even carry out trials in bulk selection, provided that they keep the Botanical Section informed, as there are dangers in having a number of selectors working independently. There is little doubt that much can be done for the Lake Victoria area by skilled selection, the possibilities of which have not yet been exhausted, but it is to be hoped that no attempt will be made to introduce a constant succession of new varieties which would merely bewilder the cultivator (*vide* Howard, A., "Crop Production in India").

**DISTRIBUTION.**—Plant breeding and selection are, however, only preliminary steps in the production of a pure crop, and are useless unless combined with a systematic organization for seed distribution. In Uganda the Government requisition free of cost such seed as they require from the ginneries and distribute it gratis to the native growers.

If a system of plant breeding and selection such as I have outlined were adopted, some special arrangements would have to be made to ensure separate ginning of the seed cotton of selected

\* Even exclusive of Kavirondo, where for various reasons, it may not be possible to grow a large quantity of cotton.

natives and the storing and packing of the seed for further distribution. It would seem desirable to have seed for sowing packed in bags marked with the name of the ginners from which it came, so that its source would be known to agricultural officers. Anything in the nature of haphazard distribution is undesirable, and to distribute seed from an area merely because it is conveniently situated may prove a very false economy. Well-distributed seed-farms will remove the temptation to distribute in a haphazard fashion and will eliminate many difficulties, but the essential factor is the goodwill and co-operation of the ginners concerned. There is little doubt that the Uganda Government can count on this assistance from a large proportion of the ginners in the Protectorate, but if they are to help intelligently and perhaps to keep a register of natives selected to grow cotton for seed, they must be taken into the confidence of and receive full instructions from the Department. It might also be worth consideration whether it would be mutually advantageous to register those ginners to whom pedigree seed cotton would be taken for ginning, and to grant them licenses on favourable terms in return for their assistance in recording and checking the list of natives who grow such cotton.

Finally, I think that it is time to consider the possibility of making a small charge for sowing seed, that under the present system a considerable quantity is lost or burned, because the natives do not appreciate what is given them for nothing. If this is done with pedigree seed it will add material to the length of time it takes to increase the area on which it is grown. I realize that such a step cannot be taken precipitately, but that it will have to be taken some day I am convinced, and it might be well to start some judicious propaganda on the subject.

#### BUYING AND MARKETING

The policy of the Government is that of free competition for the purchase of seed cotton, modified only to the extent of preventing an excess of buying facilities where there is free competition, and of imposing such safeguards as may be considered necessary for ensuring the protection of the cotton from deterioration when bought. The Government do not intend to restrict the activities of middlemen in buying centres, nor will they intervene in regulating prices. The "five-mile radius" between gineries and central markets is accepted as a guiding principle to be applied as far as circumstances permit in the future.

At present there are two systems of buying in Uganda. In the Eastern Province, any cotton not bought at gineries is bought

at central markets, where there may be a large number of small stores, each buying on behalf of different gineries or middlemen, who sell to the gineries. In Buganda, cotton is bought at the gineries and at numerous scattered buying posts. This system is to be abolished in the near future, and central markets are to be established as in the Eastern Province.

There has been, and still is, very considerable difference of opinion as to whether the middlemen are desirable and necessary. The Government have come to the conclusion that they serve a useful purpose. It is held that a well-placed market enables the natives to sell their cotton without having to carry it for great distances, that markets prevent a ring among the ginners and ensure a fair price to the natives, that they obviate delays in the disposal of cotton, and, above all, that the natives like the system, as it allows them to take their cotton from store to store and to bargain for the best price.

Ginners, as a whole, do not like markets, many of which are situated within the five-mile radius, and which necessitate their employing agents and constructing stores at one or more markets, and thus add to their overhead charges directly, as well as indirectly, by diverting cotton from the gineries. They also complain that the small middleman can build a cheap wattle and daub store and keep seed cotton in it practically as long as it suits him, while at the gineries they are compelled to keep their cotton in expensive rat-proof stores.

I have listened to arguments on both sides and I have seen many of these markets in my desire to arrive at an unprejudiced conclusion. On the whole I consider that central markets and buying by middlemen are not essential for the good of the industry or of the native, save in exceptional circumstances where gineries are few and distances excessive.

It should be remembered that long distances have hitherto been no hardship to the natives, who are born travellers, and who think nothing of walking thirty miles to sell to a man who is known and trusted. Their readiness to walk these long distances is, however, diminishing.

The danger of a ring among ginners is not serious. As a rule there are too many men competing and the competition is too keen for rings to be formed. Many ginners have admitted to me that there are irregularities in cotton buying, but those of which I have been told are invariably aimed at rival ginners and are not in any way harmful to the natives. The natives themselves have been growing cotton for a sufficient number of years to know with some accuracy what is a fair price, and quite apart from other things, it would not pay any ginner to cheat them. The most

successful buyers are men who live amongst them for a considerable part of the year, and who are known to pay fairly and promptly. I doubt whether markets save much time in the disposal of cotton, and of thirty-two markets now in the Eastern Province I know of eight that I believe could be abolished without inflicting any hardship on the natives.

On the other hand, I admit that it is hardly likely that I should have been told of any irregularities affecting the natives adversely. That it may be possible to cheat them is quite likely, because, in spite of considerable shrewdness, they have a congenital proclivity for a deal which savours of some dishonesty. For instance, there are cases where they prefer to sell to a buyer who pays 18s. per 100 lbs., and gives them 2s. or even 1s. 6d. *backsheesh*, than one who pays a fixed price of 20s. On the whole I am inclined to think that, if the native is cheated, it is more likely to be at markets or scattered buying posts, where supervision is difficult and most of the buyers are agents who are small men whose standard of honesty is not high.

That the natives themselves like the system of scattered buying posts and markets must carry some weight, but it does not necessarily follow that what the native likes is best either for himself or for the cotton-growing industry. The bad conduct and temporary nature of the stores have been in themselves a temptation to theft by the natives.

Administratively, and from the point of view of the Uganda cotton, markets and buying posts are unimportant. There are, of course, many trades where middlemen are essential. They would be necessary in Uganda if the Government had adopted a policy of few and large ginneries. But there are over ninety ginneries in the Eastern Province alone, and the middleman seems hardly necessary either in the interests of the ginner or of the native, as the former can supply all the capital that is necessary to give the latter immediate cash for his crop, and there is, as I have said, little danger of rings being formed. If there were, it would always be possible for the Government to open markets or even to allow buying posts until the ring was broken.

Generally speaking, the middleman is not as interested in the reputation of Uganda cotton as is the ginner, and where his agent is an uneducated Indian or African, it is not likely that the natives are made to grade their cotton. I visited one market where the agent of a ginning firm was unable to obtain cotton, because while he insisted on grading by the growers, other agents, acting for middlemen, bought any cotton that was offered to them. Up to the present the Administration have found themselves unable to compel grading by legislation or regulation, as is done in other

places. They admit its desirability, and the growers have been told that it is advisable. The Administration hold that "economic factors are bound to operate, inducing the grower to grade his cotton in self-interest." It appears more likely, however, that, so long as the natives of Uganda can find a buyer who will take his cotton mixed and save him the trouble of grading, he will sell to that man in preference to one who makes him separate what is dirty and stained from his clean cotton. Bailing legislation in this matter, the Government must depend on the co-operation of both ginners and middlemen.

Another administrative objection to markets or posts is that it is difficult, if not impossible, to trace the source of the seed and the area in which cotton has been grown. If only one variety were grown, and if that variety did not deteriorate, this would not matter, but in Uganda as everywhere else the ideal to aim at must be a constant stream of pure seed flowing outwards from seed farms, and periodical changes of variety. It is, therefore, convenient if the cotton grown in any area is for the most part ginned in that area, and it will probably prove necessary to abolish markets in the vicinity of seed-farms, because there must be no temptation for the natives to take their pedigree seed cotton to any place other than the recognized and approved ginneries in order to indulge in the haggling and bargaining which is so dear to their hearts. In the event of a serious pest, such as necessitated some form of control, they would probably all have to be closed down, at all events as a temporary measure.

From a transport point of view markets are undesirable, and, as has been stated, it has been found necessary to forbid the export of seed cotton from Lake Kioga ports in order to facilitate the transport of lint.

As regards ginning, I have attached as appendices two notes by Mr. Jackson on this subject. Generally speaking, I am in full agreement with the views he has expressed, but we both feel that we were not long enough in the country and have not had sufficient experience to justify our including these notes in the report itself.

JAPANESE PURCHASE OF UGANDA COTTON.—The Corporation have already received reports on this subject through the Department of Overseas Trade, and I know their views on the subject. I have discussed the question at some length with H.M. Trade Commissioner, but I see no practicable method of diverting the destination of cotton. So long as the present lack of shipping facilities to England exists, so long will a large proportion of cotton go to Bombay, which is a very good market, and to which there is a regular fortnightly service of steamers. I am in hopes that,

when the new harbour works are completed, and it is possible for cargo steamers to call without the risk of being delayed for ten days to a fortnight, more cotton will come direct to Liverpool. There is, however, little doubt that the Japanese are demanding a steadily increasing amount of good quality cotton, and while the Japanese market and prices are good, cotton will certainly go there. In this connection I draw your attention to Appendix III, which is an extract of a letter from the Bombay Uganda Company.

**THE COTTON TAX.**—The Government policy is to maintain the tax for the present. If prices drop considerably they have stated that it may be necessary to reduce the tax or to make it graduated. It is now generally realized that some form of taxation is necessary to enable the Government to meet the expenses of development, and that the existing tax does not press heavily on the natives or on the industry.

It is also agreed that it would pay the natives well to grow cotton at a price of about 15s. to 18s. per 100 lbs., and that it might perhaps have ensured a steadier if less sensational course for the industry if it had been possible in the first instance to calculate a graduated tax on some such basis of price. A portion at least of the tax could then have been set aside to stabilize prices, so that not only could the tax be remitted, but a bonus could, if necessary, have been paid to the growers. I think that it is likely that, if the price of cotton continues to fluctuate in future years, it is bound to make the natives regard cotton-growing as a speculation rather than an investment, and that for their sake it is desirable to try and stabilize prices. Apart from this, I am informed that the overhead expenses of the Uganda Government are about 10s. per bale, including the cost of new roads, upkeep of present roads, extra administrative services, transport of cotton-seed, etc. It is therefore only just that the tax should be maintained.

Before leaving the subject of marketing, there is one aspect of the case which is perhaps worthy of consideration—namely, the moral effect on the native of all this competition for his produce. Every safeguard that can be devised ensures that he gets full material benefit from his cotton, and, if it were possible to draw up the balance-sheet of a native cultivator, it would probably be found that his profits at present prices are relatively very considerable, while his responsibilities as a landholder (as in Buganda) or as a tenant of the Crown (as in the Eastern Province) are small. The seed for his land is selected for him and supplied to him by Government at no cost to himself.

That he works as hard as he does and cultivates so much land reflects the greatest credit on the past efforts of the Administration and of the agricultural officers, and that he will continue to work for the sake of those luxuries which he so much appreciates is

undoubtedly. A heavy slump in the price paid for his cotton would almost certainly reduce for a season or two the number of bales exported; but until some more paying crop is introduced, the production of cotton in steadily increasing quantities is assured. But the native in the cotton-growing areas of the Protectorate is at present very far from being hard worked, and for various reasons he gives a diminishing amount of labour for works of public utility, even when they are of direct advantage to himself. This point is dealt with under the heading of Labour. All around him he sees keen competition for his cotton, and there is no doubt in my mind that there is a certain amount of bribery and corruption to induce him to sell his cotton in certain quarters. This cannot have a good effect on him, nor is it conducive to commercial morality. It induces a gambling spirit throughout the country, and at present there are few signs of thrift among the population generally. It is too late now, and there are too many vested interests, to make any radical alterations in the administrative system of the Uganda cotton trade, but it is probable that if, for a term of years, the Government had exercised an even closer control, and had themselves bought the cotton from the natives, or had grouped all buying within an organization in which they could influence, such measures would have had considerable administrative advantages. Prices could have been fixed and profits could have been diverted towards general improvement and education. The natives would not have been so prosperous, but they would have been very reasonably prosperous, and the dangers to them of getting rich too quickly would have been obviated.

#### LABOUR

It is almost universally agreed that there is a serious shortage of labour in both Kenya and Uganda. There are many reasons to account for this. In the past when production was small, labour was cheap, and probably more than was necessary was employed. African labour is not efficient, and there is a very natural temptation to employ a superabundance rather than go to the trouble of training and organizing it.

Both in the Colony and in the Protectorate production has increased greatly among white settlers and planters and also among the natives themselves. There are, in addition, railway extensions and harbour works. This necessity for more labour has synchronized with the abolition of forced labour, and in Uganda, with a sudden access of wealth among the landholders and tenants of the cotton-growing areas.

There are some who say that a policy of developing native smallholders is hopelessly antagonistic to the development of a wage-



earning class. Others assert that, if the natives are made to work on their own land, many of them will prefer to hire themselves out, and in any case that the taste for luxuries which has been developed during recent years will force them to earn money either on their own *shambas* or in the employ of another man. But there is no doubt that in Uganda labour for hire is not popular. It is said that the reason for this is that in the case of *Kasereu*, or so-called forced labour, the natives were not looked after sufficiently well. Generally speaking, however, this form of labour was no hardship. It was a system which the natives themselves thoroughly understood, and which had been in existence for many years, probably for many centuries. Its abolition, therefore, was a dislocation of the established order of things, and the African, who is many hundreds of years behind our civilization, does not understand such changes, and may be demoralized by them in the same way that children may be demoralized by a lack of consistency in those in charge of them.

The natives are now being told that they must all work, either on their own land or for hire. This is admirable in theory but difficult to put into practice. At the present time, so far as I can understand the situation, the Protectorate is divided into producing and non-producing areas, and the natives from the latter—i.e., the Ankole and the West Nile natives, are being recruited to carry out public works in Buganda and the Eastern Province. In view of the fact that there are considerable numbers of natives in the latter area who could work on the new railway without hardship to themselves or injury to the cotton crop. I cannot help thinking that any large importation of labour from other parts of the Protectorate may make it more difficult as time goes on to get them to work anywhere but on their own *shambas*. These are not large enough nor do they grow sufficient variety of crops to occupy men for more than a few months in the year. I do not imply that the natives of Africa are lazy, but, like most other people, they only work hard enough to supply their own wants. The high prices that they have been paid and the simplicity of their wants enable them to live comfortably with very little hard work.

Obviously, forced labour once abolished cannot be revived. I gather, however, that District Commissioners and chiefs still have powers to call out labour. It seems undesirable to throw the responsibility of deciding whether such labour is essential or not on District Commissioners, and that, to ensure uniformity, this should be decided by Provincial Commissioners on instructions from the Governor.

For instance, in a cotton-growing area a certain quota of

labour is essential for every ginery. It is for the District Commissioner to provide that labour. It is evident that a certain amount of pressure may be required, especially towards the end of the season, when most natives have been paid for their cotton, but provided that the work entails no hardship and does not prevent the men from sowing their crops, it would not be resented.

It is said that at present some of the best administrative officers are specially employed on labour recruiting duties in order to ensure that the labour for the new railway should be available. At the risk of touching on a subject which is outside my purview, I suggest that the machinery for recruiting such labour should, as far as possible, be included within the province and the district in which it is required, and that the Native Labour Department should be one of inspection to ensure good housing, good feeding, and proper medical attendance, etc., for the labourers.

In including the Labour Question in this report, it may seem that I have gone beyond my duty to the Corporation, but the effects of cotton growing on the labour supply, and of the labour difficulty on the cotton-growing industry, are so important, and cotton-growing has so often been attacked as the main and principal cause of the shortage of labour, that I felt bound to go into the question.

In my opinion, this shortage is the result of many factors, of which I have enumerated the most obvious. I believe that the fear of labour can be overcome, but that some pressure, however, should become less and less as time goes on, will be necessary. Above all, economy of labour in every possible direction, more labour-saving devices, further training, and better organization are essential.

#### SUGGESTED REORGANIZATION OF THE AGRICULTURAL DEPARTMENT OF UGANDA

Broadly speaking I suggest that the present Agricultural Department should be grouped in three main sections under the Director. Each section to be in charge of an Assistant or Deputy Director. These sections to be:

1. Administrative or Agricultural.
2. Commercial.
3. Scientific or Research.

The Administrative Section to deal with all questions of administration within the Department, and to be responsible for all agricultural officers in the field and for all co-ordinating duties between the three sections and other Government Departments.

The Commercial Section to be responsible for all questions

connected with the distribution of seed, buying, grading by growers, and grading by government (which could perhaps be carried out best at seaports), ginning, including the inspection of ginneries (which sub-section I recommend should be strengthened in order to be effective), marketing and transport, so far as the Agricultural Department is concerned with them.

It is axiomatic that commercial questions do not fall within the sphere of the Agricultural Department as such, and that the primary work of the Department is completed when it has pointed the way to obtain the maximum amount of pure cotton, and it is only directly concerned with the subsequent disposal of the produce in as far as it may be necessary to protect the seed supply required for sowing and to ensure by this a condition of purity.\*

Uganda, however, has not reached the administrative stage when such commercial questions can be handed over by the Agricultural to any other Department, and I therefore recommend the formation of a section within it to deal with the subjects I have mentioned and with any other commercial questions that may arise. With this end in view I have suggested to the Director of Agriculture, and I understand that he has approved my suggestion, that Mr. Morgan of the Department should visit the United States to study the question of marketing there. I strongly recommend that the Corporation should make a grant to enable Mr. Morgan to pay this visit, which I believe would be of interest and value both to the Uganda Administration and to the Corporation.

The Scientific Section to include botanical, entomological, chemical, and mycological sub-sections, and possibly an agronomist for field testing, cultural methods, design of implements, etc. This section to deal with all scientific questions concerning agriculture in Uganda, and to act in an advisory capacity in the Lake Victoria area and elsewhere, if the Governments of Kenya and Tanganyika so desire.

I understand that the Director of Agriculture has included in his estimates the sum of £7,500 to build a laboratory near Kampala and in the immediate vicinity of Makerere College. I hope that this laboratory will be equipped so as to include the botanical sub-section, which for many reasons I think should be grouped with the other sub-sections, and should have its main research farm at Kampala, and not at Serere. Kampala, although perhaps not the most convenient centre, is at least more convenient than Serere, and can be reached without very great difficulty or delay

\* "Report on the Maintenance and Improvement of the Quality of Egyptian Cotton," by Dr. H. Martin Leake, 1920, pp. 13, 14.

from any part of the lake. Moreover, some social and intellectual amenities are essential if men are to do good research work, and it would be convenient if the Government botanists were in close and frequent touch with other people as well as their mycological and entomological confrères. I do not suggest that this section should undertake work that could be carried out at the Amani Institute if it were decided to find the personnel and apparatus necessary to carry out general tropical agricultural research at that place. Amani, however, is not suited for a cotton experimental station, and is inconveniently situated for conferences such as I suggest in the following paragraph. In my opinion, therefore, experimental and scientific work on problems of local importance connected with cotton should be done in Uganda.

I think it would be of the greatest advantage to all concerned if an East African Cotton Conference, at which lectures could be given and discussions take place, were held at Kampala at least once a year. Both ginneries and agricultural officers could state their problems and their difficulties, and exchange their opinions informally as well as in the lecture room.

Finally, I put forward for consideration the question of giving agricultural officers some administrative status. This does not mean that I suggest that they should have administrative duties, since I think that even now too much of their time is occupied with ginneries and cotton markets.

An administrative officer, however, is the man who counts in the eyes of the natives. The most junior has all the power and prestige of the District and Provincial Commissioners behind him, and it is known that his instructions must be obeyed and can be enforced. The agricultural officer is relatively a new-comer, and in the mind of the native, although he is a Government official, he is primarily concerned with *Shambos*. As I have said, the co-operation between administrative and agricultural officers in Uganda is remarkable; they never seem to encroach on each other's duties, and there is no amateur interference by an administrator who happens to be an enthusiastic but uneducated agriculturist. This harmony, however, depends on personal relations rather than on clear definition of duties, and I have not seen it laid down anywhere that the agricultural officer is the Provincial or District Commissioner's technical adviser. This would not mean any diminution in the authority of the Director of Agriculture, to whom naturally his subordinates would look for guidance in matters of policy, and on whom they would depend for promotion or transfer. It would mean, however, a closer linking up of administration and agriculture, and this seems desirable, since Uganda is a purely agricultural country, and since in the past

agriculture has been developed largely by the efforts of administrative officers.

Further, I would change the title "Agricultural Officer" to "District Commissioner" or "Assistant District Commissioner" (Agriculture); and I think that, when they had experience of the country and where the circumstances rendered it desirable, agricultural officers should be given some of the powers of administrative officers. Also I recommend that the administrative and agricultural offices should always be adjacent—as is actually the case at many but not all administrative headquarters. To ensure continuity it might be convenient to group them in pairs, so that when one went on leave the other would be able to carry on his work. This would avoid the necessity of changing a man's area on his return, and thus wasting his personal and local knowledge.

## APPENDIX I

The following is a note by Mr. Jackson on the ginneries which he saw in the Eastern Province:

"It is necessary to divide these ginneries into two categories, European and Indian, as I found distinct differences dependent on the management.

European ginneries are on the whole well built, and the machinery generally well looked after. Both saw and roller gins are used, sometimes in the same ginnery, but the lint from each is kept and baled separately very carefully. Seed cotton openers are used in all roller-ginneries. Platts' gins are used almost universally; the hydraulic presses are made by John Shaw, Ltd., and the seed cotton cleaners by Platts. Hand-feeding of gins is universal, as the automatic feeder does not appear to be popular. I was told that these feeders do their work perfectly and save labour, but that the resultant ginning was not so good because there was no one watching each gin who could call for the ginner when necessary, as is the case when there is a boy to every gin. They are, moreover, rather expensive.

The motive power is very varied. Producer gas, steam, and oil engines are all used. The steam pressure is about 100 lbs., this relatively high pressure is being necessitated by the small boiler. The ginneries are built of corrugated iron, and are usually of two stories. Linter gins are not used.

The cotton stores are built on a brick foundation usually extending about three feet above the ground to ensure they are rat-proof, and have concrete floors.

In some ginneries in Teso and Lango the seed cotton is picked over by hand as it travels on a long creeper-lattice, and the ginned cotton is again hand-picked before baling. Where this is done the lint is remarkably clean and free from impurities.

The Indian ginneries vary considerably, but none that I have

seen come up to the European standard. Generally speaking, the construction is the same, but the standard of workmanship is lower.

"Roller gins are almost universally used, and a cleaner is installed in practically all Indian ginneries, but often it does only half the work it should owing to lack of attention. The gins are generally in fair mechanical condition, but some were ginning badly on account of bad setting and careless feeding. Only one Indian ginnery fitted with saw-gins. There a very fair seed cotton was being runned by bad ginning. The lint was full of neps, crushed seed, and broken fibre."

"In no Indian ginnery did I see the cotton picked over. The ginner appeared to work on the principle that everything had been paid for, and that therefore everything possible must be ginned in order to swell the output."

"In making these remarks I should like it to be understood that I saw only about fifty ginneries in the Eastern Province, and that I did not have an opportunity of discussing this question with the Ginnery Inspector."

## APPENDIX II

The following is a note by Mr. Jackson on the respective merits of saw and roller gins for Uganda cotton:

"The question which is the better type of gin to be used for Uganda cotton is at present very much disputed, but, in my opinion, it all turns on the care and maintenance of gins. I have both saw and roller gins working in the same ginnery on local cotton, and the lint from the saw-gin far excelled that from the roller-gin in grade, while the staple was identical in strength and length. I consider that this is due to the fact that the saw-gin, once properly set will run for a very long time without being touched, while the roller-gin requires attention at short intervals if it is to do its best work.

"The saw-gin gives a more uniform appearance to the lint and appears to clean it of a certain amount of leaf, while the roller-gin produces a rather patchy-looking lint if the cotton is at all stained.

"Where the ginning is bad, the lint from the roller-gin is the better. The worst that can happen is that whole or crushed seed is plentiful in the lint, while a badly set or blunt saw-gin will not only let broken seed through, but will nep and tear the staple terribly.

"In the average ginnery the saw-gin appears to give the better result; the lint is regular in appearance, cleaner and equal in staple to the roller-ginned lint; the production is about four times greater than the roller-gin, and the gin requires less attention.

"Where the best ginning is obtained, and where the seed cotton is picked over, I consider that, although the saw-gin gives a lint of apparent equality to the roller-gin, yet the roller-gin will

give a better spinning cotton, simply because the fibre has been handled far more gently, and not beaten about at all; but the highest point of ginning has only been reached by a few firms in Uganda, and the average is far below them.

"One might say that saw-gins are better looked after than roller-gins, simply because people realize the harm they can do if not in perfect order, while roller-gins are allowed to work badly because their potentialities for harm are not realized."

## APPENDIX III

Extract of a letter from the Bombay Uganda Company, Ltd., dated Soroti, January 15, 1925:

## FOREIGN COMPETITION AND NEED FOR MORE DEFINITE VALUES FOR UGANDA COTTON IN ENGLAND

"In confirmation of our conversation when we had the pleasure of a visit from you at our Rappayi factory, I wish to point out that ginning companies in this country who ship their cotton to Liverpool have no satisfactory basis on which they can depend during the cotton buying season when in competition with buyers shipping to foreign countries.

"At the commencement of the current season, Japanese firms were buying lint cotton in full pressed bales from Indian ginneries at the rate of Sh.1.00 per lb. lint delivered at Jinja pier, Uganda, the buyer paying the Uganda cotton tax and all expenses upwards. These contracts were placed when Mid-American was quoted at 18s. per lb. in Liverpool, which value after taking into consideration all other export charges till sold in Liverpool is equivalent to 270 points on, whereas firms shipping direct to Liverpool cannot depend on receiving an average of 200 points on.

"During the latter half of 1924 Uganda cotton was fetching 400 points on, but we have no guarantee that when the cotton reaches Liverpool these points quoted during our buying season will remain at that value, and if we endeavour to compete in price for seed cotton with the Japanese firms, our basis of buying rests on an absolute gamble, and if we risk buying in the hopes of securing a higher average of points on, our chances are that we are more likely to lose on our purchases than otherwise.

"From reports which we have been receiving this week from our cotton-buyers, it is evident that the Japanese firms, working in conjunction with two or three Indian companies, are paying prices in the Eastern Province which Liverpool shippers cannot touch with any degree of safety, and although it is apparent that Liverpool and Manchester want Uganda cotton, and have been complaining about lack of supplies, last season the Japanese exported from Uganda close upon 50,000 bales, and it seems to me that this quantity will be considerably increased this year unless the British companies take the risk in the hope that, whatever the position of Mid-American cotton may be in Liverpool, they may still secure the points on quoted during our buying."

## K.E.N.Y.A.

## KAVIRONDO

Thanks to the kindness of Mr. Holm, Director, and Mr. Harrison, Assistant Director of Agriculture, I had an opportunity of visiting Kavirondo, which is one of the two areas in which cotton is grown in Kenya.

Kavirondo is a native reserve, and lies north and south of the Uganda railway. The cotton is grown chiefly in the northern area. I visited ginneries at Malakisi (B.C.G.A.), Wamia (Folkes and Hilton), Sio (Captain Gordon Small), Asambo (B.C.G.A.), Kianmu (British East African Corporation), and Kipps (an Irish ginnyer). No cotton was being ginned at any of these factories. At Malakisi the press was being awaited; Wamia appeared to be far from finished; at Sio Captain Small was ready to begin, and had bought about 600,000 lbs. of seed cotton; at Asambo only 50,000 lbs. of seed cotton had been bought; at Kianmu the Corporation were too busy pressing half-pressed bales from Uganda to deal with the small amount of cotton they had bought, and at Kipps there was a fair amount of cotton, but ginning had not begun when I was there.

"A system of buying adopted in Kenya is that only a ginner is appointed by a ginner to buy seed cotton. Generally a five-mile radius is applied rigidly except in a town where any ginner may establish a buying store. It will be seen, therefore, that the middleman pure, and simple has been eliminated, and that competition has been minimized by practically giving ginneries a monopoly in their own areas. It is not quite clear why this principle should not apply in a township, and I should be inclined, in the present stage of development, to abolish this exception.

"While making every allowance for the difficulties of ginneries, I was disappointed to find that two of them which seemed to be very well placed were not ready to start work. The B.C.G.A. ginnyer at Malakisi will, it is true, take only a short time to complete, but the Wamia ginnyer, for which the site was allotted, so I understand, about two years ago, was not nearly completed. The manager of this ginnyer had died of blackwater fever only a short time before my visit, and no doubt the difficulties of transporting the necessary machinery via Mjani in present circumstances are considerable. It occurred to me that the residence for the manager could with advantage be situated on higher and more healthy ground about a mile away from the ginnyer."

As regards the actual buying of seed cotton, my impression was that everywhere this might be carried out in a more systematic fashion. Natives seemed to be allowed to crowd in around the buyer, and there was no attempt to construct a sort of "pen" through which they could file past the buyer and his scales to the entrance of the seed cotton store. This principle is adopted at the best ginneries in Uganda, and I believe it saves much time and confusion.

In the northern part of North Kavirondo the cotton appeared well cultivated and clean, far more so than in the southern part of the area. This is due to the northern tribes being more industrious and better workers than in the south.

Mr. Jackson reports on the cotton as follows:

"The general average of the cotton is short, the staple being 1 to 1  $\frac{1}{2}$  inches, irregular, generally rather weak, of a good colour and picked fairly clean. This holds good for the whole district, with the exception of the area round Kisumu, which has produced a cotton about good 1  $\frac{1}{2}$  inches staple, medium strength, and fairly regular. I am informed that the seed of this cotton was obtained at Busoga, while that of the rest was sent from Mbale. If this is correct, the difference is at once explained, as the difference between the Busoga and Mbale cottons is very great."

If the present seed were the best that could be applied from Uganda, I should be very doubtful whether it could be regarded as a favourable cotton-growing area, but that the best that Uganda can produce has not yet been seen. The samples of seed which I examined had a considerable amount of mixed seed among them. In my report we have dealt at some length with the question of seed selection and distribution, and have recommended that the scientific staff in that Protectorate should be strengthened, and should act in an advisory capacity to Kenya as far as cotton is concerned. I need not therefore touch on this question except to say that a mass redistribution of cotton seed from what is now grown in Kavirondo is highly unlikely, in my opinion, to produce good cotton. I believe, however, that by experiment and trial very much better cotton can be grown, and I recommend that no considerable extension should be attempted until further trials have been made. With the present labour shortage it seems hardly desirable to divert the supply of labour from the settlers, who are also growing crops of which the world is in need, especially if the cotton grown by natives is not going to help to overcome the shortage of African 1  $\frac{1}{2}$  inches.

Another point on which experiment seems to be needed is the possibility of growing cotton in South Kavirondo. The difficulty

here lies in the facts that the natives are said not to be good or industrious agriculturists, and the country is without good communications. It is possible that the Administration might like to try to develop this area, with the assistance of some company to which a monopoly could be given on some such lines as I have recommended for Tanganyika. There would be no temptation, however, to sink money in such an enterprise until it was proved that good cotton in reasonably large quantities could be grown there by the natives.

#### THE COASTAL AREA

Another area of Kenya in which cotton might be grown is in the neighbourhood of the coast and in the Tang Valley. The natives of these districts are very backward, not very hard-working, and have few material wants. It would, therefore, be a work of some difficulty to induce them to grow a crop which they cannot eat, and will require hard work and considerable propaganda. Both the administrative and the agricultural staff are keen to undertake this. Unfortunately time did not allow me to visit these districts, and Mr. Jackson was only able to see a few small samples. He reports as follows:

"The samples varied considerably in staple, giving respectively good to full 1  $\frac{1}{2}$  inches, medium strength, good 1  $\frac{1}{2}$  inches, medium strength, 1  $\frac{1}{2}$  inches below medium strength, and 1  $\frac{1}{2}$  inches below medium strength. It is impossible to give any just account of this cotton without seeing a good deal more of it, but the two best samples appeared to be very fair spinning cotton and well worth persevering with if the natives can be persuaded to grow it."

Here again will be seen the necessity for experiment and trial. The coastal natives are very backward, and their development would, I believe, be welcomed everywhere in Kenya. But it will be a slow business. I hope that the agricultural officer at Mombasa may be allowed, before long, to visit Uganda, to study conditions there and obtain seed for trial plots.

If the Administration decide to persevere in their attempt to develop cotton-growing on the coast, it will be necessary to make some special concessions to the firm or individual undertaking the ginning. The amount grown will be very small probably for some years, and a factory to buy the cotton and gin it will be essential. The ginning of very small quantities is not a very paying proposition.

## TANGANYIKA

My experience in Tanganyika was limited to two short visits to Bukoba (on the west shore of Lake Victoria), and to three and a half days in Mwanza.

I was fortunate in being able to accompany Mr. Kirby, Director of Agriculture, to Mwanza, and was present at an interview he had with the representatives of the ginneries near that place. Both he and Mr. Turnbull, the Senior Commissioner, gave me every possible help, and I should like to take this opportunity of thanking them for their kindness.

I had hoped to meet the acting Governor, Mr. Scott, but unfortunately he was not able to make the trip he had intended, and I had not the time to go to Dar-es-Salaam.

In the above circumstances I was able to see very little, and make the following report with some reserve, as I may have formed false impressions.

## MWANZA

1. Mwanza district has hitherto been mainly a groundnut producing area. Provided that the food supply is sufficient for the cotton, I see no reason why very considerable quantities should not be grown between Mwanza and Tabora and in districts of the Lake Basin. The ground nuts and cotton perhaps follow one another in rotation. Indeed, the production of a good rotation of crops seems better here than in Uganda, as the people, who are grain eaters, appear to be good and hard-working agriculturists. It is difficult to get accurate statistics of population, but there are said to be over a million people in the areas between Mwanza and Tabora. This vague figure is to a certain extent borne out by the number of people to be seen working in the fields near Mwanza, and in any case there are no complaints of shortage of labour.

2. In this district the cotton is sown about December and the early part of January, and the buying season commences in August and September. I saw no cotton in the field and was able to visit only one ginnyery.

3. The following is Mr. Jackson's report on the cotton seen at the Nyanguge Ginnyery (B.C.G.A.), about twenty miles east of Mwanza:

What little cotton I have seen was of fair quality. The staple is about  $1\frac{1}{2}$  to good  $1\frac{1}{2}$  inches, and the A quality cotton was of excellent grade, being remarkably free from leaf and with no trace

of stain. The staple is of medium strength. This good grade is mainly due to the fact that the natives grade the cotton themselves before selling. Unfortunately, in the case of Mwanza cotton, second quality is also the lowest grade and includes everything which is not A. Thus the B cotton may be of any grade from a little leaf and stain to useless, unmarketable, immature and dirty cotton.

4. At present there are no serious cotton pests in Mwanza, but in September, 1924, the Government entomologist was at Kahama, and advised that any movement of cotton from that district should be prohibited except back to the Central Railway, where the seed originated, because there was danger of pink boll worm, which might spread into the clean Mwanza and Shinyanga areas. He also visited Mwanza, and inspected some raw cotton brought from Kahama, but found no trace of pink boll worm. Orders were given; however, that all Kahama seed was to be kept separate and destroyed.

5. He also advised that "Hindi" cotton, which has been grown by the Wanyamwezi tribe for many years, must be subject to ordinary cotton rules and regulations. The pink boll worm was found to be breeding profusely in "Hindi" cotton round Tabora, and he ordered all plants to be uprooted and burnt. This semi-wild cotton acts as a breeding ground for pests and as a source for cross-pollination and degeneration. Isolated cotton bushes were also found by the entomologist and reported as being objectionable. 6. I believe that a great deal could be done to improve the quality of Mwanza cotton. The area has hitherto been dependent on seed supplied by ginnyeries in Uganda without much reference to the areas in which the cotton is grown. At the Nyanguge ginnyery, in a handful of seed I found that most of the seed was heavily furzed and white, but there was a considerable admixture of naked and green-furzed seed.

7. Unfortunately I was not able to visit Ukerewe Island, but I understand that the cotton there grows well and that the soil is very good. There is only one ginnyery there, and I believe that this island might be turned into a segregated area on a large scale, and could supply seed for the whole of the Mwanza area. This would, of course, depend on the type of cotton being tried and found successful in the other areas on the same lines as I have indicated in my report on Uganda. In any case I hope that it will be possible for agricultural officers to work in the closest touch with the botanical and scientific sub-sections of the Uganda Department of Agriculture.

8. The great difficulty as regards development seems to lie in the

• Elsewhere in Tanganyika the cotton is in three grades, A, B, and C.

fact that Mwanza is so cut off from the administrative headquarters of the territory. The distance to Tabora is about 180 miles, and the road is a bad one. In fact, it is impassable for motor-cars during the rains. The transport question is further complicated by considerable areas being infested with tsetse fly. The natives own very large herds of cattle, and I was told that a very large percentage of them are infected, and that consequently if an attempt is made to work them or if grazing fails—oven for a short time—they die in large numbers.

7. There are two fortnightly steamer services round the lake, one steamer comes from Kisumu via the eastern and one via the western ports. It takes about a week to reach Kiapuu from Mwanza via Bukoba and the Uganda port and about two days via the Kavirondo ports.

8. At Mr. Kirby's interview with the ginning community in Mwanza, various points were raised in connection with the buying of cotton. Undoubtedly there has been considerable dissatisfaction among the merchants over the system and changes of system in the past. Some of the complaints which I heard at Mwanza seemed to me somewhat captious, and did not make allowance for a very shorthanded administrative and agricultural staff. On the other hand, the cotton-growing industry cannot flourish and expand without ginneries, and it is not clear that their profits are always realized by the Government. Last year I think about 4,000 bales were exported from nine ginneries, and of the companies had to pay very high prices for their cotton. Profits were not likely to have been very large.

9. Hitherto the policy in Tanganyika has been to hold auction markets where fairly large quantities of cotton are put up to auction amongst the various bidders. This policy was adopted in order to ensure a fair price for the natives, as competition is not as keen as is the case in Uganda. Each market lasted for two or three days, and involved the presence and superintendence of an agricultural officer. Obviously this system cannot be continued beyond a certain time, because when production increases, agricultural officers cannot spare time to attend these markets, and the Director of Agriculture has stated that probably the same system as obtains in Uganda—namely, that of central markets, will be adopted. He also proposes to adhere to the "five-mile" policy, and to allow no market within five miles of a ginnery. I suggest that in a new area this radius is too small. Ginneries are essential to the cotton-growing industry, and when that industry is in its infancy it seems desirable that they should be ensured, so far as is possible, a reasonable amount of cotton. To have to carry his cotton for ten miles is no great hardship to a native, and if markets were estab-

lished every twenty miles—i.e., every market and every ginnery to have a radius of ten miles, it would, I think, be sufficient in the present stage of development. Transport is such a difficulty that, for the present, the natives must be encouraged to carry their produce for themselves as far as possible. What is required is that the markets should be well organized, so that they will become recognized trade centres. Their sites should be carefully chosen in areas where there is a considerable population and amount of cultivation, with a good supply of water, and on routes which it is desired to develop. If this view is correct, it will probably be necessary in the first instance for administrative officers to give them a good deal of supervision, and if such supervision is to be effective, there must be a large number of markets—as there would be if the five-mile policy were adopted.

12. The obvious risk of having ginneries or markets twenty miles apart is that there might not be sufficient competition to ensure a fair price to the natives for their cotton. To a certain extent this risk would be obviated by having agents from different ginneries at the same market. It might also be possible for the local administration to fix a minimum price for the three grades of cotton after consultation with the ginning firms in Mwanza. It is said that a minimum price will probably become the maximum one, but the experiment might be worth trying in a season.

13. TRANSPORT.—But the great need of this area is a better road system. Roads are required both for such transport as is available and for motor transport. I hope that steps will shortly be taken to lay out main roads, and that the road reserves will be sufficiently wide to admit in most places of two tracks, one for motor vehicles and one for ox transport, because the latter will cut up even well-made roads with a surface of laterite gravel.

14. The most pressing requirements of the roads are culverts and bridges, and I suggest that it might be possible to obtain help in this matter, so far as the Mwanza and Bukoba areas are concerned, from the Public Works Department of Uganda, whence stores could probably be conveyed more cheaply and easily than from Tabora.

#### BUKOBA

15. At Bukoba I only stopped for three hours on two occasions. The lake boats do not remain here longer than they can help as the anchorage is exposed to the prevailing wind, and the holding ground is bad. Several attempts have been made to build a pier, but it has always been washed away, and there is now only shelter for barges and open boats. This is unfortunate, because during 1924 the native coffee crop was 3,535 tons, worth £234,000, and

the area will probably some day produce a considerable quantity of tropical agricultural products. Some fourteen miles south of Bukoba, however, is Lubembe Bay, which, so far as can be judged from the chart, and a short personal visit, would afford an excellent and well-sheltered anchorage, and is actually nearer to the centre of production than is Bukoba. I understand that the Government are considering the question of changing the station to this place. Hitherto, cotton has not been grown with any success in Bukoba, but I believe that there is no agricultural officer available, and there have been no systematic experiments. It is quite likely that cotton has been tried in the wrong situations. It is said that the samples of cotton were good, but I was not able to see any. At Bukoba the average annual rainfall is about 70 inches, and it is evident that cotton cannot be grown in the immediate vicinity of that place. The climate is reported to be much drier farther inland, and the average rainfall at Nzasa (now in Belgian territory), 85 miles from the lake shore, and about 110 miles S.W. of Bukoba, is about 32 inches. The Senior Commissioner, Mr. Brett, believes that there are several areas in which cotton could be grown. While hoping that further experiments may be tried, I do not expect that there will be any large production of cotton from these areas, which are not densely populated and where there is already some shortage of food crops.

16. Bukoba is even more isolated than Mwanza. The only communication southwards, other than native tracks, is by lake with Mwanza. There is a road northwards to Uganda, which is passable for motor vehicles in dry weather, but I understand that it needs a considerable amount of money to be spent on it to make it fit to carry traffic throughout the year.

#### SUGGESTIONS AS TO A POSSIBLE METHOD OF DEVELOPMENT

17. It will be evident that Mwanza, and probably Bukoba, will repay development, but that a very considerable capital expenditure is needed before these areas can produce much.
18. The Tanganyika Government, with a very great area to administer, can afford only very gradual development, and I suggest that it might be worth the while of the Imperial Government to consider whether it would be practicable and expedient to encourage the formation of a large development company and to give that company a monopoly of some description in the Mwanza area, including in it the territory as far south as the central railway. The area in which the company had a monopoly could be

\* About 65 tons of seed cotton were exported from Bukoba in 1925. An agricultural officer was appointed to the area shortly after this report was written.

extended if desired to other parts of the Lake Basin. The procedure that I suggest would be to buy out existing interests, and to pay them in cash or debentures, carrying a fixed rate of interest. The necessary capital would consist largely of such debentures, and to encourage the interest of existing companies, both in Tanganyika and Uganda, I would give to the debenture-holders first rights to establish new or buy up existing ginneries on the termination of the monopoly.

19. The monopoly must be limited in its duration. I imagine that it would be permissible, under the terms of the mandate, only if introduced for administrative reasons and for a term of years, the question of extension of the period to be considered at the end of each term, but in no case should it be continued beyond a certain maximum.
20. The interest to be paid on the capital should be fixed at not less than 8 per cent., any profits over to go to a sinking fund, or to be expended on further developments within the area in consultation with the Administration.
21. The natives' rights in their land would, of course, remain unchanged. Any land reclaimed from the tsetse fly area would be divided between the company and the natives on terms to be settled with the Government.
22. The advantages of such a scheme seem to me that development could proceed in a steady and systematic fashion. Ginneries of any size could be built as and where necessary, and with a certain amount of capital money could be spent on transport and communications. Above all, the fight against the tsetse fly could be waged on a big scale, and probably with economic advantages to the company and to the natives themselves.
23. It may well be asked whether such a monopoly would be good for the natives, and whether it is not more to their advantage to continue the existing competition and the resultant high prices for their produce. To my mind it would be to their advantage to get a stabilized price, and one on which they could count from year to year. As I have stated in my report on Uganda, fluctuating prices teach the natives to regard cotton as a speculation and not as an investment, and to encourage backward and undeveloped people to gamble on their agricultural produce is not in their best interest. To lay stress on their getting the maximum price for such produce is, in my opinion, to take a short view of what is good for them, and in some cases it is competition which has made merchants and middlemen profiteers of their ignorance. It is obvious that a stabilized price might mean large profits when cotton was scarce, but it might also mean a loss in other years. The profits would go back to the natives in the shape of educa-







tion, agricultural training, communications, and an ever-increasing area free from tsetse fly.

24. I do not propose to elaborate details which must be matters of further consideration by experts if the Corporation accept the principle of my proposal and recommend it as practicable to the Government.

25. There is, however, one point which I wish to emphasize, and that is, should the principle be accepted and the experiment tried, it is desirable that a certain amount of self-government be granted to the area concerned. It will be difficult, if not impossible, for a large development company to "carry on" if they are subject to the same restrictions and regulations as are necessary in the case of small companies, and if constant reference must be made to Dar-es-Salaam.

MAP OF THE  
EASTERN PROVINCE  
OF UGANDA PROTECTORATE

Scale of Eight Miles

Towns are shown thus   
 Custom Markets   
 Existing Railways   
 Suggested   
 Proposed Railways 