

EAST AFR. PROT.

No. 16491

C. O.

16491

Recd

15 MAY 05



(Subject.)
Cultivation of Tobacco, Tea + Rhea

His report on - by Mr. C. W. S. Cairnes together with a despatch from Mr. Linton. In view of Mr. Linton's opinion or proposal to discontinue the subsidy hitherto granted to Mr. Cairnes

Mr. Cairnes' Cultivation (Mintor)

Mr. Cairnes (the brother of the Supt. of Telegraphs) received a grant of land and, at Mr. Linton's recommendation, was subsidized to enable him to undertake cultivation experiments on behalf of the Govt. The idea was that it would ensure the production of a mass of exact and useful information for H. A. P.

The result has been unsatisfactory in regard to success & Mr. Linton is disappointed in the result generally and considers that Mr. Cairnes' land is too high for successful experiments.

I see nothing in the papers to prevent the subsidy being stopped at any time, but as Mr. Cairnes has no doubt incurred expense in the supposition that it would be continued [he sowed 160 lbs. of tea seed at the end of Dec?]. In approval of the proposal I think we should put this to the Comtee. and ask whether they will continue

whether it might not be continued for (say)
3 months from the date of the next of
our troops, so as to enable him, if he desired,
to adjust his operations accordingly?

66-11

1915

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H. Y. R.

24/5

W. H. Murray
at once

C. O.
18491
Commissioner's Office,
Bombay,
16 MAY 05

355

April 21st 1905



I have the honor to acknowledge the receipt of a copy of a
report submitted by Mr. G. W. S. Caine with the qualification

relating to the areas of Tobacco, Tea and Rice.

In view of the opinion expressed by Mr. Caine as
set forth in his despatch, a copy of which I have the
honor to enclose, and with which I concur, I propose to
discontinue the subsidy granted to Mr. Caine.

I have the honor to be,

Sir,

Yours faithfully,

W. H. Murray

W. H. Murray

Secretary of State

For the

Downing Street,

LONDON

Enclosure No. 1

13/06.

Agricultural Department,

Nairobi,

April 13th 1906.

Sir,

I have the honour to herewith enclose the reports submitted by Mr. G. W. S. Caine on the cultivation of experimental areas of Tobacco, Tea and Rhea. In the case of Tea and Rhea no definite result would yet be expected. A full tobacco report should have been got, but last season, owing to drought, the plants cultivated grew very unsatisfactorily.

The crops have not done so well at Laroru as expected and the situation of Mr. Caine's farm is generally too high to give any valuable results. I therefore propose to discontinue Mr. Caine's subsidy.

I have, &c., &c.,

Andrew Linton,
Director of Agriculture.

Deputy Commissioner.

Analysis No.

V. C. O.
16491
Per P
16 MAY 1908

Report on Experimental cultivation undertaken for the Director of Agriculture, for the East Africa Protectorate, at Mandera by Mr G.W.E. Caine for the period from 1st November 1906 to 31st March 1908.

I undertook to cultivate 2 acres in Tobacco, 1 acre in Kusa Fibre and 1 acre in Gum.

The following are the results so far obtained:-

Tobacco.

Tobacco seed sown at Mandera is found to germinate and appear above ground in from 8 to 6 weeks according to the weather. No shade is required as the climate being cold, the sun's heat is necessary for quick germination and the plants are stronger unshaded. Seed beds with shade covering took 8 weeks and longer to germinate. I have found it most satisfactory to wait until the plants are from 4 to 6 inches high before transplanting them. Tobacco plants attain this degree of development here in about 3 months time from sowing the seed. The plants ripen in from 3½ to 6 months after transplanting according to the weather so that we have to allow from 9 to 8 months from time of sowing before the plants are ripe enough to gather. The leaves were gathered as they ripened and threaded on strings about 25 leaves on each string and the string fastened on a

the curing house but where all the leaves
 ripened together on a plant the whole plant was cut and the
 stem split with a knife and the plants suspended on a stick and
 hung in the curing house. When the leaves had completely dried
 out, they were taken down and packed in a bulk in moist condi-
 tion to mature and remain until sufficient leaf to make a fer-
 menting bulk of at least 2000 lbs weight should be forthcoming.
 I shall have all the fermenting leaf in a fermenting bulk by
 May. The bulk is now being commenced and the fermented leaf
 would be ready to ship to London next July or August. A ferment-
 ing bulk cannot be prepared with a less quantity than 1000 lbs
 of leaf as with a smaller amount sufficient heat is not gener-
 ated for fermentation.

It was found necessary in damp weather to dry out the leaf
 in the curing barns by means of small charcoal fires. In hot
 dry weather the doors and openings of the barns were kept
 closed to prevent the too rapid evaporation of the leaf. I
 estimate that at present we have about 900 lbs of cured leaf
 in bulk and a further 400 lbs of leaf curing and we shall
 probably obtain another 600 lbs from leaf ripening in the fields.
 The area cropped and to be cropped is over 3 and under 4 acres
 I estimate. I sent Messrs Begg Dunlop & Co of London a small
 case containing 36 lbs weight of our leaf, cured but only

partially

partially matured in bulk and of course unfermented. The case was forwarded on the 9th December with a request that expert opinion should be obtained on the qualities of the leaf and an opinion obtained as to whether it was considered the leaf would be suitable for a cigar leaf or what type of leaf we should aim at producing. It was pointed out that the leaf was unfermented, Messrs Begg Dunlop & Co are a firm of high standing in London and with experience in the Tobacco Trade and their report is attached. Much of the leaf is narrow with the veins close together due to a good deal of Short Fumaco seed having been sown as this is found to be a characteristic of this variety. So far as we have gone I should say that Navanah and Bumtra seed would be the best to try here and some varieties of American such as Yellow Orinoko. It is unfortunate also that the Navanah seed I imported from America proved bad and did not germinate. We were unable to obtain Bumtra seed at the time I applied for it through a firm in Calcutta with connections in Singapore. Great jealousy exists in the Straits regarding the export of Bumtra seed but it has been introduced into America and seed might be obtained from there, but a good deal of so-called Bumtra seed is a hybridised variety. I obtained a little Navanah seed from Mr Almsworth but it was found to have become hybridised and barely one plant out of

50 shows the true Havana leaf.

The best season for transplanting here has been found to be from September to middle of November. Such plants ripen before the heavy rains and colder weather that prevail here from middle of March to end of July. Plants that were growing during period from middle of April to July suffered greatly from mold in the field. Some plants put out on ridges during that season did fairly well however. Seed beds must be sown 3 months in advance and should be in sheltered situations, preferably in a valley near a running stream so that watering can be easily carried out during the dry weather. New land is best and after being cleared the brush should be burnt over it, keeping the flames near the ground in order to kill the weeds and seeds that may be in the earth. The land should then be well pulverized and left for a time to see if weeds appear, if so they should be pulled up and then the bed prepared for sowing, one third of an ounce of seed should be sown on a bed 50 feet by 3 feet and should provide over 10,000 plants. The seed should be sown mixed with wood ashes. After sowing sweep the bed over with a brush or tread the seed in or flatten with a plank. When ready for transplanting the plants should be put out in rows 50 feet or 3 feet apart and the plants from 11 to 18 inches distance in the row, that is if a fine leaf is being aimed at. When the

plants

plants are ripe the leaves should be plucked as they ripen or
the whole plant cut if all the leaves are ripe. The leaves are
strung on a strip attached to a stick and the whole plant
are split up the stem and along across a stick, the sticks
being hung in the curing shed. The curing takes longer when the
whole plant is suspended. During growth the plants should
usually be kept free from suckers but where the soil is rich
and the leaves have abundance to be common suckers may be left
in order to draw out some of the strength. Similarly the plants
are topped when the seed stalks at the head unless it is desired
to leave it to prevent cancer growth in the leaves. Second and
even third cuttings are sometimes taken when the main
plant. Although I had only undertaken to grow 2 acres in tobacco
we considered it advisable to increase the area to nearly 4
acres to ensure a sufficient supply of leaf being forthcoming
to make a satisfactory fermenting bulk. The main crop being
put out during last October and November. We made up a little
roll tobacco similar to the Connecticut smoking tobacco and many
people like it. We also had a few cigars made from the unfer-
mented leaf and they are not unlike the Spanish cigars in
quality altho' the leaf is of a finer texture.

With regard to the experts report on leaf sent home it
is unfortunate that the package being under 50 lbs weight of

net

to show the effect of the

The best season for transplanting tobacco has been found to be
from September to middle of November. Good plants ripen before
the heavy rains and cold weather that prevail here from
to March 30 and of July. Plants that were sown during these
from middle of April to July withered or died from frost
and some plants put out on ridges during winter months
with well however. Good beds may be made in a variety
and should be in sheltered positions, preferably in a valley
near a spring stream so that water can be easily obtained
and during the dry weather. The land is best and most fertile
when the main crop is sown over it. The tobacco
near the stream in order to get the water and some
of the water. The land should be well prepared
of tobacco. It is a good idea to see if water should be
to build up, raised up and not prepared for water. The plants
the ground of each should be seen to be 3 to 5 feet by 3 feet
should provide over 20,000 plants. The seed should be
with tobacco. The seed should be seen to be 3 to 5 feet by 3 feet
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to be seen to be 3 to 5 feet by 3 feet. The plants should be

net tobacco was treated as an illegal package and eventually

only a 4 lb sample was permitted to be taken out from it.

Wesley Hagg Hagg & Co., write on the 6th January last regarding it as follows:-

"We note you are sending us a case containing 25 lbs of tobacco leaf through Messrs Smith Macdonald & Co of Glasgow and when same arrives we shall as you desire endeavour to obtain an exhaustive report upon its commercial value. We fear we shall have some trouble with this parcel as according to the Customs Regulations here any package of tobacco which does not weigh 50 lbs net weight is considered as "illegal package" and liable to forfeiture. However we have no doubt we shall be able to get the Customs Authorities to allow us to draw what samples we require and if we cannot prevail upon them to grant the remainder we can only shunt it. You may depend however that we shall do the best we can in the matter".

I do not consider the report satisfactory or conclusive for the following reasons. The leaf sent was not only unfermented but had been only a short time in the bulk. Even for pipe tobacco the leaf should mature for some months in bulk and as the report says it is not possible to say what the leaf may be like after high fermentation, only a 4 lb sample could be taken whereas I had intended the leaf to be distributed amongst manufacturers and practically tested. Two lengths

of leaf were sent, the long leaf being packed first and the shorter leaves at top. We cannot tell what their sample was, of course the leaf varied throughout the case, as it was not picked leaf but a fair average of our stalk. The short of the leaf having pronounced veins is due to the varieties grown. The Havana seed from America as already stated was bad and we could not obtain Havana seed. A large proportion of the poor seed was seen, the balance being American Bright and Dark, seed sent us from America with the Havana seed, these are both pipe tobacco varieties. I think it is highly desirable that Havana and Sumatra seed should be tried here. The leaf we have grown may be found to be a good cigar filler tobacco after fermentation even though the pronounced veins of the leaf militate against its suitability for a cigar wrapper leaf. The figures of plant area and returns of our tobacco crop here will be forwarded when the total crop is cured and weighed off.

The following are the dates on which plantings were made:-
 1903. Nov. 7th, 8th, 10th, 11th & 12th. Small area 1/20 acre planted. The rainy season failed and most of it died.
 Dec. 9th. Re-planted above and made further planting 1/2 acre altogether. There was good rain on Dec. 8th, 7th & 6th, and again 16th & 17th.
 1904. Jan. 4th. Filled in vacant area and planted further area.

There was slight rain on 2nd & 3rd.

Feb. 4th. Good & welcome rain. No-planted tobacco.

do. 8th. Planted tobacco. Total area planted 1/3 of acre.

March 18th. Good rain.

do. 28th. Planted tobacco.

do. 29th. Rains set in.

do. 30th. Planted tobacco.

April 28th. Some leaf ripening was touched with mild in the field

May 18th. Planted tobacco on ridges.

June 8th. Planted tobacco.

do 22nd & 24th. Planted tobacco.

July 22nd. Sowed Bear and American tobacco in seed beds in

Valley No. 2. Also some Havana seed received from

Mr. ALANSON.

August 11th & 29th. Planted tobacco.

Oct. 18th. Rains set in during night.

do 16th & 17th. Planted Havana & Bear tobacco in separate fields.

do 21th & 26th. Do. Do.

do 28th. Planted Hybrid tobacco and closed tobacco planting for the season.

Nov. 21th & 26th. Planted tobacco and closed tobacco planting for the season.

There was slight rain on 2nd & 3rd.

Feb. 4th. Good & welcome rain. No-planted vacancies.

do. 5th. Planted tobacco. Total area planted 1/3 of acre.

March 19th. Good rain.

do. 25th. Planted tobacco.

do. 27th. Rains set in.

do. 30th. Planted tobacco.

April 22th. Some leaf ripening was touched with mould in the field

May 25th. Planted tobacco on ridges.

June 5th. Planted tobacco.

do 22nd & 24th. Planted tobacco.

July 22nd. Sowed Bear and American tobacco in seed beds in Valley No. 2. Also some Havana seed received from Mr. Alansworth.

August 17th & 29th. Planted tobacco.

Oct. 23th. Rains set in during night.

do 14th & 17th. Planted Havana & Bear tobacco in separate fields.

do 24th & 26th. Do. Do.

do 28th. Planted Hybrid tobacco and closed tobacco planting for the season.

Nov. 24th & 26th. Planted tobacco and closed tobacco planting for the season.

The tobacco was gathered as it ripened from time to time and hung in the barns and dried and when completely dried advantage was taken of moist weather to take leaf down and bulk it.

This closed my report on the tobacco experimental cultivation.

(Signed)

A. W. S. Cain

April 1st 1901.

The tobacco was gathered as it ripened from time to time and hung in the barns and dried and when completely dried advantage was taken of moist weather to take leaf down and bulk it. This closed my report on the extensive experimental cultivation.

(Signed)

G. W. Caine

April 1st 1901.

There was a fine rain on Sat & Sun
Nov. 20th. Good & warm rain. No planted vegetation.
Nov. 21st. Fine planted tobacco. Rain was planted in the
Nov. 22nd. Good rain.
Nov. 23rd. Fine planted tobacco.
Nov. 24th. Good rain.
Nov. 25th. Fine planted tobacco.
Nov. 26th. Good rain.
Nov. 27th. Fine planted tobacco.
Nov. 28th. Good rain.
Nov. 29th. Fine planted tobacco.
Nov. 30th. Good rain.
Dec. 1st. Fine planted tobacco.
Dec. 2nd. Good rain.
Dec. 3rd. Fine planted tobacco.
Dec. 4th. Good rain.
Dec. 5th. Fine planted tobacco.
Dec. 6th. Good rain.
Dec. 7th. Fine planted tobacco.
Dec. 8th. Good rain.
Dec. 9th. Fine planted tobacco.
Dec. 10th. Good rain.
Dec. 11th. Fine planted tobacco.
Dec. 12th. Good rain.
Dec. 13th. Fine planted tobacco.
Dec. 14th. Good rain.
Dec. 15th. Fine planted tobacco.
Dec. 16th. Good rain.
Dec. 17th. Fine planted tobacco.
Dec. 18th. Good rain.
Dec. 19th. Fine planted tobacco.
Dec. 20th. Good rain.
Dec. 21st. Fine planted tobacco.
Dec. 22nd. Good rain.
Dec. 23rd. Fine planted tobacco.
Dec. 24th. Good rain.
Dec. 25th. Fine planted tobacco.
Dec. 26th. Good rain.
Dec. 27th. Fine planted tobacco.
Dec. 28th. Good rain.
Dec. 29th. Fine planted tobacco.
Dec. 30th. Good rain.

Extract from letter received from Messrs Ross Dunlop & Co.

London, 10th March 1933.

"Our informant does not think the leaf would be suitable for a cigar leaf for the following reasons-

- (1). The veins of the leaf are generally very pronounced although in some instances just at the base (i.e. the widest part) of the leaf this was not quite so much marked.
- (2). The veins of a leaf used for cigar purposes differ from yours (see illustration).
- (3). In smoking, the leaf is strong and pungent.

"Our informant adds that it is impossible for anyone to get any idea of what a tobacco would be worth unless it has been properly cured and finished as these treatments may entirely change the characteristics of the tobacco. The sample has been left in this Premier's Sale Room for a week or two and has been shown to a number of buyers whose views our informant cannot hold out hopes of the tobacco ~~being~~ realizing more than roughly 5d per lb as it would have to come into competition with American Leaf".

...half of only some benefit it as ...
 ...the ...
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...S.S.S

(...)

... and ...

Extract from letter received from Messrs Begg Dunlop & Co.

London, 10th March 1900.

XXXXXXXXXX

"Our informant does not think the leaf would be suitable for a cigar leaf for the following reasons-

- (1). The veins of the leaf are generally very pronounced although in some instances just at the base (i.e. the widest part) of the leaf this was not quite so much marked.
- (2). The veins of a leaf used for cigar purposes differ from yours (see illustration).
- (3). In smoking, the leaf is strong and pungent.

"Our informant adds that it is impossible for anyone to get any idea of what a tobacco would be worth unless it has been properly cured and fermented as these treatments may entirely change the characteristics of the tobacco. The sample has been left in this growers' sale room for a week or two and has been shown to a number of buyers whose views our informant cannot hold out hopes of the tobacco ~~being~~ realizing more than roughly 5d per lb as it would have to come into competition with American Leaf".

Hand half of half with benefit of an ...
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 ...
 ...

also S.U.S (bought)

... ..

121.

I undertook to put out one acre in Good Tea. The seed to be obtained from India. I ordered 80 lbs of Jetting Valley Tea seed. This is a hybrid variety of Manipur and Assam and the Jetting Valley Tea Estate bears a high name for its seed. The seed arrived at Limuru on the 9th December 1935 and was all planted out in nurseries on the 9th and 10th December. Owing to the November rains having been very light I selected low valley land for the nurseries but now find the site selected was an unfavourable one, a large proportion of the seed did not germinate owing to the land being too cold, a portion of the valley got no sun after 3 P.M. and there was insufficient warmth. Also the subsoil retained water owing to rock being 2 feet under the soil and many plants when taken up for transplanting had no laterals, but as a stream ran through the valley by I was enabled to water the nurseries during the dry weather which followed the sowings. Very few plants came up under 4 months and they kept coming up at intervals for 2 months longer whereas under favourable conditions the seed should have appeared above ground in about 2 months after sowing. However when they did appear they made rapid growth. I tested the Tea seed on arrival by immersing it in water. All the heavy seed which sinks is considered to be good seed and the light seed is called doubtful and bad. Only 35 lbs of the seed was heavy seed.

13

... I ordered 80 lbs of Jetting Valley Tea seed. This is a hybrid variety of Manipur and Assam and the Jetting Valley Tea Estate bears a high name for its seed. The seed arrived at Limuru on the 9th December 1935 and was all planted out in nurseries on the 9th and 10th December. Owing to the November rains having been very light I selected low valley land for the nurseries but now find the site selected was an unfavourable one, a large proportion of the seed did not germinate owing to the land being too cold, a portion of the valley got no sun after 3 P.M. and there was insufficient warmth. Also the subsoil retained water owing to rock being 2 feet under the soil and many plants when taken up for transplanting had no laterals, but as a stream ran through the valley by I was enabled to water the nurseries during the dry weather which followed the sowings. Very few plants came up under 4 months and they kept coming up at intervals for 2 months longer whereas under favourable conditions the seed should have appeared above ground in about 2 months after sowing. However when they did appear they made rapid growth. I tested the Tea seed on arrival by immersing it in water. All the heavy seed which sinks is considered to be good seed and the light seed is called doubtful and bad. Only 35 lbs of the seed was heavy seed.

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Journal of the Department of Agriculture, Government of India, 1909.

1. The value of the land and generally very favourable for the growth of the tea plants.

2. The value of the land and generally very favourable for the growth of the tea plants.

3. The value of the land and generally very favourable for the growth of the tea plants.

4. The value of the land and generally very favourable for the growth of the tea plants.

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19. The value of the land and generally very favourable for the growth of the tea plants.

20. The value of the land and generally very favourable for the growth of the tea plants.

seed due no doubt to the length of time taken in transit from the Tea Estate in India. Tea seed dries out very quickly and so soon loses its vitality, although to secure it against exposure to the air it is carefully packed between sheets of card-board placed in layers of coal dust or sterilized earth. The plants have done very well and 3 tea plants from India were now then in the nursery 6 months after the seed was sown. Considered them to compare favorably with plants of the same age in the Indian Tea Districts. A portion of the light seed for which there was no convenient space in No. 1. Valley was planted out on high land near my house and left to take its chance. To my surprise quite a fair proportion of these germinated but the plants were smaller than those in the Valley under I imagine to the drier conditions under which it grew. Two acres of fresh bush land were cleared during October 1904 and all roots and stumps removed and the land laid out in November on the triangular method of planting, holes being dug to receive the young plants at a distance of 4 feet apart by my brother Mr. W.A. Cairns who joined me here last May and who has had a long experience of farming and fruit cultivation in the Straits. Greater care could not have been taken in preparing the land as in moving the young plants to their new location. Each plant was taken up with a ball of earth round it and carried to the new land

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land

land and immediately placed in the hole prepared for it. The transplanting was carried out on the 15th, 20th, 21st, 22nd & 23rd November 1904 during favourable weather and altogether 2000 plants have been put out covering an area of land. We have left about 100 tea plants "in situ" in the nursery in favourable situations. The transplanted tea looked very well until the dry weather in January and February last during which months only 1.94 inch of rain fell, 2.97 inch falling during January and only 0.60 during February. Apparently about 50% of the plants have died but some of these may revive now that the heavy rains have come on. I would not again transplant tea before the March rains set in here.

In order to guard against failure from unforeseen causes a further consignment of 200 lbs of tea seed was ordered from the same Tea Estate in India and it reached Kandy on the 24th December 1904 and was all put out on 28th December partly in nurseries and partly "in situ". One and a third acre of new land was ready prepared and staked out on the triangular system at 5 feet distances for the reception of the seed which made 2000 stakes and 5 seeds have been sown at each stake. The balance of the seed has been put out in nurseries at 3 inches distance. The seed was buried 3 to 5 inches deep and we hope the experience gained will result in a large proportion of the

15 seed

seed germinating. The nurseries are prepared in No. 3 Valley whi
 which is favourably situated as regards moisture and sunlight.
 At the period of writing this report a fair number of plants
 are already up in the valley and also of the seed sown at stake.
 The following are the details of sowings and plantings. I
 anticipate that Tea will do well here. The rainfall is good
 and heavy dew are experienced during most nights of the year.
 The best quality of Tea produced in India is grown in Darjeeling
 at an elevation of 7000 feet. The output there is only
 about 400 lbs per acre against about 400 lbs obtained in the
 better plains districts but the quality is far superior.

1903.

Dec. 7th & 8th. Planted 80 lbs Tea seed in nurseries. The seed
 beds were weeded twice during February owing to deficient
 rains and were kept carefully weeded. As plants appeared above
 the ground stakes were put in to mark them. In some instances
 the young leaves were eaten off by insects but generally the
 plants thrived very well.

1904. Transplanting commenced on November 17th after good rain
 and during showery weather as above stated.

120 lbs of Tea seed from the Jettinga Valley Tea Estate arrived
 here on December 24th and was planted on December 26th as above

stated.

16/11/04

stated. The seeds beds in No. 3, Valley number 51 each bed containing approximately 1150 seeds, the seeds being 6 inches apart.

Roughly 2000 seeds have been planted in Valley No. 3 and 2000 seeds put out at stake "in situ".

This concludes my report on the seed cultivation here.

(Signed) G. V. R. ...

April 2nd 1902.

stated. The seeds beds in No. 5 Valley number 51 each bed containing approximately 1100 seeds, the seeds being 6 inches apart.

Roughly 20000 seeds have been planted in Valley No. 5 and 6000 seeds put out at stake "in situ".

This concludes my report on the seed cultivation here.

(Signed) G. V. S. Cooke

April 2nd 1904.

I undertook to put 1 acre under Enea Fibre but we have now about 1 acre of plants of from one year to eighteen months growth and a further area put out with freshly received roots from India and cuttings and roots from the plants raised here. We have also about 15,000 cuttings put out in nurseries. Of the older plants at least half an acre will be sufficiently forward in another 6 or 8 months time to be fit for taking cuttings for extraction of the fibre. As a Enea Fibre extracting machine would be premature at present it could be sent to London in the form known as ribbons, that is the bark (which contains the fibre) stripped off the stems, dried and pressed lightly into a bale. The growth of the fibre has been satisfactory here. The plants have been kept out down to encourage root growth and development and were put out 5 feet by 5 feet and are filling up the land satisfactorily whereas sheltered from the cold winds but where exposed the growth has been slower. I am of opinion that sufficient heat and moisture for the full development of the plants exists here in all sheltered positions but plants put out on exposed lands without a wind break do not make such good progress. The two points which I consider have to be proved here are, firstly whether the stems grow quickly enough and to a sufficient height before becoming

too old and too hard to cut, and secondly, whether as this is a fibre producing soil (as is shown by the various wild fibres growing in the bush) a larger percentage of fibre will be obtained here, I may be excused for stating here my reasons for considering that the culture of this fibre experiments in this country is fully justified. The advantages of the crop where it can be grown to a commercial profit are very great. Although no return can be expected until the third year of growth yet after that period the profits are large and the assured and risks of failure small. The plant is a perennial and having once taken hold of the land is difficult to pull out. It will cover the land and as such can, unless covered it, neither be further cultivated or possible. Water logging will kill it but it does not die during a period of drought. The roots live and the only loss is when the cuttings are not available for sale, with a return of fresh growth fresh growth is made and the plant certainly thrives for 2 years and probably much longer. There are distinct advantages which this crop enjoys over most farm products. Like tea there is no annual planting and anxiety as to the weather during the planting season and with regard to the market I am informed from London that the demand is practically unlimited. It is the supplies of this fibre that are insufficient for the demand. The following is the progress report on the experiment

I have had some experience of the growth of this fibre in the bush and I am convinced that it will be found to be a valuable crop in this country. The plant is a perennial and having once taken hold of the land is difficult to pull out. It will cover the land and as such can, unless covered it, neither be further cultivated or possible. Water logging will kill it but it does not die during a period of drought. The roots live and the only loss is when the cuttings are not available for sale, with a return of fresh growth fresh growth is made and the plant certainly thrives for 2 years and probably much longer. There are distinct advantages which this crop enjoys over most farm products. Like tea there is no annual planting and anxiety as to the weather during the planting season and with regard to the market I am informed from London that the demand is practically unlimited. It is the supplies of this fibre that are insufficient for the demand. The following is the progress report on the experiment

conducted by me at Limuru. I sent over some 3,000 roots from India in February 1908 before my own arrival in this country. These were planted for me and on my arrival at the beginning of May I found that about 800 plants were growing. On my obtaining land at Limuru in July 1908 I brought the plants here and put them out in the only land then cleared and available which proved to be rather poor sandy sterile land. The plants were removed to better land in the November - December rains of 1908 but these rains having more or less failed the plants did not come on well until the big rains in April 1909 helped them on. When the number of the *Black Fibre* and other engagements were subtracted to me from November 1908 I sent to India for a further supply of the *Black Fibre* and a further 3,000 roots were sent and arrived here on the 7th December 1908 and were planted out on the 8th. The variety is the *Bohemian Nivea* the species which grows in the colder latitudes of China. I do not consider that the *Bohemian Siamensis* the variety which grows in the hot steamy parts of China and the Straits Settlements would offer any prospect of success here although it might do well in other parts of the country. Owing to the previously mentioned partial failure of the November - December rains 1908 the roots were not put out in situ but were planted 1 foot apart to enable watering to be done conveniently, but not more than one third of these roots

struck and I have now obtained a further supply of 800 roots (all I could obtain), and these have been put out at stake on rich well sheltered land, as the soil was thoroughly wet when they arrived, very fall and ample rain having fallen here during November and December. Plantings of roots and cuttings have been made as follows:-

Up to 1st November 1908 I had obtained 800 plants from roots received from India.
December 9th 1908.

Planted Rhoeo Rhoeo received from India. These were put out 1 foot apart as the season having been being dry it was anticipated that watering would be necessary.

December 16th 1908.

Re-planted 800 plants above mentioned into stronger land 1 foot by 1 foot. Also took some cuttings.

December 17th 1908. Do. Do.

March 29th. Planted struck cuttings from Valley No. 1.

May 6th. Transferred young Rhoeo plants of 16th December planting into permanent positions 1 foot by 1 foot.

August 2nd. Took Rhoeo cuttings from all plants and put out in Valley No. 2.

September 10th. Took further Rhoeo cuttings from Valley No. 2.

November 28th. Planted in situ 5 feet by 5 feet 950 cuttings

Rhoeo

110

Rhea roots obtained from Botanical Garden Calcutta.

December 18th. Took up 100 Rhea plants in a poor position, divided up roots and cuttings and planted in sites 5 feet by 5 feet.

December 17th. Took Rhea cuttings and put them out in Valley No. 1 and No. 4.

December 19th. Took Rhea cuttings and put them in Valleys Nos. 1, 4.

December 20th. Took more Rhea cuttings and put them out in Valley No. 4.

This concludes my report on Rhea Fibre cultivation.

(Signed) G.W.L. Caine.

April 1st 1906.

Comm. S.A.P.
16491

376



31 May 1905
Ind.

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J. Stewart.

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The Duke of Marlborough

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Shall be glad to act
the rest of your desire as
20% of the 20% of the
land, and to if you
that I approve of
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discontinue the subsidy
which has hitherto been
granted to Mr. J. S.
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his experimental cultiva-
tion of Tobacco, Tea
and Khas. Tobacco
2. I view however, of
the probability that
Mr. Caine has recently
married by the future in
the expectation that the
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if in badly would be
continued; I ^{should} ~~shall~~ be
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consider whether it
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three months from
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order to enable him
to modify his
operations as he may
consider necessary.

Yours
G. S.