

1931.

Kenya.

No. 17009.

SUBJECT

C 0533/405

Development of Stock Trade.

in Northern Frontier Province.

Previous

See 16043/30 (Taxation
in N.F.P.)

Subsequent

See 17308/31 (Native Livestock
Vet Services in
Native Areas)

See 31289/32. T.T.

1 4 Gov. House Conf. 180 _____ 5 December 2
Guthrie steps to be taken for development of stock
trade in N.F.P., enclosed report of tour of province by
4 Gov. Comm. and the Veterinary Officer. Has appointed
Capt. Mulligan as Veterinary Officer to province and has
authorized institution of training centre at Saidu to take
possibility of trade with Jangibar

This despatch has been in some
books, but has been circulating with
1623/20 with the S.F.S.

What are now primarily
required are Mr. Montague's views
on the measures taken.

Taxation at a flat rate of
10% has been introduced in the
Northern Frontier Province as from
the 1st Jan: 1931. ^(1/1/31) The S.F.S.
has informed the Gov. that he
considers that taxation could only
be justified if the natives were
simultaneously provided with
beneficial services, which should
be instituted on a skeleton scale
before taxation was actually
levied. He asked the Gov. for

One paper or check the
file: as to this was sent
& temporarily mislaid -
What is not really
required for dealing
with the present despatch - the
statement of fact is correct
in substance. 15313/28

a detailed list of the beneficial services which he set up or is installing. This list is given in no. 2 on 16/04/30; the expenditure on veterinary services (from proposed amounts) is £8,080 capital & £2,587 recurrent (para: 13, fluffed). All this was to be spent on the establishment & maintenance of a training centre.

At this time ~~however~~ it was proposed that the rate of tax for Somalis should be £1 a head instead of 10/-.

The SFS however felt unable to allow anything more than a flat rate of 10/-. At the same time he expressed his anxiety that the full programme of beneficial services should be maintained if at all possible, having regard to the financial situation. (no. 8 on 16/04/30).

9 on 16/04/30
fluffed

Eno's Report 14/11/1930 (10)

no. 2 on 16/04/30

increased income that
the value "transcends"
the intrinsic cost
M.P.

(subject of course to Mr. Franklyn's observations) that,

The Governor in replying ~~assisted~~ 3 promised a further report on this subject but it has not yet come.

The financial situation has definitely not improved in the last few months & the yield of taxation is now given as £8,000 instead of the £16,646 which was the figure at the time when the Gov. drew up his programme of services. It would therefore appear inevitable that there should be some increase in the expenditure on the beneficial services, including veterinary measures.

The O.A.S. does not give any estimate of the cost of the services referred to in this despatch, but, though it would be interesting to know ~~about~~ the cost, I think whatever it is, they may be regarded as satisfactory. They appear to be on the right lines & framed in the right spirit & that is perhaps the most important

point.

The development of Lamu is all to the good. The country trade of the minor E.A. ports has, I believe, declined a lot in recent years.

Subject to Mr. Montgomery's views, I would suggest asking this Dept., saying that the SFS has read it with considerable interest. Ask, as a matter of interest, to be told the anticipated cost of these measures proposed. Enquire also when ~~the SFS may expect to receive~~ further info regarding the extent to which it will now be possible to implement the proposals for water boring & medical services set out in no. 2 on 160/2/36.

Say that it is presumed

that a full account of the proposals made with the veterinary measures will be included in the Annual Report of the Agric Dept for 1931, but that the SFS will ^{be pleased to} know of any ~~developments~~ ^{self interest} in the meantime.

Stanford

16.2.31

J. W. Allen

17/1/31

1. This is a definitely constructive programme framed in collaboration by the Acting Provincial Commissioner and the Veterinary authorities.
2. With the proposed institution of taxation, the early development of marketing facilities is a sine qua non. It was once visualised that the Meat Factory of Kenya would be able to absorb such cattle as did not find the more lucrative market as fresh meat. The absence of this Factory renders it the more necessary to develop the trade via Lamu and Mombasa, and the examination of the prospects in Zanzibar is important.
3. At the time of my survey of Zanzibar in 1923, it was represented that great cruelty was involved in the loading of cattle at

Kismayu, then a British port. I have since (1928) seen the conditions ~~was~~ obtaining there, and can only record them as disgraceful and to be associated with the most revolting cruelty.

It is no wonder that Zanzibar complains of the vileness of the meat supplied to her.

Should this trade show the prospect of development, adequate steps must be taken to guard against cruelty in loading and for the supply of food and water for the voyage. Traders (Somali, Arab and Swahili) are unconcerned by protests and loathe the expenditure on food.

Unless the trade to Zanzibar has undergone changes, I am dubious about the buyers and butchers there switching from Kismayu, owing to family connections, financial commitments and a system of barter which obviated cash exchange. Every endeavour was made (1923-1926) to persuade them to use Dar-es-Salaam for purchase, but without any lasting avail.

4. It must be expected that eventually movement of stock by sea will be discouraged, and the meat products required will be shipped from centralised factories: but this, admittedly, is a programme not immediately in sight.

5.

5. The need for a factory is further emphasised in connection with using up surplus sheep and goats, and possibly also camels, that can be brought in over controlled stock routes.
6. The work being carried out at the Ngong Station is valuable, and is well worthy of repetition in other centres, with such modifications as are appropriate to the district.
7. The Northern Frontier Province, in particular, demands a veterinary survey; should the Rinderpest eradication measures be found capable of application in Kenya, this Province will become the buffer to further introductions of the disease from Abyssinia.

E. J. ...
18.11.28

? Reply as proposed by W. Eastwood - but add a warning as to sea-borne cattle traffic that says it is? that at one time great cruelty was involved in the loading of cattle at Kismayu, & that if this trade from Lamu develops, adequate steps must be taken to guard against cruelty in loading & for the supply of food & water for the voyage.

So proceed?

The idea that Lamu ...

The contacts with Lamu are clear from the ...
Dar-es-Salaam?

glorified into life is
attractive - if practicable.

Cruelty, or at least the
temptation to inflict suffering -
has been feared against all
any port where cattle are landed.
I have seen it - & seen it freely
checked - at another E. A. port.

Wed 20.2.31

Dr. Shields.

You may rest assured. I
think a reply as proposed
will meet the case.

J.H.B.

23.2.31.

I agree! I would like the point
about prevention of cruelty
emphasised. I am glad it has
been noted in such terms.

T.S. 24.2.31.
As proposed
At once.

Letter Cd
M
Para 3 of No. 1
had in handwriting 2 No. Gov. Com. 1. Amund. - bonds - 2 MAR 1931
P.F.
noted mfb
Para 4 of No. 1
to be changed to
Para 2 of No. 1
to be changed

3. Sir. Byrne - 143 (copy) - 5 Oct

Reports on progress made in veterinary
measures in the Northern Frontier Province.

MR. MONTGOMERY (as to 1 only)

This despatch has already been seen by
Mr. Stockdale, who minuted as follows upon it:-

"I saw, when in Kenya, the Ngong Veterinary
training centre, and was impressed by its general
usefulness. The cattle owners were taking a keen
interest in its work and practical training was being
given at it. I also had the opportunity of discussing
the possible Zanzibar trade with the U.V.O. with whom
I travelled when he was proceeding to Zanzibar.
Developments are likely to be slow, but the efforts
being made to encourage this trade should eventually
produce results.

The various proposals set out in this report
seem to me to be sound, but the papers should be
re-circulated to Mr. Montgomery when he returns to duty
again."

We should now be glad of your observations
on it, please. I think you will agree that the report
is a most interesting one. As far as a layman can
tell, the measures proposed seem satisfactory,
and, in present circumstances, a fair
return for the taxation imposed.

It has been delayed
for a variety of
reasons. With the
exception of Mr. Stockdale's
minute quoted in the
text, I have delayed
previous minutes.

Then to Mr. Stockdale

2. The Governor does not reply to the last
half of para. 3 of No. 2, in which the S. or S.
enquired how far it would be possible in the then
circumstances to carry out the original proposal

- (a) to spend £5,000 on water boring;
- (b) to build hospitals at Majir and Lamu.

Since

the
since that proposal was made financial situation
has of course got very much worse, and the
rate of taxation of Somalis has been reduced from
11 to 10%. In the circumstances it would seem
probable that the proposals will have had to
be modified considerably or dropped altogether.

I see nothing about the proposed
hospitals in the Annual Medical Report for 1930.

As regards water boring, expenditure
is also to be incurred out of the Abyssinian
Indemnity Fund. Expenditure of about £9,000
was to take place during 1930 and the balance
of £0,500 was to be allocated for expenditure
later on in the light of the experience gained.
The following occurs on page 13 of the P.W.D. Report
for 1930:-

"Provision has also been made for the
purchase out of Abyssinian indemnity funds of
an outfit of smaller capacity and therefore
less weight for transportation, for boring
for water in the Northern Frontier Province.
This machine was despatched from Nairobi in
October (1930) but owing to the rains and
consequent difficulties of transport it did
not reach its destination until the end of
the year".

In No. 4 on 16050/B/30 the Governor
has promised a further report on the expenditure
of the balance of £0,500 Abyssinian compensation
money.

In the past we have tried to keep
separate the correspondence about (1) the
expenditure of Abyssinian money, and (2)
expenditure to be incurred as a return for the
imposition of taxation, but it would now seem
convenient to marry the two subjects.

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in para. 2 of No. 2 on 17040/31 the Governor
has been asked for a further report on water boring
in native reserves at the end of the year.

3. Subject to any observations which you may
have, I would suggest, acknowledging this despatch
with a suitable expression of interest and thanks;
and with reference to para. 3 of No. 2 and previous
correspondence enquire how far it has been possible
to carry out the original proposals for expenditure
on water boring and hospitals; as regards water
boring, refer to No. 4 on 16050/B/30 and para. 2 of
No. 2 on 17040/31 and say that the Governor will no
doubt find it convenient to deal with this matter
in furnishing the report for which he has been asked
in the latter despatch.

J. J. J.
16.12.31.

I should like to suggest that the acknowledg-
ment should include more than a formal expression
of interest. This despatch reveals not only a
definite and constructive progress, but also the
discovery of "snags" inseparable from such
development and shows the steps being taken to
surmount them. This is real advance, and the
reports on Veterinary Training Centres, the
disease control measures, and the sheep-breeding
experiments are most satisfactory, having
regard to the expenditure available.

In regard to trade the Governor makes it clear that under African conditions this cannot be left to chance. He points out that the Italian Government go so far as to assist traders financially.

The Zanzibar market of approximately 3,000 cattle and 15,000 goats per annum is one now open as supplies are forthcoming, and the reduction in wharfrage charges at Kilindini and the surveying of a stock route to the Port, as well as the improvements at Lamu itself, will greatly assist this movement. But, as is pointed out, the small trader has not the capital to assure adequate numbers for regular shipment, especially having regard to the length of time elapsing between purchase in the North and recovery of his money from the Zanzibar butcher already ensnared in the toils of Kismayu.

I fear that any small or spasmodic trade that now eventuates may be ousted by Italian competition, and I would suggest the Governor might be asked to consider whether a company or co-operative organization, endowed with sufficient capital to break down the present obstacles, might not advantageously be encouraged under some system of temporary guarantee - should the Government itself be undesirous at present of initiating and financing the movement in its early stages.

The organisation so set up could be expanded later to develop trading centres, where stock owners would be able to dispose of their

animals

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on desire, without having to await the small itinerant trader. The number of stock in the Northern Frontier Province is greatly in excess of that necessary to supply the Zanzibar market only, and the constitution of such a purchasing body would thus become of the greatest value to any subsequent market that may be found, such, for example, as that envisaged by the establishment of meat works, which constitute the most receptive and stable form of absorption for utilizable animals, and the construction of which in Kenya would be accelerated by the existence of regular supplies.

E. C. Allen
16.12.31.

Mr. Allen (copy)

I submit dft. for review, after further discussion with Mr. Montgomery. Pp. should be read later to Mr. Hibbert, who will arrange for circulation to C.A.C. A.A.H.

And also in view of the
having any comments, etc.
below should be.

E. C. Allen
23/12.

W.C.S.
29.12.31

4 To Gov. Conf (3 reviewed) 6 JAN 1932

The Hibbert

Paper re-circulated reference
to instructions in memo above

2 29/1/32

W. D. D. D.

I have advised the
Despatch to C.A.C. of A.J. M. M. the
in view of the absence of the two Advisers
during Feb-April, it is impossible that
a meeting of the C.A.C. will be held
before the end of April or beginning of May.

Sumner
5/1/32

W.D.D.

Sir C. Bottomley

You may wish to send on to
Sir S. Wilson in the meantime?

Sumner
11/

Sir S. Wilson

Yes - as I am sorry that
the meeting of the Council will
be so long delayed - I am
looking forward to their comments.
15.1.32

Recd.

B.H.6
absence

15.1.32.

I attach a letter which I have just
received from Sir Arthur Hill. I do not think
that it is calculated to please either Kenya or
the Colonial Advisory Council if it is laid before
them. Kenya have received a reply praising the
veterinary work that has been done, and they have
also been told that the despatch reporting the
progress made will be laid before the full Council.
I think it would be impolitic to pass on to them
a questionnaire prepared by an assistant officer
to one of the members of the Council, who, I
understand, has no practical knowledge of Kenya.
It would also be preferable for Mr. Montgomery to
have the opportunity of considering the questions
asked by Mr. Sampson before the Council meeting.
I would therefore suggest that I should reply to
Sir Arthur Hill as in the draft for conson
herewith.

Sumner

16.1.32.

Sir C. Bottomley agrees, with reference to his minute
of 11.1.32, that it would be advisable for this matter
to be considered by the Council as the Montgomery's
return of local officers.

In the reference to the latter Hill's letter, I agree with
action proposed above. We could not circulate the
Sampson's queries to the Council nor could they be
sent out to Kenya. If we did there would be a
financial display!

Sumner

19/1/32
Sumner

The idea of the Dept being asked to
hunt up information on two substituted names
points towards me & after speaking
to Mr. Stoddard I have amended the
draft

N. Allen

20/1/32

So proceed. It strikes me as quite

a good first business, but it is
necessary in substance at present

25/1/32

25/1

To Sir A. Hill - 22 January 30

John. Kemp Corp - 29/7/32

REGISTERED UNDER STATUTE

As sent on
1603/7/13/30.

N. Allen

Owing to the absence of Mr. [unclear]
on this matter was not considered by the
Ct. Advisory Council at their last meeting on
April. It will appear on the agenda for the
next meeting fixed for July 14. Mr. [unclear]
was asked to consider or deal with the question
raised by Sir A. Hill in his letter of the
16th January, and it has occurred to me that
it might be a convenience to the Dept. and
possibly save the necessity for the formal
question being referred to the Ct. of
Capt. [unclear] Edwards, who is now on leave

and who has expressed his willingness to
render any assistance he can to the C.O.
in regard to [unclear] matters in the
absence of a Voluntary Advisory Board, -
can he be invited to attend the Council
meeting? I believe he will be in London
at the time.

N. Allen
27/6/32

I have no objection if Mr. Stoddard
agrees. In that case is Capt. [unclear]
[unclear] to see Sir A. Hill first - see
note

N. Allen

27/6/32

N. Allen

I have discussed with Mr. Stoddard,
and we think it well to have in a first
instance to send Capt. [unclear] a copy
of the [unclear] of Sir A. Hill's letter.
This reply may satisfy Sir A. Hill in which
event it will be unnecessary to ask him to
attend the Council meeting.

Op. for [unclear]

N. Allen
29/6/32

I would have pointed out that
the first step is a Capital and
as I am not quite sure what is meant by
dividing the capital. But Capt. [unclear] can hardly
deal with the question unless he sees it!

Mr. Stoddard
29/6/32

Mr. Roberts

I see ~~no~~ reason why the
dtp should not be communicated
to Mr. B. Cas proposed - but
I would point out that the
dtp forwarded in para 10
came in many months ago
- see 17308/31 below.

W. Allen

24/6/32

8. To Ramsey Edwards - s.o. - 30. June, 1932

Carson Ramsey Edwards called to
see me today & gave me the accounts
he expects next by Sir A. Hill - so far as
I was able to do so.

W. Allen
7.7.32.

9. To Sir A. Hill - s.o. - 7.7.32

10. Sampson H.C. - s.o. - 9.7.32

(ack. (9) as stated in the
specimen that the Justice minister for Jharkhand is well known
(explaining)

To Sampson - s.o. 11.7.1932
12. To Ramsey Edwards - s.o. 11.7.1932.

DESTROYED UNDER STATUTE

13 Extract from Draft Minutes of a 13th meeting of the
Civil Affairs Committee of the Council - 14.7.32.

As indicated in the Minutes, the Advisory
Council had practically no comments to make on the
Governor's despatch of the 5th October (No.3), but
the Governor was told in No.4 that his despatch was
being laid before the Council, and I would accordingly
suggest that a copy of the Extracts from the
Minutes should be sent to him for information
ref.(4), the despatch drawing attention to the
suggestion that the possibilities of a market for
steel in India should be explored.

J. H. ...
19.7.32.

J. H. ...
19/7

The dtp to be made will of course be Conf. No. 100.
I think it would draw special attention to the dtp
proposed - on other files we are pointing out
the difficulties.

17508/31

W. Allen
9/8/32

14 To Gov. Conf. (p. 13) 9 AUG 1932

DESTROYED UNDER STATUTE

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13

Extract for the Draft Minutes of the
13th Meeting of the Colonial Veterinary Council
of Africa in Animal Health - 14th July, 1932.

2. Veterinary Measures in the Northern Frontier Province of Kenya.

The Council had before them a despatch dated the 5th October, 1931, from the Governor of Kenya (Council paper 103), submitting a report on the progress that had been made in veterinary measures undertaken in the Northern Frontier Province of the Colony.

SIR ROBERT HAMILTON informed the Council that, after reference to Mr. Montgomery, a despatch had been sent in reply emphasizing that the main obstacle to the establishment of a permanent cattle trade between the Northern Frontier Province and Zanzibar was the fact that the small trader had not the capital to ensure adequate numbers of stock for regular shipment, especially in view of the length of time which must elapse between purchase in the North and recovery from the trader in Zanzibar. It was therefore to be feared that any small or spasmodic trade that might develop as the result of the efforts now being made would sooner or later be ousted by foreign competition. The Governor had accordingly been asked to consider whether, if and when opportunity offered, a company or co-operative organisation, endowed with sufficient capital to break down the present obstacles, might not advantageously be encouraged. Such an organisation could later be expected to develop trading centres at which stock owners could dispose of their animals at any time without having to await the small itinerant trader. The number of stock in the Province being greatly in excess of the requirements of the Zanzibar market, the setting up of such a purchasing body would be of the greatest value in connection with any subsequent markets that might be found.

9 AUG 1932

copy to Gov Conf

12
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Extract from the Order of the Council
13th Meeting of the Council of the
of the Province of Kenya - 14th July, 1932.

30

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9 AUG 1932

copy to the Council

SIR WILLIAM FURSE drew attention to the statement in the sixth paragraph of the despatch that efforts were being made to encourage the natives in better methods of the preparation and tanning of hides and skins, and said that while he fully agreed as to the necessity for natives being trained in better preparation of hides and skins, he would strongly deprecate their attempting tanning except for local use. In expressing this view, he assured the Council that he was voicing the opinion of the trade interests in this country as expressed at the meetings of the Imperial Institute's Advisory Committee on Hides and Skins.

SIR ARTHUR HILL suggested that the possibilities of a market for Kenya ghee in India were worth exploring, since he was advised that in many parts of India it was impossible to buy pure ghee, and the people, rather than use the adulterated ghee sold in the bazaars, were becoming more and more dependent upon vegetable oil substitutes. The better classes would be quite prepared to pay a high price for ghee provided that it was unadulterated.

SIR ROBERT HAMILTON stated that enquiries as to whether the Indian market would accept ghee from Kenya would have to be made, as there might be some objection from India on religious grounds.

MR. STOCKDALE said that the tanning referred to in the despatch was presumably tanning for local use and not for export. With regard to markets he understood that steps were being taken by the Kenya Government to explore and find further markets. There was a possible market for ghee in East Africa itself.

2, Richmond Terrace,
Whitehall, S.W.1.
11th July, 1932.

Dear Brassey-Edwards,

I passed on to Kew the information you were good enough to give me last Thursday in connection with the enquiries made by them as to potential markets for Kenya beef and other animal products.

Mr. Sampson has replied expressing appreciation of the information, and adding that he is of the opinion that the possibilities of the Indian ghee market are well worth exploring. He states that in many parts of India it is impossible to buy pure ghee, and that the people are more and more inclined to depend upon vegetable oil substitutes rather than use the adulterated ghee obtainable in the bazaars. The better classes are quite prepared to pay a high price for ghee provided that it is unadulterated.

CAPTAIN H.H. BRASSEY-EDWARDS.

unadulterated. This information may be of use to
you.

Yours very sincerely,

S. G. HIBBERT.



ROYAL BOTANIC GARDENS,

KEW, SURREY.

All communications should be addressed to

THE DIRECTOR.

9th July, 1932.

Dear Hibbert,

(a) Sir Arthur has asked me to acknowledge your letter of July 7th dealing with Advisory Council Paper No.103, and to thank you and Captain Brassey-Edwards for the detailed and extremely interesting reply to the queries which I raised.

I think that the possibilities of the Indian ghi market are well worth exploring. In many parts of India it is impossible to buy pure ghi and the people are becoming more and more dependent on vegetable oil substitutes, rather than use the adulterated ghi of the bazaars. The better classes are quite prepared to pay a high price for ghi provided that it is unadulterated.

Yours sincerely,

J. G. Hibbert, Esq.,
Colonial Office,
2 Richmond Terrace,
S.W.1.

2, Richmond Terrace,
London, S.W.1.

9.7

L.17009/31.

7th July, 1932.

Dear Sir Arthur,

Advisory Council Paper No.103.

With reference to your letter of the 16th January and my reply of the 22nd January in connection with the above paper, I write to let you know that Captain Brassey Edwards, the Deputy Director of Animal Health and Chief Veterinary Officer, Kenya, who is now on leave, called to-day to see me, and I took the opportunity of inviting his comments on the various questions raised by Mr. Sampson, of which you gave me particulars in your letter.

Brassey-Edwards gave me a very interesting account of conditions in the Northern Frontier Province, and said that he thought Mr. Sampson quite naturally did not realise how extremely primitive the conditions were and what a great deal of spade work still remained to be done before things could really get going. The first problem they have to tackle is the complete control of disease, and progress could not be expected until this was done, because disease limited movement. Then this had been accomplished, the next stage was to develop the native

SIR ARTHUR HILL K.C.M.G. ., D.Sc., F.R.S.

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mind by establishing local markets and trading centres which would become the nuclei for the future expansion of trade. As the native gradually realises that animals are of economic value, he will at the same time grasp that it will pay him to improve his stock by better methods.

The answers he was able to give to Mr. Sampson's questions are as follows:

- (1) A systematic survey of the Northern Frontier Province was begun two years ago, but progress must necessarily be slow on account of the political situation, the large areas which have to be covered and the paucity of staff available.
- (2) The Zassihar potential market is approximately 3,000 beef cattle and 15,000 goats per annum.
- (3) The only other markets for beef are within the territory and at present the only possible outlet is to the Coast. The latter has, however, been temporarily

stopped owing to disease, and until disease has been brought under supervision in the Northern Frontier Province trade will probably be non-existent.

- (4) Heifers are the best potential market. Over 100,000 sheep and goats are exported by means of itinerant traders in the neighbouring Reserves. This figure ^{could} ~~can~~ probably be substantially exceeded if a system of organised marketing was introduced, and consideration is being given by the Veterinary Department to this. The Northern Frontier bullock is a good quality beef animal and there are possibilities in the form of export of frozen beef.
- (5) The Northern Frontier cattle would not be useful for either cultivation or transport outside their Province, or outside certain small settled areas, owing to their susceptibility to tick borne diseases. They are used for the purposes mentioned within their own Province.
- (6) Certain agricultural tribes, particularly in the Kavirondo, and some of the Kikuyu, are using their

bullocks for these purposes, but only to a comparatively small extent. That is another matter engaging the attention of the Veterinary Department. Natives are being encouraged to use the plough.

(7) The whole of the local market for ghee can be supplied from local sources, but at the present time it is flooded by inferior quality ghee arriving from Tanganyika. Unfortunately, the price in the Kenya market is regulated by that of Tanganyika produce. Supplies of ghee in Kenya recently increased to such an extent that it is understood an agent has been nominated by Government to supervise sales and investigate the possibilities of overseas markets. It is noteworthy that imports declined from 8,985 cwt. (value £36,372) in 1928 to 15,813 cwt. (value £14,891) in 1931. There are possibilities of expansion of markets in India and elsewhere.

(8) The possibilities of developing agriculture in the Northern Frontier Province appear to be slight unless some big scheme of irrigation is introduced when finances permit. It is largely a desert, having a maximum rainfall of 15 inches per annum. It has only one big river. Small areas, i.e. those on mountain tops, on plateaux, or along river courses, could be developed but they would be quite insufficient for the whole of the tribes of the Province.

(9) At present, the natives require extensive instruction in methods of husbandry before any attempt can be made to increase the productivity of animals. Experiments of introducing Persian and Southdown sheep have recently been tried in the Northern Frontier Province and have proved a failure, owing chiefly to disease conditions. They are being continued on indigenous sheep under local conditions.

(10) Most of the trade is done through itinerant traders with neighbouring tribes.

Yours sincerely,

W. G. HIBBERT

17009/31

C. O.

2, Richmond Terrace
Whitehall, S.W. 1

30 June, 1932

Mr. Hillier 29/6

Mr. Storer 29/6

Mr. Allen 29/6

Mr. Parkinson

Mr. Tomlinson

Sir C. Bottomley

Sir J. Shuckburgh

Permt. U.S. of S.

Parly. U.S. of S.

Secretary of State

Confidential

Q's for Mr. Hillier's signature

Dear Brassey-Edwards,

DRAFT.

Caroline H. H.
BRASSEY-EDWARDS
M.N.C.V.T.

You are good enough to offer to
render any assistance in your power
to the Colonial Office in regard to
retiring matters affecting Kenya
during the time you were on leave.

I enclose a copy of ^{Confidential} a report
we received some months ago from the
Gov. of Kenya submitting a report
on proposals with a view to retiring measures
undertaken in the Northern Frontier
Province. It was decided to lay this
before the Colonial Advisory Council
of Agriculture and Animal Health,
but, owing to the absence a few
of both the S. & S's Advisers,
consideration of the subject has been
postponed. It will however be put
on the agenda for the next next
meeting of the Council.

In the meantime we have
received a letter from Sir Arthur
Hill, who is one of the members
of the Council, submitting certain observations

Don't put Conf. 5 Oct 1931
(3)
Letter copy attached

Don't put Hill (5)
16 Jan 1932

on the despatch in the form of
a questionnaire. I enclose
a copy of this letter.

We are naturally anxious
to avoid troubling the Kenya Prov.
with these enquiries, and it would
be of great assistance if you
could forward ^{supplies} answers to the
points by Sir A. Hill, or some
other who may be able to create in
time for the Council meeting.

If you could let me have
replies to the various questions ^{raised}
in his letter, which not later than
the next Thursday (7th July), I shall
be very grateful

Yours very sincerely,

Sir G. HIBBERT.

K.17009/31 Kenya.

C. O.

Mr. Hibbert 10
Mr. Stansfeld 19/1/32
Mr. G. Allen 20/1/32
Mr. Dominicus

* Sir C. Bottomley, 20.1.32 f.

Sir J. Shackleton.

Sir G. Grindle.

Permt. U.S. of S.

Parly. U.S. of S.

Secretary of State.

DRAFT.

SIR ARTHUR HILL, K.C.M.G., D.Sc., F.R.S.

Dear Sir Arthur,

Thank you for your letter
of the 10th January, setting out the
questions ~~posed~~ ^{raised} by Mr. Sampson in
connection with the despatch from the
Governor of Kenya dealing with veterinary
measures undertaken in the Northern
Frontier Province, which has been
circulated as Council Paper No. 103.
While ~~a number~~ ^{it is possible that some} of Mr.
Sampson's questions ~~could not~~ ^{might} be
answered ^{partially if not wholly} from information in the possession
of the Colonial Office, in several



Quarto for Mr. Hibbert's signature

2, Richmond Terrace,
Whitehall, S.W. 1.
22 January, 1932.

instances it would be necessary to refer to the Kenya Government for the ~~full~~ information ~~desired~~, and, as the Kenya Government have been informed that the despatch will be considered by the full Council, we think it would be preferable to await the views of the Council as a whole ☺

~~Nothing further to be done~~
~~before anything is said to the Governor.~~

We should also like ~~Montgomery to have an~~ ^{to have Montgomery}

~~view on the question raised in~~
~~Opportunity of considering your letter when~~

he returns in May. ^{He would then be} ~~and I would therefore~~
^{when he returns to}

~~suggest that you may wish to take the~~
~~able to discuss matters with you prior to~~
~~opportunity of discussing the matter with~~

~~him before the next Council meeting.~~

Yours sincerely,

(Sd) J. G. HIBBERT.



ROYAL BOTANIC GARDENS,

KEW, SURREY.

All communications should be addressed to—

THE DIRECTOR

16th January, 1932.

Dear Mr. Hibbert,

On receiving your C.A.C. 103, dealing with Veterinary Measures in the Northern Frontier Province of Kenya, I handed the documents to Mr. Sampson who is far more qualified than I am from his experience in India to appreciate the state of affairs in that Colony. He has given me a memorandum, but points out that it is very difficult to make any comment on the report without knowing more of the history of the work and the causes which decided its inception. He tells me that he thought it best to put his remarks in the form of a series of questions, and as they are of considerable importance I have set them out below:—

Has any survey of the native livestock problems of the colony ever been attempted?

What is likely to be the potential market of Zanzibar for beef?

What other existing markets are there?

What are the potential markets present and future for livestock within the country?

Is there any possibility of cattle being required for draught purposes in the future either for cultivation or for transport?

Are the agricultural tribes likely to make a demand for cattle for these purposes?

What is the market for ghi?

Is it entirely local or is there the possibility of developing a market for this in India or elsewhere?

Is there any opportunity for developing agriculture here? This seems to be a necessary corollary to any dairy enterprise as it is essential in dry countries to be able to supplement natural grazing with either dry or green fodder.

With regard to sheep - Is there any likelihood of being able to develop any other market than that for skins and mutton? If not, is there any useful purpose served by attempting to introduce Persian sheep from S. Africa and Suffolk Downs from Europe?

Hairy sheep are admittedly hardier under the conditions which prevail here and many breeds give much finer skins than wool bearing sheep as, for example, the breeds of N. Nigeria which furnish some of the best skins which come on to European markets. Hairy sheep are, moreover, much easier to fatten for the butcher than wool bearing sheep under the conditions which prevail in the Northern Frontier Province.

Is there a possibility that there may develop a trade in store sheep with agricultural tribes who have much better opportunities for hand feeding than have the nomadic tribes of the frontier?

J. G. Hibbert, Esq.,
Colonial Office,
Downing Street,
Whitehall, S.W.1.

Mr. Sampson has drawn my attention to Bulletin No. 72 of the Department of Agriculture, Madras, which is a survey of the livestock industry of Madras made by him some years ago. I enclose a copy of this which you may care to see. It indicates the ramifications of an indigenous livestock industry and its relation to the agricultural development of a country. It also shows, I think, how far reaching may be the results of any policy for livestock improvement which may be initiated and how necessary it is to survey the whole field of agriculture (should this not already have been done), before settling on any lines of work.

Yours sincerely,

Arthur Hill

Director.

Department of Agriculture, Madras.

Vol. IV—Bulletin No. 72.

A BRIEF SURVEY OF MADRAS LIVE-STOCK

BY

H. C. SAMPSON,

Deputy Director of Agriculture, F. and VII Circles.



MADRAS:

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C. 10. 2. 16.

76

P R E F A C E .

This bulletin is substantially a reprint of the report prepared by Mr. H. C. Sampson in 1912 after spending some eight months on a general survey of live-stock in Madras. This report, which was printed in G.O. No. 1007, Revenue, dated 3rd April 1914, has formed the basis of the action since taken by Government and the Agricultural Department towards the improvement of cattle and live-stock generally in the Madras Presidency. As copies of the Government Order are becoming scarce, and as Mr. Sampson's report contains much valuable information of permanent interest, it has been thought advisable to republish it as a bulletin. Some portions of the original report which were of ephemeral interest have been omitted.

It must be remembered that the time allotted to Mr. Sampson, some eight months, was all too short for a thorough investigation into so large a field and that all that was attempted was a rough survey of the then existing conditions.

MADRAS,
4th September 1917.

G. A. D. STUART,
Director of Agriculture.

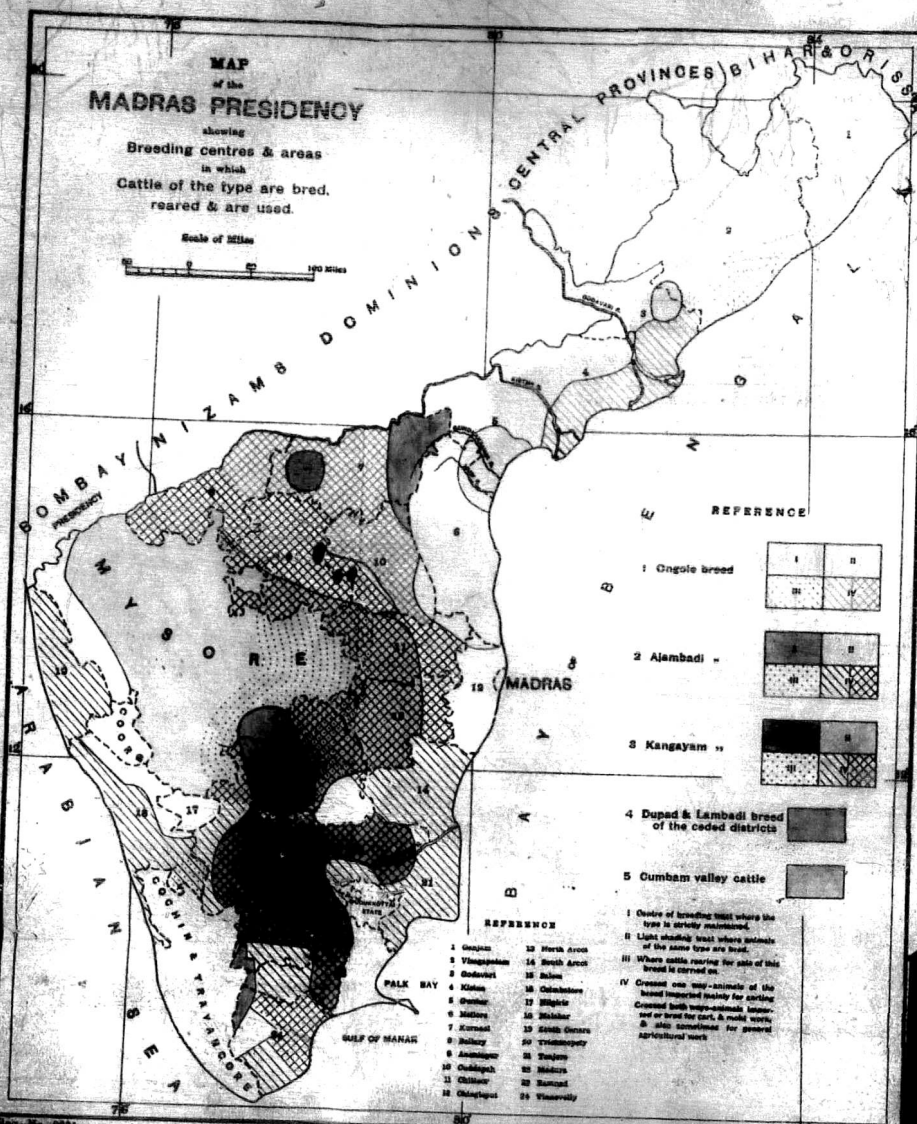
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MAP
of the
MADRAS PRESIDENCY

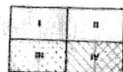
showing
Breeding centres & areas
in which
Cattle of the type are bred,
reared & are used.

Scale of Miles



REFERENCE

1 Ongole breed



2 Ajabadi "



3 Kangayam "



4 Dupad & Lambadi breed of the coded districts



5 Cumbham valley cattle



REFERENCE

- 1 Goppan
- 2 Vinayakam
- 3 Gudur
- 4 Kolan
- 5 Guntur
- 6 Mottu
- 7 Kurnool
- 8 Bellary
- 9 Anantapur
- 10 Chittoor
- 11 Chittoor
- 12 Chittoor
- 13 North Arcot
- 14 South Arcot
- 15 Salem
- 16 Chidambaram
- 17 Madhavaram
- 18 Madhavaram
- 19 Tiruchirappalli
- 20 Tiruchirappalli
- 21 Tiruchirappalli
- 22 Tiruchirappalli
- 23 Tiruchirappalli
- 24 Tiruchirappalli

- I Order of breeding most where the type is properly maintained.
- II Light shading least where animals of the same type are bred.
- III Where cattle rearing for sale of this breed is carried on.
- IV Crossed one way animals of the breed imported (mainly for milking). Crossed both ways animals imported or bred for cart & milk work. In this sometimes for general agricultural work.

MAP
of the
MADRAS PRESIDENCY

Showing
Movements of Cattle into, out of & in
the Presidency and also Cattle
Markets, Fairs, Cattle centres
& the class of stock which
are brought to each.

Scale of Miles



REFERENCE

- Weekly Cattle markets
- Annual Cattle fairs
- Other important places
- Alambadi and Mysore
- Country or Local
- Gopput type
- Kancharu type
- Buffaloes
- Bulls or Subcows
- Cows
- Young Stock
- Male Buffaloes
- Green Buffaloes or Male Stock
- Young Male Stock excluding Buffaloes
- Milk Cows
- Milk buffaloes

Stock type of weekly markets, fairs & other places have not been marked.

Animals in each class different from that of other classes.

Tracts or Markets to which animals are exported (Lines referred in the same way as the above class areas)

REFERENCE

- 1 Gangan
- 2 Vinnapattur
- 3 Gudur
- 4 Kinnur
- 5 Sullur
- 6 Madure
- 7 Kurat
- 8 Bellary
- 9 Kankur
- 10 Chinnur
- 11 Chinnur
- 12 Chinnur
- 13 North Arcot
- 14 South Arcot
- 15 Belur
- 16 Chinnur
- 17 Nigir
- 18 Madure
- 19 South Chinnur
- 20 Trichinopoly
- 21 Tanjore
- 22 Madure
- 23 Belur
- 24 Chinnur

A BRIEF SURVEY OF MADRAS LIVE-STOCK.

I.—INTRODUCTION

The question of the improvement of the indigenous breeds of cattle has been before the Government for many years, but as far as Madras is concerned, very little has been done in the past, except from a veterinary point of view.

The question seems to have been first alluded to in 1863, when Sir William Denison issued a minute on the subject. In 1886 the Madras Government, in their Order No. 1112, Revenue, dated the 21st December 1886, approved of the proposals of the Board of Revenue and the Director of Agriculture to institute a cattle survey of the Presidency. This was based on a preliminary enquiry, made by the Director of Agriculture, on the question of how far the fodder supply of the country was responsible for the deterioration of indigenous breeds of cattle, and this is summarized as an enclosure to the Government order above referred to. No records have been kept, however, of the main enquiry, which consisted of the talukwar replies to a series of questions received from Collectors. The only record of this enquiry is Bulletin No. 8 of the Madras Agricultural Department printed in 1890 and consists of the report drawn up by the Assistant Director of Agriculture and the Inspector of Cattle Diseases, who were requested to visit and report on the principal cattle fairs and cattle-breeding centres of the Presidency. Bulletin No. 6 of the Madras Agricultural Department, printed in 1889, which gives the result of the analyses of the several South Indian fodders, is probably also an outcome of this enquiry. The only definite conclusion obtained from the preliminary enquiry was "that the inferior cattle, to be found so generally throughout the Presidency, are the result of the employment of bad sires and of breeding in and from immature animals." Attention was also drawn to the inferiority of cattle, which are habitually fed on paddy straw, but, as pointed out by the then Board of Revenue, the inferiority of such animals is probably due more to the conditions under which agriculture is carried on than to the quality of the fodder. In 1886 a Government stock depot was opened near Hosur with the object of supplying breeding bulls to the country. These were not to be bred there, but were to be purchased from breeders and distributed as required. This was, however, closed down in 1888 after little more than a year's work, and the stock dispersed. This stock included the dairy bulls which had been bred at the Saidapet farm by the Agricultural department and which had been sent here with a view to distribution for the improvement of dairy cows.

In 1901, Lieutenant Holmes, the Superintendent of the Madras Civil Veterinary Department, gave a detailed description of the several recognized Madras breeds of cattle, with measurements of typical

animals of each breed. This was published as Bulletin No. 44 of the Madras Agricultural Department. This was followed in 1909 by Bulletin No. 60 "The cattle of Southern India by Lieutenant-Colonel Gunn, Superintendent, Madras Civil Veterinary Department."

Agricultural shows were started in the fifties, but with very little results, and efforts were again made in 1905 to revive both agricultural and the cattle shows with the aid of Agricultural Associations and similar bodies. Of these only two of any importance now survive, viz., those held at Ongole and Tiruppur. These shows were, and are, assisted by Government grants. With the advent of these latter cattle shows, the Civil Veterinary Department have purchased a few breeding bulls of which there are now seventeen on the rolls. Of these one has been ordered to be sold as no longer useful, eleven are Ongoles, three are Kangayams and the remaining two are Mysores.

The present report is a general cattle survey of the Presidency. Matters of a technical nature have been withheld as far as possible, but, where necessary, reference has been given to previous publications on the subject. In the course of the enquiry, most of the principal breeding tracts, cattle fairs and markets have been visited, and district officers and officers of the Civil Veterinary Department have, where possible, been consulted. Where cattle fairs could not be personally attended, subordinate officers of the Agricultural Department were deputed to report on these on lines of enquiry which had previously been intimated to them.

II.—CONDITIONS OF FARMING IN MADRAS AND HOW THEY AFFECT THE CLASS OF WORKING CATTLE REQUIRED.

Madras is a country of very varying agricultural conditions and hence can make use of any class of working cattle produced.

Excepting the West Coast, the Nilgiris and Ganjam there is hardly a district, where all the main agricultural conditions are not represented, viz., black cotton soil, red or light soils, well irrigation and wet land.

The black cotton soils require heavy cattle to work them. Crops are not so precarious here as on lighter soils and usually black soil ryots keep excellent cattle and look after them very carefully—often extravagantly so. Red and lighter soils require hardy, quick moving cattle. Such soils are not so retentive of moisture as black soils and hence sowing has to be done as rapidly as possible and the crops, even when they have come up, are always liable to fail. Ryots consequently are not so well off and hence cattle on lighter soils are usually of much poorer quality than those on black cotton soils and are not so well cared for. It is, however, becoming increasingly common for ryots on light soils to buy good young stock and rear them carefully. These can be put to light agricultural work when quite young, and are sold, when broken in and trained for work, when they have from two to three pairs of teeth, or sooner, if the seasons are adverse.

Cultivation under wells, where bullock power is used for lifting water, requires medium sized, strong, well built bullocks. If the

wells are very deep (as in Coimbatore) or the buckets are very large (as in the Ceded Districts) similar animals to the black soil cattle are used. Wet land cultivation—especially in the large irrigated tracts—utilizes, what might be termed, the drags of the cattle market; either light buffaloes or light cattle, which will not sink too deep into the puddled soil, and which are not much less if they cannot survive the unhealthy conditions, under which they have to work, and the sudden heavy strain put on them to get the land prepared in due season. Buffaloes are not so much in demand in the large deltas as cattle, since there is greater loss among these when they have to be sent away for grazing when the whole country is under water, during the crop season.

III.—CONDITIONS OF CLIMATE, RAINFALL AND SOIL, AS AFFECTING CATTLE-BREEDING, CATTLE AND LIVE-STOCK.

The climate of the Presidency varies greatly in different localities, and has a considerable influence on cattle and live-stock. In the markets of Coimbatore, the "Malai-madu" (the name generally applied to the cattle of the Alambadi type) always sell at a much lower price than the "Nattu-madu" or local cattle of the hotter and drier districts of the south. In South Coimbatore, the former are said to have a working life of only six to seven years, against ten to twelve years of the local cattle; while further south again in the Palni taluk, such animals are very seldom seen as they are said to last only for two to three years. In the black cotton soils of Tinnevely, South Ramnad and Madura, Kangayam cattle are now almost exclusively used for agricultural work. The same type of cattle as the "Malai-madu," however, in Anantapur district is said to last for ten years. Cattle, if moved when young, get acclimatized more quickly. The Nellore breed, which supplies the bulk of the heavy cattle to the Ceded Districts and which are brought there while young, soon seem to become acclimatized and last from ten to twelve years and even longer, while full grown cattle of the same breed when taken to the southern dry districts have, it is stated, the same short life as the Alambadi. The draught cattle of the West Coast are mainly taken there when quite young and are reared, and appear to become more or less acclimatized to the change.

This susceptibility of cattle to changes of climate should be borne in mind in any attempt to improve cattle breeding by the supply of breeding bulls.

Cattle breeding is also to a certain extent dependent on the climate, but more so probably on the soil and the distribution of the rainfall. The degenerate cattle of the West Coast are a case in point. Yet with care it is possible to rear very fair cattle on the West Coast and, in fact, there is a considerable amount of cattle rearing done in South Malabar. The local cattle of the West Coast are however usually allowed to fend for themselves and suffer at one time from abundance of quickly grown succulent pasture and at another from long periods

of starvation. Yet on the Taliparamba agricultural station some very fair cattle of the local breed have been reared, simply by making provision for supplementing pasture with dry grass or hay, when the dry weather sets in. West Coast cattle can never, however, attain to any size or bigness of bone owing to the lack of lime, both in the soil and in the pasture and fodder, and, it is worthy of note that the soils of the tracts, where the two best known breeds of Madras cattle are bred and reared, viz., the Kangayam and Ongole breeds, are both very rich in lime. Cattle breeding naturally seems to find root in dry districts or districts liable to scarcity, as instanced by the Kangayam, Ongole and North Salem breeds. This may be due to some extent to the climate, but, more probably, it is because ryots are in such tracts more careful to preserve their fodder against times of scarcity and this had led to a more careful feeding and management of their live-stock. Sheep again seem very sensitive to climatic conditions. None are kept on the West Coast; a few are occasionally brought there for butchering and of recent years they have been taken to Palghat for grazing and manuring the wet lands in the dry weather; but these latter all return to Coimbatore before the rains begin. Mortality among sheep is very high when the rains set in even among the hardy hairy sheep of the hotter districts. Wool bearing sheep are practically confined to those parts of the Presidency which have a cold weather and it is very seldom that these are seen anywhere else.

IV.—THE DEMAND FOR, AND SUPPLY OF, DRAUGHT CATTLE.

The demand for draught cattle, for the Madras Presidency, can be taken roughly at one pair of cattle to 10 acres of cultivation. The number of ploughs, given in the quinquennial census of 1909-10 is 3,895,537 while the normal area of cultivation for the same year is 36,687,000 acres. Or, again, the total male stock of cattle and buffaloes over four years of age, is given in the same census as 7,408,387 head, or 3,701,693 pairs of cattle. Both these figures are approximately 10 per cent of the normal cropped area. The area cultivated by one pair of cattle at first sight seems low, but, when it is considered that there are about 10,000,000 acres of rice and 1,400,000 acres of garden cultivation, for which one pair of cattle are required, approximately, for 6 and 2 acres respectively, this raises the demand for ordinary dry cultivation to nearly 15½ acres a pair. This figure is low for black cotton soil where 30 to 40 acres can be worked by one pair of cattle, but in many places for lighter soils the figure is high. No deduction has been made for road traffic, as the bulk of this is done by agricultural cattle in the off season. It will thus be seen that the supply at the present time just about meets the demand. As regards the future it is difficult to forecast what will happen. Although the Season and Crop Report for 1910-11 gives an area of 9,318,000 acres of culturable waste, much of this is unfit for permanent occupation, and further development must be in the direction, rather of intensive than of extensive cultivation, and this is only possible with the aid of irrigation. This consequently means a large increase in wells and well irrigation, and, especially in the southern districts, one already sees this taking place,

as a comparison of the following figures taken from the Season and the Crop Report will show:—

	Area of culturable waste, 1910-11 ACS.	Area under well cultivation, 1910-11 ACS.
Average of the eight southern districts	184,400	102,760
Average of Gōdāvari, Kistna, Guntūr and Nellore	383,857	33,498

This line of extension, which is bound to develop as the population increases, means a much greater demand for better draught cattle, and already the supply is beginning to be short of the demand. This is especially so in the three districts of the extreme south, where little use can be made of the "Salem" and Alambadi cattle for heavy draught. The Madura and Ramnad districts are the only two where difficulty is reported in obtaining draught cattle, though everywhere complaint is made of the great rise in their price. In the cattle markets of Madura district prices are higher than anywhere else in the Presidency. In Tinnevely matters are not so serious; this is the tail end of the line of cattle fairs, and dealers never take animals north from here, but always dispose of them for what they will fetch. This district also attracts better cattle since the ryots of the black cotton soil pride themselves on their fine bullocks and can afford to, and do, pay good prices for them. It is also the market for supplying good draught animals to Ceylon. It is probable that more of the Kangayam type are sold at the Kazhugumalai cattle fair in the district than at any other fair in this Presidency. The employment of cows for agricultural and draught purposes is common in most of the southern districts, which seems to point to a shortage in the supply. In parts of the Melur taluk of the Madura district even wet cultivation is done by cows. In South Salem and East Coimbatore, cows are commonly used both for ploughing and also in some cases for mhot work. While in the cattle breeding and rearing tract of West Chittoor, North Salem and Kollegal, cows are as commonly used as bullocks, if not more so, even in many cases for cart work. Apart from sentimental objections, there is much to be said for the working of cows except, possibly, where they are used for wet cultivation. Primarily it ensures the animals getting something to eat. In the Maluvalli taluk of the Mysore State, which produces very excellent cattle, one sees very fine cows being worked in the fields. The animals are very well cared for and are kept in excellent condition, even in a year, such as this, when fodder is anything but plentiful, and, if cattle breeding is to be encouraged among the smaller ryot class of this Presidency, it seems essential that the female stock should be used both for work and for reproduction. The cows of the Dharmapuri taluk which are trained to work have a considerable market value, while in the Nallamalai breeding tract of the Kurnool district, where cows are owned under very similar conditions, these when dry have no sale value at all, since they are never worked. It is natural that, if cows have a distinct market value, they are much better cared for than if they have none.

In the southern districts the chief source of supply is the Coimbatore district and North Salem, besides which very large numbers are imported from Mysore. Cattle are even brought down from as far north as the Bellary district. In the northern part of the Presidency, there seems to be no scarcity of cattle, although they have risen generally in price. The Vizagapatam district, the uplands of Gôdâvari and the Nellore and Guntur districts are, at present, able to supplement of the demand, which is supplemented by importations from Hyderabad and Mysore.

The rise in price of cattle has, however, been an incentive to produce better cattle. Many cases have come to notice where petty ryots have of recent years taken to rearing promising looking young cattle as a means of adding to their income. Such animals would formerly have been left to fend for themselves, in which case they would never have been of much value. Excepting the West Coast and delta tracts, it may be said that all districts are practically self-supporting as far as light draught animals are concerned.

V.—GRAZING AND CONDITIONS UNDER WHICH BREEDING IS CARRIED ON.

The question of grazing is becoming more and more insistent as the area of cultivation increases, and therefore the question deserves detailed examination.

Communal grazing.—This consists of grazing on land to which every one in the village has an actual or accepted right. This is comprised of communal lands set apart for the purpose, of unassigned waste lands, of tank beds, the sides of drains, roads and other poramboke land; usually also of harvested wet lands and of dry lands which have been left fallow. Many of these sources of grazing, as the cultivated area extends, or the village expands, are constantly being reduced in area and thus the ryot, who has depended on free grazing from time immemorial is on all sides beginning to feel, and sometimes sorely, the lack of pasture. As time goes on and cultivation continues to expand either intensively or extensively, he will feel it more and more, until some other method of farming is evolved, which includes the care of his animals. In some parts of the Presidency this evolution can be seen even now, of which the Dharapuram taluk of the Coimbatore district is an excellent example. This is a taluk where there is no culturable waste, no communal grazing land, and no forest grazing; yet, it is one of the best known cattle breeding centres of the Presidency, and its cattle have a higher market value than any other, besides which, it contains some of the best garden cultivation to be seen anywhere in India, as well as an excellent system of mixed farming.

As far as the maintenance of the quality of the stock is concerned, nothing can be said in favour of communal grazing; in fact everything is against it. Where there is communal grazing, every ryot in the village naturally claims as large a share of it as possible, with the result that grazing lands are always overstocked, are never given a rest and are usually little more than exercise grounds for cattle. In many cases the number of cattle maintained is in excess of the ryot's

actual requirements, as well as of the number which he can normally supply with fodder in the dry season, and though the animals manage to exist for a time on a starvation diet, they are very prone to cattle disease and to suffer from changes of season. Enquiry into the hide trade shows that the supply of hides is always greatest when the rainy season commences. Not only do animals die under this treatment, or lack of it, but the female stock breed very irregularly and, if the cows are not barren altogether, they seldom calve more often than once in three to four years. This is a most important point; the quinquennial census shows that, on an average, a cow only rears a calf once in 5½ years. Communal grazing is, and must be mixed grazing, and, since male stock are never castrated before they reach maturity, this leads to the evils of inbreeding and promiscuous breeding and often permanent injury to the young male stock from serving cows when too young. Thus, even if the ryot were dextrous of improving his stock by more careful breeding, this is impossible as long as he has to depend on communal grazing.

Forest grazing.—This is ordinarily the grazing of cattle in the reserved forests on payment of a nominal fee per head, though, in times of scarcity, the forests are thrown open, when necessary, for free grazing. Normal forest grazing can be divided into three classes—

- (1) Cattle, which live entirely or almost entirely in the forests and are kept in pens there, i.e., breeders' cattle, such as those of East Kollegal and the west of Dharmapuri and Hôsûr.
- (2) Cattle, belonging to villages adjoining the forest which are occasionally breeders' cattle, but more often are kept, either for the sake of the manure which they supply, or for the sake of prestige; a man's position and wealth in the village being reckoned by the number of stock which he keeps.
- (3) Cattle, which come from a distance to graze in the forests during the cultivation season.

In the forests of Kollegal, North Bhavâni, Dharmapuri and Hôsûr, which represent the most important area of forest breeding, the cattle, which graze in the forests, are cows with their calves; except for the breeding bulls, which run with the herds, no other male stock are seen. The male stock are annually sold as yearlings at big fairs such as Mahadeswaramalai, Gettissamudram and Mecheri and find their way into the hands of ryots who rear cattle. Throughout North Coimbatore, North Salem and West Chittoor, as well as in the adjoining territory of the Mysore State, the rearing of bullocks from these forest bred calves is a most important industry. It not only forms a profitable method for ryots to realize the value of their available straw, fodder and grass, but it also forms the main supply of heavy draught cattle for Malabar, West and North Coimbatore, Chittoor, North and South Arcot, while the pick of such animals are taken further south to Tanjore, Trichinopoly, Madura and Tinnevely to be used either as coach bullocks or for heavy draught. This breeding is one of the finest object lessons one can see in the Presidency to show the value of not mixing the cattle when grazing. The cows, though in miserable condition when they were seen in the hot weather,

were all big framed animals, while the bullocks, reared from calves produced from these herds, show still more clearly how valuable it is, even when grazing is limited, to select and keep good breeding bulls. These Salem and Alambadi cattle are very different from the animals which come from the Bhadrachalam forests of the Godāvāri district, which are small ill-bred animals. In the cattle, which come from here, one sees all the evils attending mixed grazing, the surplus male stock are never sold until full grown and fetch, even at present high prices, from only Rs. 7 to Rs. 20 per head.

Cattle belonging to villages adjoining the forests, which may be breeders' cattle, but more often are kept for the sake of the manure they produce or for prestige.—Usually such cattle are kept for the two latter purposes, though occasionally they are kept to some extent for the former. It is a noticeable fact that the nearer cattle are to the forests, the more degraded the type. Here one sees all the evils of mixed grazing. In most of such places, the forests are at low elevation and have not as yet recovered from the period when they were unreserved and seldom are they able to provide grazing throughout the year. With such light grazing fees, large herds of cattle are maintained and it is usually the case that such animals in the dry weather are barely able to exist. The ryot has not the fodder supply necessary to maintain his cattle in such numbers in the dry weather. In many places such animals are maintained simply as a cheap and easy method of manuring the lands. The young stock produced are so poor that they are capable only of the lightest work and often ryots, who own large numbers of cattle, have actually to import their working bullocks. A good example of such a degraded system of farming was seen around Chendragiri in the Chittoor district. Here large numbers of cattle are maintained in the villages, which are of no use except for their manure, and all bullocks, required for garden cultivation, have to be bought from Punganūr. In other places a man's position is gauged by the number of stock which he maintains. Often he is entirely dependent on the forests for their maintenance. The Cambum valley in the Madura district gives a striking instance of this. Here many of the owners of the largest herds of cattle are merely landlords, leasing out their lands on varam, in which case the kudivaramdar or tenant gets the straw, which should be the reserve fodder supply in the dry weather. Here all the best animals are owned or reared by cultivating ryots. Yet this valley was at one time famous for its cattle and it still produces a few good animals. It is one of the few places in the southern districts, where breeding bulls are still specially set apart and maintained, though they are not selected for any special quality, but all male animals born on a certain day of the year are set apart for breeding. Were it not for the adjacent reserved forests of Travancore, where grass is plentiful on the upland plateau, and where the Cambum valley cattle are taken in the hot weather, there is little doubt that the breed would have disappeared before now.

The Cambum valley forms an interesting problem with regard to grazing. Cultivation has now reached its utmost limits and any further extension must be in intensive cultivation, i.e., by the sinking

of wells. This means a constant supply of mhot bullocks, which cannot be maintained by reliance on the forests, and by the present lack of system in breeding. If the people were dependent on themselves for grazing, it would be quite possible for the valley to develop in the same way as the Dhāraspuram taluk of Coimbatore. The soil is rich in lime, it forms an excellent pasture, while the maintenance of the well-water supply must depend on the proper maintenance of the forests. Private pasture land, careful conservation of manure, combined with well irrigation, would greatly add to the production of the valley, while, when the breed of cattle has been worked up, there is no doubt that the profits from stock raising would be great. Even now the smaller ryot, who has straw fodder for the dry weather, can get Rs. 100 per pair more for cattle which have been hand reared, than the owner of large herds can get for those which are dependent on forest grazing.

Cattle which are sent to the forests from a distance for grazing during the cultivation season.—For delta and other tracts where cultivation does not allow of pasturage, it is the custom to send cattle often long distances for grazing. Grazing facilities in such cases are essential, and it is usually the reserved forests that people have recourse to. In the case of the northern deltas the more well-to-do cultivators send their cattle to private grazing grounds in the dry taluks of the districts; but the ordinary run of delta cattle, both from here and from Tanjore, are sent to the reserved forests for grazing. That private grazing is appreciated is shown by the high grazing rates which ryots are prepared to pay, and, in all probability, it is cheaper for them in the long run, as the animals are well cared for, come back in good condition, and, except when there are outbreaks of cattle disease, there is a very low percentage of loss. In the northern deltas it is important that the cattle should be in good condition when they return, as they are immediately required for threshing the paddy crop. In the Godāvāri district, everywhere on the delta, complaint is made of the increasing mortality among cattle sent away to the forests for grazing. The animals there are left in charge of Sugalias, who, it is stated, make a considerable income out of the sale of green hides, etc., and consequently it is to their advantage if the animals left in their charge die. As the hide supply is being exploited more and more, the mortality among cattle under the present system of grazing naturally becomes greater.

Forest grazing is always a serious menace to the forests and not only to the forests but to the water supply of wells and tanks. It is more so where grazing is continuous as the cattle are then in the forests when these are dry. Grazing and forestry are, and must be, at variance; for, as the forest canopy increases, the grass tends to disappear and the simplest way of lessening the shade and increasing the grass is by forest fires. Yet certain kinds of forest grazing are of great importance. The North-West Salem and North-East Coimbatore forests supply a large share of the heavy draught cattle of the south and, probably, this is of more importance to the country than the maintenance of heavy timber forests in places, which are not readily accessible for extraction. In Kollegal this cattle

breeding is rapidly declining and similar statements were made as regards Dharampur, but the cattle census figures for previous censuses had not been preserved and it was not possible to prove this by actual figures. The Hosur taluk on the other hand shows a steady increase. This decline is stated to be due to the stringency of the forest regulations, which, with the present system of forest blocks, prevents the movement of cattle from one block to another. The present system of permits is, more or less, a speculation, since the hot weather grazing is very dependent on local thunderstorms and, at the time of visiting Kollegal, rain had fallen in only one block. In another year it might be that another block would be favoured with rain. Everywhere throughout the breeding tract the general complaint is that, where there is water for the cattle, there is no grass and *vice versa*. In one of the best breeding villages in Kollegal the owners had actually sold two out of four of their breeding bulls, since they were too valuable animals to risk losing. A few rich breeders take out permits for more than one block, but the smaller breeder cannot always afford to do this. If the block system is instituted as a check on forest offences, it should be possible to endow permits made out for one block to allow grazing in another block, where early pasturage or water is available, and it is not likely that forest fires would be purposely started in blocks where there already is early grazing. Something might be done to make more watering places for cattle in the forest, as the animals often have to suffer severely from the lack of these. In places, where it is customary for cattle from other districts to be sent for grazing, a system of grazing reserves might be advisable, i.e., reserves where grass, and not forestry, is the first consideration. This would not only protect the forest proper, but it would be possible to keep the animals in better condition and thus check the heavy mortality, of which, in many places, there is now complaint. In the Nellore district, where private grazing lands are owned and leased out, the mortality among the animals is reported to be much lower than in other districts which depend on forest reserves; moreover, the owner or lessee of such lands take very good care that the pastures are not overstocked. Grazing reserves would not necessarily mean a depletion of trees. A certain number are always required for shade. Dharampur taluk where private pasturage is common, is possibly one of the best wooded of any agricultural taluk, and the bulk of these trees are grown in private pastures. The private pastures of Guntur can always be located by the excellent growth of babool trees on them. People already pay considerably more for grazing on private pasture than they do in reserved forests, and if sufficient pasturage is provided to keep animals in good condition, there is no reason why higher rates should not be charged for such grazing, if it were found that it could not be provided at the presents rates except at a loss. If such grazing were regulated, not overstocked, and manure not removed from the ground, excellent pasturage should in time be formed; and it might be possible by the introduction of good bulls greatly to improve the class of cattle of a district where there are no possible means of improving the cattle in the district itself. Where cattle are maintained in the forests simply as a cheap means of manuring the

land, it seems only to retard agricultural development. The people are quite satisfied to remain dependent on the forests for their manure supply, instead of depending on and developing their own resources. The garden cultivator of South Coimbatore is entirely dependent on his own resources for his manure supply, and yet the garden lands here are as well maintained as anywhere in the Presidency. His cattle are also utilized as manure producers, but they are well-fed animals and produce manure not only in greater quantity but of much better quality. Nothing seems to develop agriculture so much in this country, as when the ryot has to depend on his own resources, and this seems more especially the case as regards cattle breeding and rearing. The manure supply from forest grazed cattle, moreover, is seldom required except for wet or garden lands, and the forests are of much more importance, as a protection to the water-supply, than as a means of supplying cheap manure through forest grazed cattle.

Private grazing areas.—Private grazing areas are of great value and importance to the country and every encouragement should be given to increase these. Everywhere where private grazing grounds exist, the cattle are good and care is taken to breed and rear good animals. This class of grazing can be divided as follows.—Temporary pasture and permanent pasture. Temporary pasture consists of harvested dry fields, of patta lands left waste (though in many cases these are treated as common grazing lands) and of patta lands, which are sown down to pasture. Permanent pasture includes patta land reserved for pasture, either on single or on joint patta, and, either for a leased rental, or for the patta-dars' own enjoyment.

Dry lands when newly harvested are usually considered as private grazing. There is often a considerable amount of gleanings in the shape of the fallen pulse and cereal leaves and, until this fodder supply is exhausted, such lands are usually reserved for the grazing of the cultivator's own cattle. Patta lands, which are left waste, are occasionally treated as private pasture, but, more often than not, are treated as common grazing land.

The only two places where patta lands are regularly set apart for grazing, i.e., for temporary pasture, are in the two noted cattle breeding centres of "Plains Cattle," viz., the Ongole-Kandukur tract and the Dharampur-Palladam tract. In the former tract, permanent pasture is perhaps more common, since the soil is very liable to wash, and there are large areas of patta land which cannot be cultivated, such as the lands adjoining rivers and streams. These streams can always be traced by these grass lands and by the growth of babool which gives the requisite shade for pasturage. But besides this, temporary pastures are also common; even small areas of 3-4 acres or less are left for pasture, showing that even the smaller ryot of these fertile soils realizes the value of pasture for his cattle. Such temporary pastures are all of spontaneous growth and are not sown. In the Kangayam tract, temporary pasture is the rule, though exceptionally good pastures are often left for 20-30 years before being broken up. It is here that the famous "Coimbatore grass" known as "Kolai kattai pillu" (*Pennisetum cenchroides*) is found and the seed of this grass is regularly sown, mixed with a cereal, when land is to be laid down. Here private pasturage is rendered much easier by the

practice which prevails of fencing the fields. So valuable are pastures considered here, especially since the recent rapid increase in the price of cattle, that even garden lands are now occasionally laid down to pasture. This moreover is the only place in the Presidency where anything like systematic grazing is carried on.

Permanent pasture.—The practice of maintaining permanent private grazing grounds, although in some parts it is giving place to dry cultivation, in others is showing signs of development, and this should receive every encouragement, as it is the first step towards the improvement of live-stock. The practice is common throughout Nellore district and in the Kistna and Godāvāri dry taluks, as well as in the north of Salem and in the Punganur zamindari of Chittoor district, while a few cases have come to notice where the system is of quite recent origin, even in parts where forest grazing is considered good. It is held by some that the cultivation of grass on patta lands lessens the yield of food-grains but it is a moot point whether this is so. Land laid down to temporary pasture is greatly enriched and, when ploughed up again, gives much better yields of grain. Moreover private pasturage enables the ryot to maintain not only his working animals, but also his small breeding herd and, if he owns his well in addition to his dry land, he is enabled to manure his garden lands well and to meet his own supply of working bullocks. Thus, though the dry lands may not directly produce cereals when under pasture, they tend to increase the production of the garden lands, and after all, except perhaps on black cotton soils, the production from the land is very largely governed, not by the area cultivated but by the amount of manure available.

General breeding arrangement.—Except in the recognised breeding tracts these are only remarkable by their absence. In the northern districts the practice of dedicating Brahmani bulls still exists, but these are not necessarily selected for any good qualities. Occasionally one sees animals dedicated for some deformity and it is the invariable custom to dedicate calves and not grown bulls. Since the animals are selected before they have developed their masculine characters, even if quality were a consideration, it would not be possible to make an adequate selection for this.

In the Vizagapatam district several of the owners of proprietary villages do now keep breeding bulls of the Ongole type and some excellent stock are to be seen bred from these. Some recognition of this might encourage the practice. In the Southern districts except in a few isolated places the practice of dedicating bulls does not now exist, and dependence has to be made on young uncastrated bulls for the reproduction of the species. The breeding arrangements in the breeding tracts will be dealt with when these are considered. Mixed grazing and late emasculation are the two great stumbling-blocks to the improvement of cattle in this Presidency.

VI.—FODDER SUPPLY.

The fact that one district or part of a district can usually supply another or another part, shows that in normal seasons the supply of

fodder, under the present system of livestock management, is more than sufficient. That this is so in many places, is evident from the larger numbers of old straw stacks which are to be seen. This is more especially the case in the Northern Circars. Old straw stacks are to be seen from Ganjam down to Nellore wherever paddy is grown. While in the deltas it is no uncommon thing to see straw stacks two and three years old. In the black soils of Guntur and Mandakur, old stacks of cholam straw are a common sight. Madras is very favourably situated, as regards rainfall and water supply, as far as its fodder supply is concerned. Full advantage is taken of all the rivers which flow into the Bay of Bengal for irrigation purposes, and all districts, bordering the littoral are supplied, or can be supplied, if necessary, with paddy straw. Certainly more cattle are required to work these irrigated tracts, but they are usually animals of low value and therefore little attention is paid to feeding them; while in the dry season there is always a certain amount of natural pasture on the harvested wet fields. It is the more valuable animals, necessary for dry and garden cultivation as well as for heavy draught, which would be difficult to replace, that this fodder is mainly required for. The export of paddy straw from the irrigated tracts is facilitated also by the system of grain rents: the cultivating tenant often being forced to sell his straw in order to exist. It is districts which are away from the coast, that are more liable to failure of rains and crops. The Ceded Districts, however, do not require many cattle for purely dry cultivation. With the labour-saving implements in use there, it is possible to sow 30 to 40 or even more acres with a single pair of bullocks and, it is a very bad season, when this area cannot supply more than sufficient fodder for these. In recent years, moreover, the extension of well cultivation has done much to ensure these districts against scarcity of fodder. So also in Coimbatore, Salem, North Arcot and Trichinopoly, the development of well irrigation has largely protected these areas and it is no uncommon thing to see fodder cholam grown in small areas under wells for the use of mhot bullocks. Certainly, well irrigation means an increase in the number of working cattle, but not so much as it would seem at first sight, for, when rain falls, they are not required for irrigation and are available for the cultivation of dry lands. At the present time in the districts of the extreme south, viz., Rannad, Madura and Tinnevely, it is reported that the fodder supply is insufficient. This is due to two causes, viz., the high price of cotton, which has led to the extension of cotton to the exclusion of fodder cholam on the black soils, and the introduction of Cambodia cotton. This latter cause is, however, only temporary and its resultant effect will really be beneficial both to the fodder and food supply. The cultivation of this crop has spread like a wave through all the southern districts and ryots, finding how profitable was the cultivation, have grown this on their garden lands, and even on precarious wet lands, regardless of rotations. They are now beginning to find that to get good crops of cotton it is essential to rotate this with cereal crops. The result has been, however, to put much capital into the ryot's hands, which has enabled him to improve his existing wells and to sink new ones, thus greatly extending the area under well irrigation.

The total area under well irrigation for these three districts for the last three years are, according to the Season and Crop Reports, 265,870, 279,021, 302,960 acres, respectively. The West Coast fodder supply always runs short before the end of the hot weather. Paddy, which is the main crop here, does not tiller like it does on the East Coast and the straw is always scanty. Harvesting in Malabar, also, is defective and often half the straw is left on the fields. Little, or no use is made of the abundant growth of hill grass immediately after the monsoon except for immediate grazing and for cutting at thatching grass. Malabar is in a worse condition than South Kanara as wet cultivation in the latter district is much more advanced.

The cultivation of fodder crops, as an ordinary agricultural practice, is mainly confined to two tracts, viz., the northern deltas, where sunnhemp is grown as a fodder crop after the harvest of paddy, and the black cotton soil tract of the extreme south, where fodder cholam is grown. In the dry lands of the northern delta districts, especially in Guntūr, cholam is grown, as a first season crop, mainly for fodder. The Season and Crop Report for 1910-11 gives a total area of fodder crops of 264,000 acres, of which 254,000 acres are grown in the tracts mentioned above. These figures, however, are not absolutely correct for the cultivation of small areas of fodder cholam or cholam mixed with umbu under well irrigation is a common practice in Coimbatore and other districts, where well irrigation has developed, and it is becoming, it is reported, increasingly common. The Season and Crop Reports only show 3 acres last year and none for the three previous years as the area under fodder crops for Coimbatore. Though in many places fodder crops are not grown as such, preference is given to the cultivation of cereals which give either the best quality straw or the greatest bulk. The bariga crop of Guntūr (*Panicum miscaceum*) is peculiar to this tract, which is so noted for its Ongole breed of cattle, and is the main cereal crop grown in the second season, because, being a short duration crop, it is more certain than pyra jonna as a fodder supply. The korra crop of the black soils of the Ceded Districts (*Setaria italica*) is another example; the straw of this is said to be specially valuable as a fodder for the cold weather. In many places also the seed rate for cholam is much higher than is necessary and is sown so, mainly, with the object of getting a higher yield of straw. In the Ceded Districts it is a common practice to weed out, for green fodder, any plants of cholam, which are not likely to develop grain.

VII.—BREEDING TRACTS.

Kangayam (Coimbatore district).—This cattle-breeding area consists of the whole of the Dhārāpuram taluk, and with it may be included the adjacent parts of Palladam, Erode, Karūr, Palni and Dindigul taluks. Breeding, however, centres round the Kangayam division of Dhārāpuram taluk. Here it is that real breeding is carried on, but there seems to be no reason why, if encouraged, systematic breeding should not extend to the taluks above mentioned. Of course, there are black soil tracts in many of these taluks, where cultivation is much more profitable than cattle breeding, but it is the lighter soils of these districts which are most suitable. These are usually shallow soils, which

the uncertain rainfall of this tract renders uncertain when under crop, but they are sufficiently loamy in character to retain enough moisture for pasture for a considerable time. The best land for cattle rearing is probably what is known as "Odai jelly," a red loam full of canker gravel. Such soils are known to be cool and, even though shallow, are retentive of moisture, while the calcareous substratum is excellent for the formation of bone and sweetness of pasture.

The rainfall is also an important consideration. In all the taluks mentioned it is distributed throughout the year and is always precarious. Thus all dry crops may or may not fail. There is always an uncertainty about them, while cattle are a much more certain source of income from the land. Therefore the ryot has learnt to a great extent, to depend on his wells for his cereal grain crop, and, if necessary, also for his straw. The rainy seasons are three in number—(1) the hot weather rains; (2) the south-west monsoon; (3) the north-east monsoon; and, though the rainfall may not be sufficient to raise a cereal crop, it is practically always sufficient to raise a crop of grass and usually two or three flushes of pasture.

Grazing and fodder.—In the Dhārāpuram taluk grazing grounds are conspicuous by their absence* and this fact, combined with the universal system of fencing, has undoubtedly been one of the main causes for the development of cattle-breeding. Cultivators have early learnt to depend on their own lands (encouraged no doubt by the former "Pillu patta") for their grazing. Yet, even though this grass or "Pillu" patta has been abolished and grazing lands pay the same assessment, whether under crop or pasture, there still remain large areas of pasture land, nearly 40 per cent of the total culturable area of the taluk. These private pastures are common throughout Dhārāpuram and extend also into Palladam, Palni, Karūr and Erode taluks. Fencing is an essential for these grazing grounds and, without it, they would be of little use. With fencing the ryot has absolute control over his grazing and can limit the number of stock, which he maintains, but in spite of which the general aspect of the country shows, a far larger number of breeding stock than are usually to be seen. The tract is also fortunate in having such an excellent grass as Kolai kattai pillu (*Pennisetum cenchroides*), which is the mainstay of the temporary pastures, as well as of many of the more permanent pastures. Fencing also allows of a rotation in pasturage which is an excellent thing. In many pastures, manure is not collected and in consequence the crops, following the ploughing up of pasture, yield

* The following figures kindly supplied by the Settlement Officer of Coimbatore show the distribution of the total area available and not available for cultivation in the Dhārāpuram taluk:—

	ACS.
Roads and thoroughfares	16,100.59
Tank beds, drains, rivers and channels	14,404.20
Village-sites, cattle stands, temples, threshing floors, burial grounds	9,882.60
Rocks, hills, salt lands	3,019.89
Reserved forests, flower gardens and topes	3,331.43
Bunds	283.78
Total	47,412.40

much more heavily than they would otherwise do. Thus, though pasture may limit the area which remains for the cultivation of cereals, it increases the acreage yield. "Kolai kattai" pastures are found throughout the tract and trials with this grass in Tinnevely on the light red soils of that district show that its cultivation might be much further extended, if necessary; and its introduction, if grazing was regulated, would be of immense value. It is a grass with a bulbous root stock, which can maintain its vitality through the severest drought; it seeds freely and its seeds are easily shed. Thus a heavy rain at any season causes a rapid flush of pasture, which will in a few weeks grow to a foot or more in height. When the Idaikottai zamindari was under the Court of Wards a "Kolai kattai" pasture which afterwards formed a part of the home farm was leased out for Rs. 300 for three months' grazing. This was an area of 25—30 acres. With cattle now at double their former price the grazing would be worth double the amount or roughly Rs. 20—25 per acre. This was on land similar to that assessed at about 12 annas and in a tract with a rainfall of probably not more than 15 inches. Even when pastures are ploughed up the grass is not killed. In fact it is a practice to plough through a "Kolai kattai" pasture every third year to quicken the grass. Thus even freshly broken up lands continue to supply pasture when the crop harvest is over. In the Dhārāpuram taluk it was stated that, even lands, commanded by wells, are sometimes laid down to pasture. Many lands are actually sown with "Kolai kattai" grass seed when laid down.

The main unirrigated cereal crop in the Dhārāpuram taluk is *cumbu* and the straw of this, unlike that of other districts, forms the main fodder supply. It is a four-month variety with a branching habit known as "*nadam*" *cumbu* and is sown usually in July-August. This habit gives a fine straw and plenty of leaf and the straw is harvested when the dew is on for two reasons:—(1) The leaf is not brittle and does not break off. (2) The moisture supplied by the dew makes the fodder more succulent when it is stacked. With this *cumbu* straw there is always a proportion of pulse straw, since these latter crops are always sown as a mixture with dry land *cumbu*. The *cumbu* straw is, of course, supplemented by the straw of *cholam* crops grown under wells, and also fodder *cholam* is sown thickly as an irrigated crop under wells, in years of serious shortage.

Breeding arrangements and conditions.—The conditions here are very different to those in Ongole. Here the big breeder has many advantages over the small breeder. His herds are sufficiently large for him to be able to divide them up according to age and sex. Thus the cows with calf at foot are grazed in one field, dry and in calf cows in another, young male stock in another and so on.

As is the case all through the Southern districts there are no Brahmani bulls. All breeding bulls are private property and are the property of big breeders, most of whom do not allow petty breeders to have their cows served by them unless the offspring are sold to the owner of the bull. Of late years in-breeding appears to have become less common and now breeders often buy their breeding bulls from outside their own herd usually from the Pattagar of Palayakottai, who

is the biggest and most advanced breeder in the tract, thus showing that there is a strong tendency among breeders to meet the supply for good animals. The big breeder has also the advantage of selection which he uses to some extent, especially, in weeding out cows which do not breed regularly. Big breeders, when questioned, all stated that their cows bred once a year or thereabouts and that, if a cow did not breed regularly, there was no profit in it and the animal was sold. Smaller breeders stated that many cows only breed every two and sometimes three years; that they broke them into the yoke and used them for agricultural work which often made them breed, but, if that failed, they sold them to petty ryots who use them as working cattle, either in the mhot or for agricultural work—in fact for any work except carting. Thus it can be seen that the petty ryot is saddled with the worst of the female stock, that for the service of his cows he has, either to have them covered by a young bull, usually of his own breeding, or else have them covered by the bull of a big breeder to whom he has to sell the resultant offspring.

Rearing and feeding.—The practice among big and small breeders is very much the same, though, as a rule, the small man takes more care of his young stock especially of promising young animals. For the first six weeks the calf is allowed as much milk as it requires and is kept tied up during that period, after that, green grass is put before it daily until it has learnt to eat, when it is turned out to pasture, and the amount of milk allowed is gradually reduced until the animal is weaned. Small breeders, however, in the case of promising calves, allow them all the milk and in some cases, when the cow does not give sufficient, they draw milk from other cows and feed the calf by hand. Cows, whether in calf or in milk, weaned and growing young stock are given pasture when this is available. When not available, they are given fodder supplemented by a thin gruel made of pulse husks, bran of cereals, rice-water and the ground up pods of *Vel-vagai* (the white babool). Ground cotton seed is also added if necessary. As a rule young bulls are muled when they get their second pair of teeth and are broken to the yoke before being sold. They are not trained for mhot work until they have cut their third pair of teeth. Young unbroken animals are never sold by big breeders. These are only sold by petty ryots, who are pressed for money.

Market for live-stock.—The main market is in the south where bullocks of this breed are much sought after, both for black cotton soil cultivation and for mhot and road work. Higher prices are paid for bullocks of this breed than any other. Rs. 800 to Rs. 400 is no uncommon price for a pair of good young bullocks, while cases are known where recently Rs. 700 has been demanded and given for specially good pairs. The reason for this is not far to seek. The *Kangayam* is an excellent doer and thrives on much poorer fodder than other breeds. It has an excellent constitution, is very hardy and will often last for ten or twelve years at mhot work, while the *Alambadi* (the other big breed of the south) will not, it is stated, last for more than six or seven years at the most, and often for not even that. Rise in prices of *Kangayams* has been much more rapid than that of other

breeds, which shows its popularity on the market. This rise is probably due to some extent to the rapid increase in well irrigation in the south. The number of carts also has risen within the last ten years (1900 to 1910) from 59,309 to 97,621.* Besides this outside demand, the large breeders themselves take their animals for sale to the cattle fairs held during the car festivals at Avanssi and Tiruppur.

From the above description of the Kangayam tract it will be seen that, even there, there is considerable scope for improvement, especially among small and petty breeders; and there is evidence also that in time if assistance is rendered, the art of cattle-breeding may spread to neighbouring taluks or even further afield. The improvement in the present breeding area and the expansion of the breeding area, both seem essential for the ultimate good of the country, and it is for this reason that the Kangayam cattle-breeding has been so fully described. Kangayam furnishes the best example in this Presidency of mixed farming, and mixed farming is bound to develop in dry taluks as the remaining available lands are taken up for cultivation. A well and garden lands supplemented by dry cultivation and grazing lands are the ideal conditions for mixed farming. The garden lands require heavy manuring and for this reason the ryot has to keep more cattle and live-stock than he actually requires for working the whot, carting silt and produce and cultivating the land. The garden lands are, in years of scarcity, his mainstay both for himself and for his live-stock. Thus there is no reason why if encouraged he should not keep good breeding stock. To keep these in condition he must have ample grazing, which he should be able to procure on his own dry patta lands, reserved for this purpose, provided his fields are fenced. These would only be temporary pastures, and would manure themselves, and, if worked in rotation with other dry arable land, would not only maintain but would improve their fertility. This seems to be the ideal to aim at, especially in tracts of scanty rainfall and shallow soils. A start should therefore be made in the centre of the breeding tract to encourage the breeding of better stock, especially by the small and petty farmer. These people, being brought up in a breeding tract, understand the breeding and rearing of live-stock and already appreciate the profit to be derived therefrom. Thus the provision of sufficient breeding bulls seems all that is required here. These however would have to be provided in large numbers. A bull will not be able to cover more than 150 cows in a year, and even then, would require careful feeding to maintain him in condition. When the success of this course was proved, then would be the time to supply bulls to the adjoining tracts in the same way, and thus gradually extend the breeding area. It appears useless providing bulls in places where the people have no knowledge of cattle breeding and rearing, and consequently, no idea of the profits to be derived from this branch of agriculture. When they have learnt this, then is the time to try and effect some improvement. There are four essentials in placing bulls—

- (1) The animal must be of a type acceptable to the people.
- (2) It must be a sure stock getter.

* Actuals only taken for purposes of comparison.

(3) It must be in charge of some one who has the good-will of all the classes of the community and understands the management of such animals.

(4) It must be placed in a suitable village where its presence will be appreciated, e.g. I was informed that a Government bull was placed in charge of the Deputy Tahsildar, Palladam, but was removed as its services were not made use of. The reasons given to me why the animal was not made use of were, that he was not a good animal; he was a very uncertain stock getter and Palladam is a village of Brahmans and shopkeepers and not of agriculturists and breeders. The supply of bulls could be maintained by a Government breeding farm or else by private purchase. The former seems preferable: for even the best local breeder has his limits, and there is already a considerable amount of mixed blood, introduced into the breed, which is not at all liked. The questions of how the animals are to be paid for, and how their upkeep is to be met, after being issued, are also matters which require consideration. There is no question here of making the animals Brahmani bulls as these would starve since all the fields are fenced.

The "Ongole" breeding tract.—The finest specimens of this breed are to be seen in the villages lying between the Gundakama and Alluru rivers in the Ongole and Kandukur taluks. These, however, are not at all necessarily bred here, and fine animals can be found, throughout the dry taluks of the Guntr district, as well as in the Kandukur and Darsi taluks of Nellore district. Many of the finest animals seen on these alluvial soils have been brought in for rearing from other parts of the district. One sees here cattle which have come from Bapatla, Narasaraopet, Gunthir and Vinukonda taluks, and there is little difference to be seen in the quality of these animals, and those born and bred in the alluvial villages. It is, however, possible for people who know the local breeds, to be able, often, to locate the tract from which an animal has come, thus showing that there are variations in the breed even within limited areas. The same type of cattle are to be found throughout the Nellore district and northward, throughout the dry taluks of Kistna and South Gōdāvari but, though the type remains, the quality, size and bone of the animals deteriorate, especially southwards as one gets further from the centre of the breed, viz., Ongole. The reason for this is almost certainly due to the large quantities of lime found in the heavy soils of Gunthir, which tends to form bone and sweetness of pasture. Breeding conditions vary very considerably throughout the breeding tract, so much so that to be described, the breeding in the heavy dry soil taluks, north of Kavali taluk, must be separately treated from the breeding tract south of Kandukur. The former will be described first, though, even here, conditions vary greatly with the fertility of the soil. In the alluvium of Ongole taluk there are no large breeders. Even the biggest ryots of the best known breeding villages do not own more than 10—12 head of cattle, including their plough bullocks, and it is only when one leaves this, and gets on to the shallower black soils, such as are seen in around Kandukur and Adanki, that one finds ryots who own herds of up to 50 head of cattle. It is a noticeable fact, however, that the

small breeder pays much more attention to his animals than the bigger breeder both in the matter of breeding and of feeding;—in fact he often errs on the side of over-feeding and pampers the animals, bringing them to too early maturity. Early maturity is not required in India, as in Western countries, since the stock here are required for draught purposes, and must be properly developed, if they are to stand the strain of years of work.

Grazing.—For this, ryots have to largely depend on their patta lands, and about one-sixth of the patta lands of the Ongole taluk are left fallow for pasture. The proportion, however, varies very considerably with the fertility of the soil. On the alluvium this is very limited, and the bulk of the pasture is permanent, being patta land which is liable to wash, and which is usually too much cut up by rain water to allow of cultivation. Off the alluvium, although permanent pasture is common on similarly situated lands, temporary pasture is much more common, and cultivated land is left fallow to grow babool and grass. No effort is made to lay down pasture, except that goats are folded at the proper season in order to sow babool seed. Excellent pasture springs up naturally and very rapidly. This consists mainly of the following herbage "*Chengali gaddi*" (*Isseilema wightii*), "*Gohada gaddi*" (*Andropogon monticola*), "*Nanamala gaddi*" (*Andropogon carricosus*) as well as leguminous plants, such as *Indigofera tinctoria* and *Phaseolus trilobus*. Chengali gaddi is by far the best grass and is common throughout the Northern Circars on heavy soils retentive of moisture. It is everywhere well known for its excellent feeding quality. Nanamala gaddi is a coarse grass which seems only to be eaten when more succulent pasture is exhausted, and is useful in making the grazing last out. Temporary pastures are left down for 7-8 years, i.e., until the babool trees are sufficiently grown to be of use for agricultural purposes. Permanent pastures are presumably held largely on joint patta; for on these several small herds of cattle are usually seen grazing, each in charge of their own herdsman, nor is that care taken of these pastures, which one would expect, if they were singly owned. Frickly-pear and other useless shrubs are allowed to remain and occupy a large part of the area, which would otherwise be available for grazing, while all cattle droppings are scrupulously carried away, to be made into bratties in the village. In addition to grazing, all animals are fed with grass, etc., collected from the cultivated fields. This practice is common throughout the northern districts, but nowhere is it so largely practised as here, especially on the alluvium where pasture is reduced to a minimum compatible with cattle-breeding. The chief fodder for the cattle consists of jonna straw, the main south-west monsoon crop, and bariga (*Panicum miliacium*) straw, which except for a slight admixture of "*Payeru jonna*" (*Andropogon sorghum*) is the only dry land cereal grown in the north-east monsoon season. In addition to this the leaves and thrashed pods of horsegram and other pulses are carefully stored. The greatest possible care is taken to collect all of this, the fields often being swept so that none of the fallen leaves should be lost. It can thus be seen that the cattle on the poorer black soils lead a very much more natural existence than those of the alluvium. Grazing lands

are much more extensive and not so much hand feeding, which means tying up, is necessary; while the crops, being poorer, not so much care is taken to remove all the straw and leaves from the fields, nor is grass so assiduously collected. Thus besides their more extensive pasture, the poorer cultivated lands afford considerable grazing for the cattle after harvest. In many of the breeding villages on the alluvium young stock are entirely hand fed and never get any exercise unless they are taken to be washed. This tends to make the animals slow and clumsy. Cattle which lead a more natural life, though they do not mature so rapidly, are much quicker and have much better feet. As concentrated food, the young stock get the bye-products of the pounder, such as the skins of pulses and the bran of cereals as well as the rice water from the house. Since none of the pastures are fenced, animals have to be brought in every night. During the cultivation season they are usually kept tied in the cultivated fields, where temporary shelters are built for them and their owners. At other times they are taken to the village, where they are very well housed, often in separate substantial cattle sheds, which are kept scrupulously clean.

Breeding.—In the alluvium villages the greatest care is taken of the female stock to see that they are not served promiscuously by any bulls. Often ryots travel their cows considerable distances, for the service of some specially good bull and they are never at a loss to say which bull has served their cow. In other places the same trouble is not taken and much promiscuous serving is done, either by inferior or immature bulls. The result is that very few inferior animals are seen in the former tract, while large numbers are to be seen where this care is not taken. Throughout this district, it is the custom to dedicate Brahman bulls and some excellent specimens are seen, which are freely used by all classes of people. There are however many Brahman bulls, which are very inferior and these are often sent away with the poorer class of stock to the hills for grazing. In respect to the use of breeding bulls, the petty breeder is very much better off than in the Kangayam tract, as he can usually rely on the service of a tolerably good animal. Except on special occasions (on the death of an important member of a family) it is no one's business, however, to see to the replacement of bulls, which, after a time, are no longer of any use for breeding purposes, and as holdings become reduced in size, which has been the case in Ongole, the number of important persons becomes reduced in number. Thus in fasli 1310 there were only 437 pattas in Ongole taluk paying more than Rs. 100 assessment, and these only averaged Rs. 141 per patta. It is generally stated that cows only produced a calf once in 18 months and, more often than not, not more than once in two years. In this respect there seems much to be desired in the management of female stock. The Pattagar of Palayakottai (Coimbatore district) who keeps several Ongole cows, states that these bred as regularly as his Kangayams which calve once a year or thereabouts. Here again the development of private pasture land seems to be an essential for cattle breeding. In Kangayam, cows are kept on private grazing grounds

as long as there is pasture, they are then stall fed, whether dry or in calf, while in Ongole dry cows are sent to the hills for grazing. Certainly the Kangayam is not recognized by breeders as a milking breed, while the Ongole is and, in all probability, cows in Ongole do not get sufficient feeding when in milk to maintain them in condition. Certainly the cows seen in the villages, were anything but fat, while the heifers which were prepared for sale were far too fat.

Marketing.—There are great differences between this breeding tract and that of Kangayam in the matter of sale. In Kangayam the sales are almost entirely confined to that of grown bullocks, broken in to work. In Ongole and the district, male stock are usually sold when under two years old, chiefly to Nellore traders, who take them to Kuruool and the Ceded districts. Besides this, there is from Ongole a large and increasing export trade in cows or rather heifers in calf. This must be a great strain on the breeding stock of the country, since these are the pick of the rising generation of cows. Within the last three years 4,033 cows have been despatched by rail from the Ongole taluk alone. This is a large percentage considering that the taluk only owns some 15,000 cows, which include, old, barren and inferior animals.

The marketing of the stock seems to be the weak point in the Ongole breeding tract. Male stock would, if reared to three years old and broken in, bring in a much better return than the selling of young stock. The rich delta ryot of Kistna and Gōdāvari can afford to, and does pay big prices for animals of this type; but he prefers to go to the Vizagapatam markets, where the best animals are brought to the shandies for sale, and where there is no difficulty or delay in suiting his requirements, as there would be, if he came to Guntūr and had to go from village to village seeking what he required. A good market such as this, if opened up, would be a great encouragement to breeding and a much more certain source of income than many of the dry crops now grown. It would induce the people to keep their cows in the district, it would encourage private pastures and it would supply them with their own dry land working cattle free of cost; for they would get at least one, and possibly two seasons work out of their young bullocks before these were sold.

The supply of breeding bulls also requires consideration. The present system of dedicating Brahmani bulls was quite suitable in former times when larger herds were kept, but, now that the ryot only owns a few animals, it is much more difficult for him to select a good bull for dedication.

The Nellore breeding tract.—Breeding conditions here, as stated above, are absolutely different to those in Guntūr. Here chiefly enough the principal breeders live in the wet villages on the Pennar delta. This is one of the few cases known in the Presidency where wet lands ryots take any interest in cattle breeding, and the interest taken here is purely for the sake of the profits obtained from this branch of agriculture; for, in their own wet cultivation, this breed of cattle are very little used. Only inferior male stock which cannot find a sale are used while the bulk of the ploughing cattle in these

wet villages are, either buffaloes, or what are known as "Bhadrachalam" cattle, i.e., cattle brought down from Bhadrachalam and the Nizams's Dominions. The young Nellore bulls, which are bred locally, are sold as yearlings to Nellore dealers, who take them through into Cuddapah for sale to the garden land and black soil ryots of the Ceded districts. The bulk of the breeding stock are kept by big breeders many of whom keep from 100 to 500 breeding cows. Most of these breeders have their own private "Kanchas" or pastures on the deltas, but these are limited in area and, besides these, they either have their own pastures in other parts of the district, chiefly in Rapur taluk, or else they rent out private "Beilus" (pastures) in the inland taluks where their cattle can be sent for grazing. Thus, as one pasturage is exhausted, the cattle are moved to another and this continues until the paddy harvest, when the animals are brought back to the delta where they get grazing on the harvested fields and are handfed with a paddy straw. Dealers go round annually to these villages and buy up their yearling bulls.

Breeding bulls are here dedicated in the same way and for the same reason as in Ongole. Here there are rich ryots, however, who have large herds to select their bulls from, and there is not the same danger, that there is in Guntūr, of inferior animals being dedicated. Here again the private pasture is the mainstay of cattle breeding and, so much are these appreciated that, large prices are paid for grazing land. One pasture, which was seen on the Pennar delta, was recently bought by a rich Reddi for Rs. 125 per acre. This was a poor sand driven pasture near the sea coast with a very indifferent herbage. No care seems to be taken here to separate stock while grazing. All are grazed together and, since it is the inferior young male stock which are mainly retained, there must be a considerable amount of promiscuous breeding, which is very detrimental to the herd. Every encouragement should be given to the cattle breeding of this tract, since it supplies a large part of the Ceded Districts with their heavy bullocks for black cotton soil cultivation.

The Alambadi breeding tracts.—The breeding area proper is comprised of the deciduous forests of east and south Kollegal and north Bhavani taluks of the Coimbatore district, and south Hosur, and west and south-west Dharmapuri taluks of Salem district, as well as the adjoining territory of Mysore. The cattle which are found here are all of the same type, viz., "Malai Madu" or hill cattle, though certain variations are recognized, which are largely due to environment and different conditions of breeding and rearing. Formerly the cattle of these hills wandered throughout the tract, at the will of the graziers, wherever most suitable pasture was to be found, and there was frequent interchange of breeding bulls. Even now, Kollegal breeders frequently introduce fresh blood into the herds by the purchase of breeding bulls, either from "Pennagaram" herds or from Malluvalli in Mysore. The cattle of the Barghur hills in north Bhavani are recognized as a separate breed. They are smaller, lighter and quicker than the main breed and are often of broken and mixed colours. The difference is, probably, due to the

fact that not the same care is taken in breeding here. Male stock are often not sold till full grown, and are allowed to run with the herd, with the result that there is much promiscuous breeding. The cattle of north Salyamangalam are again a degraded type of these hill cattle, due to mixed grazing and scarcity of pasture in the low lying forests adjoining the villages. The cattle north of Denkanikota in the Hosur taluk are also known as an allied breed. These are hardly forest cattle now, but are bred by ryots in the villages who often own their own private grazing grounds. These are described as "Masti"* and "Nundi" dana* and are very similar to the domesticated cattle of the neighbouring Mysore territory. The cattle of the main breeding tract are, however, very similar; those of Pennagaram side are said to be of bigger frame, but no other difference is recognized. These are known commonly by the name of "Alambadis," "Salems" "Mahadeswarabetta," "Cauvery valley" cattle; though, in different districts of the south, the bullocks are known by different local names, very often being called by the name of the fair at which the animals are bought.

In the regular breeding tract, all male calves are sold when young, i.e., under one year old, and these are taken by dealers to recognized rearing tracts, chiefly in North Salem, West Chittoor and the adjoining Mysore territory. Ryots of North Coimbatore also visit the Gettisamudram fair in Bhavani, as well as the breeding villages in the hills, and buy large numbers of calves for rearing. West Coast dealers visit the fairs of Dharmapuri and take away calves to the West Coast for rearing. Thus, in the breeding tracts, male stock are seldom seen; most of the agricultural and draught work is done with cows. The only cattle seen in the forests are cows with their young, young female stock, and breeding bulls. It is usually stated that one bull is required for every fifty cows but nowhere were bulls kept in this proportion, nor are they necessary, since these cows seldom calve more frequently than once in three years. The breeding herds live in the forests for the greater part of the year, where they are kept in pens at night time. They are brought back to the villages at harvest time, when the harvested fields provide pasture for some time, and the cattle supply the necessary manure for the succeeding ragi crop. After this source of grazing is exhausted, the cattle again return to the forests. Except for this, cows are only brought into the villages, when they are too weak or emaciated to keep with the herd, or immediately after calving, until the calf is old enough to follow the herd. Occasionally, when the village is located near the forest pasturage, animals return to the village every night. The breeders of these cattle, except on the Hosur plateau, cannot be considered as ryots. They certainly grow crops for their own requirements, but, by profession, they are breeders of cattle, depending on the sale of their calves for their livelihood; and within recent years owing, it is stated, to the stringency of forest regulations their lot has been anything but a prosperous one, as the following figures, taken from

* Notes on Mysore cattle by A. Krishnaswami Ayyangar.

the cattle census records for the principal cattle breeding villages of East Kollegal, will show:—

Name of village.	Number of cows.	
	Fasli 1814.	Fasli 1819.
Mahadeswararamalai (Suluradi)	4,809	2,721
Dantalli	709	635
Ponnachi	2,678	1,185
Baimapuram	565	365
Salyamangalam (Kaggalam)	1,090	449
Kurati-Chur	1,432	826
Podunagarum	732	775
Badranalli	1,491	726
Total	13,793	8,164

i.e., a decrease in five years of over 40 per cent. The breeding villages of the Hosur taluk have, however, shown more than a corresponding increase. The total number of cows, for sixteen of the principal breeding villages, has risen from 7,809 in fasli 1814 to 18,875 in fasli 1819.

These are the principal breeding tracts of this Presidency but there are other minor breeding tracts which supply cattle of a sort. The Bhadrachalam taluk and adjoining territory of Hyderabad and the Central Provinces supplies are inferior grade of working bullock, which are imported to the Northern deltas and the Pennar delta of Nellore. Those which go to Nellore seem to be the pick of these, and this district also consumes the greatest quantity. The Godavari and Kistna deltas of recent years have depended, rather on Vizagapatam, for its cattle, as these are more reliable and are properly broken in to work when purchased.

In Markapur taluk of the Kurnool district, a considerable amount of cattle breeding is still carried on. There are principally forest bred animals and formerly known as "Dupad" cattle. Cattle breeding here varies very considerably. In some places cattle are depended on for the manure supply and, in consequence, breeding has greatly degenerated; so much so, that mhot bullocks have to be bought from outside. In other places ryots depend much more on their cattle for their livelihood; in addition to forest grazing, the breeding herds and young stock are fed with straw. Bulls are not sold till from 3-5 years old, when they are sold at good prices to adjoining villages for mhot work. Here also the ryots select their breeding bulls from their own stock, whereas, in many villages, bulls are bought for breeding purposes from Nellore dealers coming westward. In other villages again, bull calves are sold as yearlings to Nellore dealers. Cows are never used for work in this tract, and have in consequence no sale value. Bulls are never castrated until they are aged, in fact castration is considered a sign of old age, and greatly reduces the value of the animal. This is presumably a mixed breed, probably a mixture of the Ongole and some hill breed which has now, become a fixed type, or, it may be that, a new breed has been formed since the famous of 1868 (when it was reported that the breed practically died out), by the importation of Guntur cattle as bulls for the remains of the breeding herds. The cattle have the pendulous ears, the white or piebald skin, the well

developed dewlap and the pendulous sheath, in the case of bulls, or the loose flap of skin, in the case of cows, of the Ongole breed. The hind legs are also longer than the front, giving the back an upward slope to the hind quarters, as in the Ongole. In other respects they differ considerably. In the case of the bulls, the head is more like that of the Alambadi, with the same shaped horns only shorter. The body is round and compact, like that of the southern cattle of the Cumbum valley and the chest is broad. The legs are good and the feet are very large and are said to be very hard. In colour they vary considerably. From white to "maile" (grey), either brown or black "maile" and from "maile" to black or dark brown. Often also they are broken red and white in colour. The bulls are quick moving and spirited and are an all round useful breed for draught purposes. The cows of this breed though smaller, bear a strong resemblance to those of the Kangayam breed, except for their more pendulous ears and the loose flap of skin at the navel. These are mostly white in colour with the same peculiar brown "maile" markings on the forelegs as is seen in the Kangayam breed.

The Yerramalai hills of Kurnool district, also breed cattle in considerable numbers, which are used locally for the cultivation of lighter soils. A few animals of this type were seen at the Ranipet shandi being brought down by Adoni dealers. A detailed description of the Kurnool cattle breeding is to be found in "An account of the Kurnool district". In the Cuddapah and Anantapur districts there are several small centres of jungle breeding, of small sized cattle. These animals are, however, of little use agriculturally and are usually sold for fast trotting work for single bullock carts. One of these local breeds in the Kadiri taluk is said to be noted for its fast trotting bullocks and also for the fact that the male stock are castrated (not muled), when under six months old.

In the Punganur zamindari in the Chittoor district, cattle-breeding and rearing is the most important industry of the rural classes. This zamindari used formerly to be noted for its milch cows, a very small breed of excellent milking cattle, and one still sees cows, of a sort, being taken to the Ranipet weekly market for sale from here. The original breed has however practically disappeared. Ryots have found the sale of grown bullocks more profitable and have imported good bulls from Mysore to increase the size of their calves and, thus, most of the Punganur cattle are now cross bred Mysore, which form a useful source of supply for the shallow wot lifts of Chittoor and North Arcot districts.

In Coimbatore district, in the south and south-east taluks, and in south-west Salem there is a considerable amount of petty breeding of useful medium-sized animals of the Kongu type, known as "Kongu madu" or "Nattu madu."

The only other breed of any importance are the Cumbum valley cattle, but a severe outbreak of rinderpest some four years ago has greatly reduced these in numbers, and now they barely supply local requirements. As before mentioned, when discussing the question of grazing, the large herds are mainly owned by non-cultivating land-

* "An account of the Kurnool district."—O. Benson, Government Press, Madras, 1880.

lords, who have to depend entirely on the forests of grazing; this is supplemented in the hot weather by grazing in the reserved forests of the Travancore plateau, which receives hot weather showers much earlier than in the valley. The cultivating tenants, who own most of the straw, rear very much better cattle, and often make the rearing of promising bull calves a supplementary source of income; and there is little doubt that this valley could be made a valuable source of supply, if there was a more equal division of property. Now the cattle are owned by the non-cultivating class, and the fodder by the cultivating tenant with result that the breeding cattle have to depend on forest grazing. Since cultivation here has now extended to its utmost limits, any extension in the future, must lie in the direction of intensive cultivation under wells, which, if ryots are made dependent on their own resources for manure supply and fodder, should lead to a development of mixed farming, and greater care would then be paid to feeding and breeding live stock. The cattle of this valley have many points in common, but are evidently of very mixed origin. Formerly, before cultivation had extended to its present extent, this and neighbouring valleys were noted as grazing grounds, and cattle used to be sent here for grazing, from the east. The Pulikulam cattle, a quick trotting breed, said to have been evolved for the benefit of the Ramnad district zamindars for quick transit into Madura, are said by some to have been absorbed here, when they were no longer required after the opening of the railway. Certainly they have disappeared from Pulikulam and other villages of the Ramnad district where formerly they were bred. A Canarese colony of the Kappilean caste, who in the past settled in the Cumbum valley, brought with them from the north a sacred herd of cattle which still exist. These people keep their own breeding bull, besides which, the people of the valley dedicate to the herd any bull calves born on a certain day of the year; and these often graze with the village cattle. The practice of rearing and feeding bull-calves specially selected for their spirit as "jillicat" bulls is very common here and this is, probably, what has given to the cattle a more or less fixed type. Such bulls fetch fancy prices, often 3 to 4 times their market value as draught bulls. Rupees 200—300 is a common price for such animals while one was shown which, it was stated, had recently changed hands for Rs. 600. In the herds one often sees very fine cows resembling those of the Kangayam breed. Breeders state that these are the progeny of ordinary cows, and that occasionally their cows throw these big animals. This again points to the mixed origin of the breed. The colour also of the animals is very variable, "maile" is the common colour but red, yellow, dun and spotted animals are also common. The description, given by Colonel Gunn of the Pulikulam or Jellikat* breed applies to the Cumbum valley cattle.

VIII.—REARING TRACTS.

These probably are as important as breeding tracts. In fact, they may be regarded as stepping stones to cattle breeding and there is

* "Cattle of Southern India."—Government Press, Madras, 1909.

no reason why, if the necessity arises, they should not be converted into breeding as well as rearing tracts; and in many parts of the country this necessity is already arising. Public grazing is becoming more and more restricted and at the same time cultivation is becoming more and more intensive, and thus the ryot is becoming more and more dependent on his own resources for his manure supply, which, except on heavy soils in districts of very light rainfall, is to a great extent the limiting factor of production. Not only this, but the great rise in the price of cattle within the last few years has often forced the garden cultivator to buy young animals and rear them for his own use, while it has also greatly developed the occupation of the professional cattle rearer. When, in addition to this, the manure supply has to be considered, it is evident that the garden cultivator has to keep more live-stock than he actually requires for working his own lands, and it is a small step for him to keep his own small breeding herd of one or two cows and breed and rear his own calves; and this, again, may further develop when he realizes the profits to be made from mixed farming. Nothing is so striking as the difference in market value of young stock, between ill-fed and well-fed, ill-bred and well-bred animals. This is strikingly seen in the Coimbatore markets, especially at the Puliampatti market, which is the meeting place between the forest grazed cattle of Satyamangalam and the cattle raised in intensively farmed land of Palladam and Coimbatore. Young bulls of the same age vary in price from Rs. 8 to Rs. 80.

In almost all parts of the Presidency there are very considerable movements of young stock from the breeding tracts to the rearing tracts. These young stock may be reared for sale, as in the Vizagapatam district, or they may be reared for the ryots' own use, as in the Ceded Districts.

In the Northern Circars, the littoral of the Vizagapatam district, including the Chicacole taluk of the Ganjam district, is the great cattle rearing tract and it seems that, within recent years, a certain amount of regular breeding has also been carried on. Yearling male stock are brought up by dealers from the Godāvāri, Kistna and Guntūr districts and are sold, either in the villages, or in the markets, throughout the littoral of Vizagapatam. Rearing is done by all classes of petty ryots and these young stock are evidently regarded as a reserve against times of scarcity. Moreover, they are used for agricultural work for dry cultivation on light soils, and thus, after the first year the ryot's working bullocks cost him little or nothing, since, as they grow, they are all the time increasing in value. The cattle when grown are thoroughly broken in and find a ready sale among the more wealthy ryots of the deltas. The Vizagapatam ryot is noted for the care, which he takes in feeding his young stock, and there seems to be no reason why, in time, he should not become a breeder as well as a rearer. In a few proprietary villages the proprietors have already dedicated good Brahmani bulls of the Ongole type and some excellent stock were seen in the markets which were said to be the progeny of these out of the better class local cows. Every year the Vizagapatam ryot is becoming better prepared for breeding. Wells are being sunk on all sides, and manure is being required in larger quantity for his

garden cultivation, while at the same time he is becoming less dependent on the rainfall for his supply of food and fodder. Besides the rearing of this type of heavy draught cattle, very large numbers of the ordinary cattle of the Vizagapatam district, are sold annually to the Godāvāri delta, and the Godāvāri ryot now prefers these, although they cost more, to the semi-wild cattle brought down from Bhadrāchalam. It is very probable, therefore, that this trade will continue to expand, and that more attention will be paid to the breeding of these. The owners of proprietary villages might be encouraged to select and set aside suitable animals of the local breed, from their own herds, as breeding bulls for their villages.

The whole of the black cotton soil area of the Ceded Districts may be regarded as a rearing tract. Young bulls up to two years' old are regularly imported every year by Nellore dealers and these are bought and reared by the black soil ryots for their own use. It is never likely, however, that cattle-breeding will ever develop here. Well irrigation is impossible on deep black cotton soils and there is not, therefore, that heavy demand for strong draught cattle which accompanies well irrigation. Moreover the black soils are the most valuable for dry cultivation being much more certain than lighter soils in these districts of short rainfall and are much more profitable as arable land than they would be as pasture. The manure supply, for dry cultivation on black cotton soils, is not so important in these dry districts; as heavy manuring tends to check the deep root system, which is necessary to enable the crop to carry through long periods of drought. The she-buffalo also is considered as essential for the household supply of buttermilk and curds, as well as of ghee, the sale of which provides a considerable share of the income of the black soil ryot; the she-buffalo takes more kindly to the very domestic existence which she has to live, than would the breeding cow. Cattle-breeding here would also entail the importation of breeding cows, since the demand is for very heavy cattle, which could not be produced from the local animal, and there would, even if these were available, be an additional risk in keeping such valuable animals in a tract entirely dependent on an uncertain rainfall. The Nellore dealer now adequately supplies the demand. The ryot buys on the instalment purchase system, paying in three instalments, and, though high prices are paid, the ryot does not feel this since he has three years in which to pay for his animals, at the end of which time, they are probably worth more than double their original price.

In the west of Bellary district, Mysore bull calves are brought in large numbers and are reared by ryots of this tract. This profession is said to be steadily on the increase, since the rapid rise in price of recent years.

Pungunur and North Salem, with the adjacent Mysore territory, form a large cattle rearing tract. Young stock are purchased, either from the Mysore State, or from the dealers in young stock, who buy in the fairs to which the Alambadi forest-bred calves are brought. This area supplies the mbot and cart bullocks of Chittoor, North Arcot, South Arcot, South Chingleput, as well as a considerable number of those used further south. In some parts, especially in the Mysore State, this rearing is overdone. The cattle are forced with

as the southern taluks of Chingleput. Coimbatore and Salem, the two main ghi-producing districts of the south, supply the bulk of the male buffaloes to South Malabar, where they are in great demand for wet cultivation. Coimbatore district is, practically, depleted of all its male buffaloes, there only being 9,292 in the whole district against 95,036 she-buffaloes, or in the ratio of less than 1:10. The moist climate of the West Coast suits this class of stock, and it would be difficult to recognize young animals, which have been here for a year or two, as the same stock as those which come over from Pollachi. South Kanara, which also largely uses buffaloes for its wet cultivation, depends chiefly on Mysore for its supply. These are brought down in very large numbers to the annual fair at Subrahmanya.

In South Kanara one sees very fine bull buffaloes which are kept by rich Bunt families for racing. They are not, however, used for any other purpose and are not allowed to serve cows. Most, if not all of these, are imported from outside the Presidency and often very fancy prices are paid for them.

The buffalo of Ganjam and Vizagapatam is the only really useful general purpose breed in the Presidency. The local breed are usually light-coloured animals with grey hair and reddish skin and light yellow tufts of hair on the knees and fetlocks. They are said to be harder and to last longer than what are known as the "Kimidi" buffaloes, which are equally powerful looking animals, and much more striking in appearance, with their black skin and hair, their prominent wide forehead and thick short curled horns; these latter are imported into the Presidency from Sambalpur. The local animal has thick, long horns, nearly straight with a slight upward curve, and good specimens when full grown will often measure nearly three feet across the hooks, with corresponding depth and breadth of chest. Large numbers of young animals are brought for sale to the markets of Chintada, Ungarada and Sundarapuram, which are bought by ryots for rearing. Very fine full-grown animals are also brought to the same markets for sale to dealers who take them south. Such animals will often fetch from Rs. 150—200 a pair, while even higher prices are paid for exceptionally good pairs. These latter are mainly bought by local rich ryots, who pride themselves on their buffaloes, in the same way as the black-soil ryot of Kurnool prides himself on his bullocks. Here, again, the heavier rainfall of these districts suits buffaloes. It is difficult to understand how such a fine breed is maintained. On enquiry, it was stated that breeding bulls are never kept and the service of cows is dependent on young bulls, which have not been muled, or on older animals which have not been properly muled. This seems to point to the fact that the breed could be greatly improved if care was taken in breeding; and that, throughout the Presidency, much more use could be made of the male buffalo if he were properly reared and fed.

X.—MILCH CATTLE.

There are no really good milking breeds of cattle in the Madras Presidency, for the simple reason that in the country districts, among the agricultural population, milk, as such, is seldom used as an article

of diet. It is among the upper and middle classes and chiefly in towns that there is a demand for milk, and such people, although they own cows often feed them very well, have little interest in the calves of these. They require the milk for their own use, and the calf is simply kept to be with the cow to start the flow of milk, and its only sustenance are the strippings after the cow has been milked. Thus the bulk of the young stock born to milch cattle either die young, or are weakly and stunted, and fresh and heavy demands are continually being made on the country to supply this wastage. No effort is ever made to raise up a milking breed. Of recent years this demand has been greatly on the increase as the standard of living has risen. This is chiefly due to the habit of drinking coffee and tea, which has developed very rapidly, especially on the West Coast and in the wet land tracts of the south. The tea shop on the West Coast can be seen on any roadside. The Collector of Malabar reports that "one of the features of the last ten years is the growth of the tea-drinking habit and tea shops. Tea shops are to be found everywhere and in consequence of it demand for milk is now very great." In the Tanjore delta there is hardly a village where coffee cannot be obtained. Even among the cool class of the Tanjore delta a certain number now have to have their coffee every morning, especially returned emigrants from the Straits. The coffee clubs of the larger towns of the southern districts are well known, where the men can have their morning cup of coffee without incurring extra expenditure in the household.

There is probably more wastage of good cattle from this constantly increasing strain on the pick of the village cows, which are absorbed by the towns than from any other source, and, already, two breeds of cattle have practically disappeared, viz., the Tiruchengodu cows of the Salem district and the Punganur cows of the Chittoor district; though, as before mentioned, the loss of this latter breed is due partly to crossing with Mysore bulls. The Ongole is possibly the best milking breed, which now exists, though the milk yields even from these are nothing remarkable. The export of cows from this breeding tract is assuming large proportions. Over 1,300 cows are annually exported by rail from the Ongole taluk alone, most of which come down to Madras; but there is hardly a town in the Presidency, except possibly on the West Coast, where Ongole cows are not to be seen. These animals are usually kept in wretched condition. They are big animals and take a lot of feeding, and they feel the change from the forced feeding of the breeding tract to the communal grazing grounds, on which they can find little or nothing to eat, and on to which they are turned out after their morning feed.

The only place where any real effort is made to meet this demand for milch cows is in the extreme south. The Shanar women around Virudupatti, Sattur and Aruppukkottai, who have to meet their household expenses by pounding dholl or redgram, have made the rearing of cows a special industry. They rear heifer calves which are bought up by them all through the south as far north as Dindigul. These are fed on grass, fodder, cholam and, as concentrated food, are given the husks of the redgram. These people often will not part with very good cows as they wish to keep the strain though apparently no effort is

made to have them served by a bull of good milking strain. The cows reared by these Shanars supply the whole of the Tinnevely-Palamcottah demand, as well as a considerable proportion of that of Tuticorin, Travancore and Madura. Some 300 animals are taken south by dealers every month from here.

Trichinopoly and Coimbatore are dependent on supplies from villages in their respective neighbourhoods. In Salem, some very few cows are still to be seen and are probably the descendants of the old Tiruchengodu breed. On the West Coast, where the demand for milk is always greater than the supply, there is a small effort to meet this. A considerable number of heifer calves are annually imported for rearing and some very fair cows are to be found in the Palghat taluk.

When milk is used at all by the ordinary agricultural classes, it is usually in the form of curds and buttermilk and, for the production of this and ghi, she buffaloes are usually kept. Such milking buffaloes are very ordinary animals and seldom give more than three to four seers of milk a day. Those of Guntur, Kurnool, Cuddapah, Coimbatore and South-East Salem have the reputation of being of better quality, but it is seldom that any of these animals give a higher yield than this. In the black-soil tracts of the Ceded districts, every household keeps buffaloes, and curds and buttermilk enter largely into the diet of these people who live on dry grains, while the ghi is a considerable source of income. An excellent description of the housing and care of these animals is to be found in "An account of the Kurnool district.*" In parts of Coimbatore district stud-buffalo bulls are occasionally kept.

Considerable numbers of she buffaloes are annually exported from Cuddapah, Guntur, Salem and Coimbatore. Those from the former two districts chiefly go to Madras. A certain number also come from Salem, but this district supplies more to Trichinopoly and Tanjore towns. The Coimbatore supply go to the West Coast.

XI.—SHEEP AND GOATS.

General.—This class of stock is kept for several purposes which are named below in the probable order of their relative importance:—

- (1) For their manure.
- (2) For butchering.
- (3) For their skins.
- (4) For their milk and its products of ghi and curds.
- (5) For their wool.

The last two are only local. In many places sheep and goats are not milked, and wool is only of importance in places where wool-bearing or "kurumba" sheep are kept.

Sheep and goat manure.—This is one of the most important as well as one of the cheapest methods in vogue of manuring the land. Manuring is usually done by penning the flocks on the land when these are fallow, but, in the cultivation season when this method cannot be adopted, the flocks are collected for the night and, usually, the

* An account of the Kurnool district by C. Benson, Government Press, Madras, 1889.

droppings are carefully swept up each morning and kept for manuring the land. Where flocks are owned by shepherds these are usually hired out to ryots, but the charges paid to the shepherd do not in any way show the value of the manure. This, if measured by the increased crop production, would be considerably more than the price paid to shepherds, especially when applied to garden lands, where, with the aid of water, the fullest use can be made of the manure by the succeeding crop. Different systems are in vogue in different parts of the Presidency for remunerating shepherds and very varying rates are paid to them. In the south the shepherds are paid so much per 1,000 per night. In Coimbatore so much per 100 per month. In Tinnevely the rate is now Rs. 4 per 1,000 per night, exclusive of watching the flocks, which has to be done by the ryots themselves. This they do in their own interests, as they disturb the flocks two to three times in the night, to increase the quantity of manure. The rate has risen within the last 2—3 years from Rs. 3 to Rs. 4, but this rise is not in proportion to the rise in the price of food-grains.

For butchering.—All the male crop of lambs when grown, except the few which are required as rams, are as a rule sold to the butcher. Prices vary considerably according to the distance from the market, though about Rs. 3 may be taken as the present price for sheep and Rs. 4 for goats (sheep will vary from Rs. 2-8-0 to Rs. 5 and goats from Rs. 3-8-0 to Rs. 7). These prices are for the ordinary run of stock which have only been fed by grazing. Much of this is used in the country districts for meat and some idea can be had of the consumption in districts where these skins are disposed of in shandies. At Pollachi market, for instance, about 3,000 green skins are brought there weekly and a similar number are to be seen at Dindigul. In almost every market visited, where cattle are sold, there the skin trade is going on in similar proportions to the importance of the cattle side of the shandi. In those districts which supply the big town markets with meat and where a better quality of mutton is in demand, very much higher prices are paid and very much finer animals are brought for sale. In the southern districts of Trichinopoly, Madura and Tinnevely, which cater largely for the Colombo meat market, much trouble is taken to prepare the animals for sale, and for good fat wethers (whether sheep or goats) high prices are paid—from Rs. 9 to Rs. 14 per head. Many of these animals will weigh over 80 lb. live weight. These animals are hand fed with cereal fodder and pulse straw and husks. This seems to be a regular source of livelihood with the petty ryot.

In the Manapparai market in the Trichinopoly district several fat sheep of the northern breed of Nellore and Guntur were brought for sale. These were stated to have been bought at the same market on a previous occasion especially for fattening. The Hindupur market also sends large supplies, chiefly goats, to Tuticorin for the Colombo market. These are very fine animals, mostly wethers, and sell for from Rs. 18 to Rs. 23 per head at Hindupur, and were said to kill at 80 lb. dead weight when dressed. This market also supplies Bangalore, as well as to some extent Madras. For the Nilgiris meat supply, very fine wool-bearing sheep are brought down from Mysore to the Pulliampatti shandi in the Coimbatore district. In the

southern districts especially, even ewes are now being brought in the markets for sale to butchers.

Wool.—This is only of importance where the "Kurumba" sheep, which bear wool, are found; and these are practically confined to those parts, where the climate is dry and there is some pretence of a cold weather. In the southern districts, wool-bearing sheep are to be found in the cooler parts of Coimbatore and Salem districts, and they are also found in the hilly tracts of Madras. In the north they are found throughout the Ceded districts. In all such places the wool is used locally for spinning and weaving into cumbles. The price of cumbles is now more than double what it was five years ago. Sheep are usually clipped twice a year and if the wool is sold, it is usually sold as a standing crop, the buyer paying so much for the wool per 100 sheep which he has to clip himself. The hairy sheep is usually a bigger animal, and the flesh is considered of better quality, hence these usually fetch a higher price, especially in the southern districts.

Milk, curds and ghi.—Muhammadans are the only people who keep really good milking goats. Those of Madras and North Arcot are specially noted. The Mappillas also of the West Coast have their own breed of milking goats, which are said to have been imported from Arabia more than 200 years ago during the time of Muhammad Din Hamid Bin Abdulla Bin Ali. The breed has been kept up by rich Mappillas setting aside he-goats for breeding. These he-goats are known locally as "nercha-ada," to which the she-goats are brought for service. These animals are slaughtered on certain festival days, after having been kept for two or three years, and fresh young animals are then set aside. The Mappillas milk goats are said to give from two to six bottles of milk a day and their price varies from Rs. 10 to Rs. 40 per head. They are very carefully attended to and well-fed. In the Tanjore delta it is a common thing to see goats kept singly or in twos and threes, by villagers. These, in the cultivation season, usually, have a triangle made of bamboo fastened round their necks, the ends of which project and prevent the animals from trespassing. These are kept for meat and also for their milk, where the demand exists, but are not considered a milking breed. In many other districts, principally in the Northern Circars and the Ceded districts, both sheep and goats are milked by the shepherds for their own consumption, as well as for the sale of the ghi. Ghi merchants, however, say that this is not usually mixed with the rural ghi supply, as when kept it can always be detected by its smell, and that it is mainly for local and immediate consumption.

The supply of sheep and goats.—The proportionate numbers of sheep and goats in any one district depends entirely on grazing and browsing facilities. Goats are largely dependent on the foliage of trees and shrubs for their existence. Sheep, on the other hand, exist on grass and herbage and can therefore feed where there are no trees. Thus wherever it has been found necessary, in the interests of the forests, to exclude goats, the numbers have rapidly decreased and in most places a corresponding increase in the number of sheep maintained has taken place. So also is it the case that, where there are no forests and no facilities for goat browsing, sheep have

taken their place. The Dhārāpuram taluk is a striking example of this. Here, with its shallow soil and the great dependence which has to be placed on well cultivation, sheep or goats are an essential for manuring the garden lands. In this taluk there are only 3,424 acres of reserved forest, and there are no public grazing grounds, yet large numbers of sheep are kept, which are fed on the private fields of ryots, while very few goats are to be seen. Where the reserved forests are still open to goats, their numbers have rapidly increased. So much so that the Collectors of Guntūr and Kistna report that they have become, not only a serious menace to the reserved forests, into which they are allowed, but also to the ordinary grazing grounds of the district. The goat is hardier than the sheep, and breeds more rapidly and, where browsing is plentiful, requires less attention. The sheep, on the other hand, can live on pasturage and is therefore less dependent on outside grazing and, for a greater part of the year, can find grazing on harvested and fallow fields.

XII.—IMPORTS AND EXPORTS OF LIVE-STOCK INTO AND OUT OF THE PRESIDENCY.

The "Kimidi" male buffaloes seen in the Ganjam, Vizagapatam and, occasionally, in the Godāvari districts are all imported from Sambalpur in the Bengal Presidency.

The Nellore dealers, who trade with the Ceded districts, have one branch of their trade in small full-grown animals, collected in Hyderabad and the Central Provinces around Bhadrachalam. These are taken through the north of the Ceded districts and are sold all along the line of route, which finishes up at Dharwar in the Bombay Presidency.

Around Kurnool some very fine buffaloes are to be seen which are imported from Hyderabad. A few bullocks are imported into Bellary district from the Bombay Presidency. These are brought to the cattle fair at Kuruvetti in the Harpanashali taluk. This village is on the banks of the Tungabhadra river, which separates Madras from Bombay, and lies in the centre of a cattle-rearing tract; the animals are chiefly Mysore cattle, which have been bought and reared for sale at this fair. Presumably there must be a corresponding export from this fair to the Bombay Presidency.

The Mysore State exports cattle in all directions into the Madras and Bombay Presidencies. The western taluks supply South Kanara with its buffaloes, Chitaldroog supplies Bellary, both with young stock for rearing, as well as with full grown bulls. The former are coming more into favour since ryots can pay more individual attention to the animals than can the breeders, and consequently these bullocks, when reared in Bellary, are of bigger size than those imported, full grown, from Mysore. Anantapur is supplied from the fairs of North Mysore as well as from Bangalore and Kolar divisions. These divisions again supply Chittoor, North Arcot and South Arcot with their heavy draught animals, as well as the fairs of the south to which Mysore cattle are taken. West Coimbatore also to some extent receives its supply from here, but more often from the markets of South Mysore, the animals being more of the Amrhat Mahal type.

These latter come down through the Hasaour ghaut. Cheaper animals come in via Dharmapuri. The West Coast receives its supply of bandi bullocks through the various ghat roads leading down from Mysore and Coorg, though fair numbers are reared from the calves imported via Pollachi and Tudyalar. These Mysore animals are of much the same type as those seen in Coimbatore, but are not of as good quality, and, probably, come from further west in the Mysore State.

Small cattle are, to some extent, exported to the Cochin and Travancore States, the former through the markets of Palghat and the latter from the Tinnevely district. Both Negapatnam and Tuticorin export cattle, the former to the Malay States, mostly Mysore cattle, and the latter to Colombo, which are draught cattle of the Mysore type, as well as inferior animals for the beef trade. Large numbers of fat goats and fat sheep are also exported from this latter port, many of the former coming from as far north as Hyderabad. Madras also exports a considerable number of animals to Burma for meat.

XIII.—THE CATTLE TRADE.

In the north of the Presidency there are two well-defined areas of the cattle trade. The trade within the four northern coast districts, is all in the hands of petty dealers of several castes, including Kapus, Reddis, Kalingas, Rajus, and Gollahs. These seldom deal with more than 10 pairs of good cattle, or more than 100 calves, on their return trip. Most of them also work on borrowed capital. These men trade between the markets of Chicacole taluk to as far south as Palcole and Pentapad in the Kistna district. The trading season commences in December with the paddy harvest on the deltas. Then superior cattle either buffaloes, or bullocks are brought into the northern markets for sale by ryots. These are taken southwards through the markets of Vizianagram, Kottavalasa, Thummapala, Pittapuram, Ambajipetta, Undi, Palcole and Pentapad, animals being sold, bought and exchanged wherever there is a chance of making a profit. Young calves from Guntūr, Kistna and the Gōdāvāri districts are taken back on the return journey, and are sold to ryots of the Vizagapatam district either in the markets, or by private sale. This trade in superior cattle lasts for two months and then declines and, in place of superior cattle, inferior animals, such as will be useful for wet cultivation, are brought down. This trade gradually increases until June, when the demand for plough cattle declines after the cultivation season on the deltas has actually commenced. All the time young calves are continually being imported in increasing numbers until the hot weather rains commence and grazing is available. Thus there is a continuous trade for about seven months of the year.

The shandies or markets of Sundarapuram, Chintada in Chicacole taluk and Ungarada in Palkonda taluk are principally buffalo shandies. Except for the Sambalpure or "Kimidi" buffaloes the supply is mainly local. The "Kimidi" buffaloes are all full-grown male animals and are chiefly brought to the Sundarapuram market, but also, to a lesser extent, to the Chintada market. The local

animals, which are brought, are of all ages; young stock, brought for sale to those who rear cattle; full-grown buffalo bullocks for the southern markets and also aged animals, either for sale to local ryots, or for sale to the butchers and the skin merchants. Vizianagram is, as far as buffaloes are concerned, much more of a dealers' market, but large numbers of very fine bullocks are brought in by ryots. The buyers are either dealers trading southwards or delta ryots from Gōdāvāri and Kistna who have come up to buy. This latter practice seems to be on the increase, partly because there is a better selection of bullocks to choose from, and partly because the prices are much lower than at Pithapuram and the southern markets. Considerable numbers of half-grown animals of good quality were to be seen in the Vizagapatam markets which were presumably brought in by poorer ryots, who were hard-pressed for money, since none of this class of stock leave the district until thoroughly broken in and trained. The markets south of Vizianagram to Pithapuram are very similar to that held at Vizianagram, though, except the last, all are on a smaller scale. Pittapuram, being on the edge of the delta, is a very big market and for wet land cattle is probably the biggest in these northern districts. The markets in South Gōdāvāri and North Kistna consist of the remnants which are left over from the northern markets as well as what might be termed second-hand bullocks, i.e., middle aged animals brought in by local ryots for sale or exchange. A few of the Laubadi cattle from the Gōdāvāri Agency are sometimes brought for sale to some of these markets, as well as cattle from the Kistna dry taluks.

Except for the buffalo trade and a certain amount of trade, carried on by petty dealers with cattle from the Yerramalais in the Kurmool district, the whole of the cattle trade of Nellore, Guntūr and the Ceded districts is in the hands of the cattle dealers of the Nellore district. The Nellore cattle dealers, who are all Reddis, have several branches of their trade with several different kinds of stock, but the system of trading is the same throughout. Cattle are all sold on a three instalment system and payments are not complete until the third year, the ryot giving a promissory note for the amount of the purchase price. It is impossible to form any estimate of the amount of money put into the business, but there is no doubt that it is very large, running into several lakhs of rupees. A large amount of private capital is put into this, while the rest is borrowed from the banks. The cattle dealer is really the man who provides the capital, which he supplies at interest to the 'sirdar' or the headman of a drove of cattle, besides taking a share in the profits. Under the 'sirdar,' drovers are employed in sufficient numbers to look after the herd. The sirdar and the men under him are all paid each a fixed sum for the trip, in addition to their meals, besides which the sirdar always has, and the men, according to their experience, may have a share in the profits. These men with their advance go to the exporting tract and travel from village to village purchasing their herd, which, when purchased, are taken to the importing tract. Here the cattle are hawked from village to village halting at well-known centres where they are sold. A trip to the Ceded districts is usually reckoned as six months. Separate men are sent round to these villages to collect money due, and it is seldom that the whole purchase price is not paid within the allotted time. If this is exceeded, then interest is charged.

The accounts for the trip are only settled at the end of three years when the profits are shared. The several branches of the trade are as follows:—

(1) The Bhadrāchalam trade, i.e., the importation of wet land cattle to the Pennar delta from the Bhadrāchalam taluk. These are forest bred cattle, reared by the Sugalias and are untrained when brought down. (2) The East Coast export trade, i.e., the purchase of yearling bull calves in Nellore, Guntūr and Kistna districts which are taken to the Ceded districts for sale to the black soil ryots. The cattle of South Nellore go through the Kurnool pass into Cuddapah, while those of North Nellore, Guntūr and Kistna go through into Kurnool and travel the northern part of the Ceded districts as far west as Adōni. (3) "The Bangalore trade," i.e., the import of young, as well as full-grown, working bullocks into the Ceded districts chiefly into Anantapur and Bellary. (4) The importation, from the Central Provinces and Hyderabad, of small full-grown bulls into the north of the Ceded districts and beyond as far as Dharwar into the Bombay Presidency. These are unbroken forest bred cattle somewhat of the same type as those imported via Bhadrāchalam. Smaller dealers confine themselves only to one branch of the trade, but bigger dealers vary their operations according to the expected demand which varies with the seasons. The trade is very well organized and dealers from different places in Nellore district have different routes, as well as different areas, in which to collect and sell their animals. Thus men of South Nellore collect chiefly in South Nellore and take their animals through into Cuddapah; while dealers of Kavali buy north of there and take their animals through into Kurnool. The Ceded districts trade being almost entirely in the hands of Nellore dealers, cattle fairs and markets are practically non-existent, except on the borders of Mysore and Bombay. Besides this trade in male stock, there is a considerable trade in milch cattle, both cows and she-buffaloes. The trade from Guntūr and Nellore is entirely in the hands of some half dozen Nellore dealers. These men have their petty agents, who travel from village to village, selecting milch cattle for purchase, settling prices and giving small advances. When a sufficient number have been selected, the dealer inspects the same and, if suitable, pays the purchase price and takes the animals to Madras in herds of 50 to 75, consisting of both cows and she-buffaloes. If grazing is plentiful the animals are taken by road, if not, they are sent by rail and are kept outside Madras for some days, until they have recovered from their journey and have become accustomed to the change of diet. Dealers come out from Madras to see the milking capacity of the animals and stop with the herd for two or three days, as they proceed slowly to Madras. They then bargain with the Nellore dealers for so much a head, giving a rupee advance on the whole herd. When the herd reaches Madras, a further advance is paid to the Nellore dealer and from that time the animals change hands and the Madras dealer commences to sell sometimes for cash, but usually for credit. The latter is a great burden on the retail milkman who has to repay the purchase price in fortnightly or monthly instalments and has to give a promissory note for from 25 to 100 per cent over the settled purchase price. At the same time he has to supply the dealer, along with his relations and friends,

with meals, etc., until the amount is paid. If he fails to pay, or fails to entertain, he is sued for the total amount of the promissory note. Thus the milkman is always in debt to the dealer and, when his cows run dry, he is forced, owing to lack of room, to sell to the butcher; and, in order to get fresh animals from the dealer, to repay the balance of his debt. One can understand from this what a temptation there is for the Madras milkman to adulterate his milk and dairy produce, and to neglect the calves. This trade supplies the major portion of the Madras City supply. The figures for the annual import by rail (kindly supplied by Madras and Southern Mahattra Railway Company) from stations in the Ongole taluk alone amount on an average (for the last three years) to 1,344 cows and 875 buffaloes, or a total of 2,219. That the trade is increasing is shown by the figures for the last six years for Surareddipalayam station, the only station where figures are available for this period. These are as follows:—

	1906.	1907.	1908.	1909.	1910.	1911.
Cows	44	57	108	211	86	247
Buffaloes	8	4	79	165	58	100

Besides this East Coast trade, there is a considerable trade in she-buffaloes from the Ceded districts to Madras, carried on by dealers from Arkonam and Conjeevaram. It is estimated that 500 she-buffaloes are annually exported from the Cuddapah taluk alone, while similarly extensive purchases are made in the Proddatur, Jammalamadugu and Pulivendla taluks as well as in the black-soil taluks of Kurnool.

It may be estimated that the imports of milch cattle into Madras are not less than 5,000 annually, the bulk of which are sold to butchers, when dry, while the calves mostly die of starvation. Thus the progeny of the best milking stock of the Presidency are lost to the country.

Besides this trade in she-buffaloes from the Ceded districts, there is a considerable trade in he-buffaloes, which are taken to wet villages in the Ceded districts and are also taken to Nellore and Chingleput districts for wet cultivation.

The cattle trade in the southern half of the Presidency is essentially different from that of the Ceded districts. Here cattle fairs and weekly cattle markets are common and, as a consequence, the trade is much more in the hands of petty dealers. The biggest traders in cattle are the Janappa Chetties of North Arcot and Salem and it is these men who bring down the best Mysore and Alambadi cattle from the rearing tracts of North Salem and Mysore. These men seldom work with a capital of more than Rs. 6,000—7,000, but, when they have established confidence with the ryots of the rearing villages, they often purchase their animals on credit, giving only small advances and paying the balance after having sold their animals when they have returned from their trip. Thus they are able to deal with a large number of cattle on a small capital. There are also

a few rich Vellala dealers at McDonoid's Choultry in Salem district who work with a much bigger capital and are able to get the very pick of the trade. Muhammadan dealers also trade largely in this class of stock, but work usually on a much smaller scale than the Janappa Chetties, and usually deal in an inferior class of stock. Muhammadan dealers are common throughout the southern districts. The Telugu Chetties of Pollachi and Palghat taluks and the Maduvandies of Coimbatore district are also important castes of cattle dealers. These men are to be found at all the weekly cattle markets south and west of Coimbatore. They have in their hands the bulk of the calf trade to the West Coast, as well as a good share of the imports of Mysore cattle into West Coimbatore, while they carry on any other cattle trade, which comes into their hands, e.g., considerable numbers of middle-aged Kangayam bullocks were seen at the Pollachi weekly market, which had been re-imported into the Coimbatore district from the Kazhugumalai fair in Tinnevely district. The black-soil ryot of the south often sells his animals when middle aged and buys fresh ones. These are said to make excellent mhot bullocks when again taken to the Coimbatore district.

The annual fairs of Tiruvannamalai, South Arcot, Trichinopoly, Madura and Tinnevely are mainly for full-grown cattle. Mysore and Salems are the chief attraction, though considerable numbers of local or aged cattle are also brought for sale or exchange. A considerable number of Kangayams also are taken to Kazhugumalai. The Janappa Chetties who deal in Mysore or Alambadi cattle usually make four to five trips in the season and, while away on one trip their relations and agents are collecting animals for the next. The trading season commences in December at the Tiruvannamalai fair in North Arcot, held at the time of the Karthikai festival, and unsold animals are taken from here to Samayavaram near Trichinopoly for the Ekadasi festival held in the end of December or early in January. The second trip commences at the Krithigai festival at Mailam in South Arcot at the end of January and cattle, unsold here, are taken to the Kazhugumalai fair in Tinnevely. The third trip commences at the fair held at Melaiyanur (South Arcot district) in February or early March and unsold animals are taken to the Masi Maham festival at Kumbakonam or the Masi Maham festival at Tiruchendur. The fourth trip commences at the Panguni Uttaram festivals either at Mailam (South Arcot) or Palni in Madura district and unsold animals from these two are taken to the Chitral festival at Madura, while the remnants of this and other trips drift down to the several fairs in Tinnevely, viz., Kazhugumalai Panguni Uttaram festival, Sivalaperi Chitral festival, and finally the Saikarnayinarkovil Audi Thapasu festival. The last trip commences and ends with the Adi Krithigai festival at Mailam in July. Besides attending these fairs, the Janappa Chetties also have to attend the annual fairs of North Salem and North West Coimbatore, viz., Mahadeswaramalai, Gattisamudram, Adamanakotta, Nattappatti, Mecheri and Nangavalli where they principally deal in forest bred calves, which they buy and take to the rearing tracts for sale.

The annual fairs of the Coimbatore district, viz., Avanashi, Karavalur and Tiruppur, are much more fairs for locally bred than for imported cattle though these latter are also fairly represented

These are mainly selling markets for the breeding tracts of the district, to which ryots from other parts come to buy.

The weekly cattle markets of the south are very numerous and, as a rule, well attended. Cattle dealing at these is conducted on a much smaller scale than at the annual fairs, but in the same way there are regular trade routes. In the Coimbatore district, Puliampatti is the starting market for the west of the district and is also the chief market for Mysore and Alambadi cattle, which are brought down the Hasanur ghat. It is also the cheapest market in the district. Here the trade routes branch, one going to Perundurai, and the other through Annur to Tudyalur and on from there to Pollachi. The markets of Dharapuram and Karur taluks centre at Uppidamangalam, where the trade routes separate, one going through Nainamalai (Namakkal taluk) and Turaiyur (Musiri taluk) to Ariyalur and the other going to Manappari, Kanniser and Dindigul. Some animals from the south of Dharapuram go directly into Madura district to the markets leading to Dindigul. The trade is chiefly in the hands of Telugu Chetties, Maduvandies and Muhammadans.

Palmaner is the first market below the plateau for the more eastern districts and as in the case of Puliampatti, it is a cheap market. This is fed from Mysore and Punganur; here cattle are brought by dealers and taken to Gudiyattam and on to Ranipet. Gudiyattam is again fed from the Kangundi zamindari, from Mysore and Tirupattur. Ranipet market, besides the Gudiyattam cattle, is supplied to some extent from the north. Pullampet taluk of Coimbatore supplies local cattle, as well as a few of the Nellore type: some Nellores also come from the Kalahasti zamindari. At Ranipet the route divides, some animals going to Conjeeveram and Walajabad and others to the markets of South Arcot. The trade is in the hands of all castes and kinds of dealers. The Janappa Chetties and Muhammadans of Gudiyattam predominate, but, besides these, Mysore Muhammadans and Telugu Chetties are important castes of dealers.

XIV.—THE MEAT TRADE AND THE SLAUGHTER OF LIVE-STOCK FOR FOOD, ETC.

Cattle and buffaloes.—Although the bulk of the population are nominally vegetarians, a large proportion of them are only so from necessity and have no religious objections to eating flesh of one sort or another: and the further the people are removed from Hinduism the less objection have they to eating the flesh of cattle.

The hill tribes of the northern districts eat large quantities of beef, which is evidenced by the large quantity of green bones brought to the shandies of Vizagapatnam district. Muhammadans throughout the Presidency have no objection to eating beef and in many places cattle are regularly slaughtered by them for food. It is stated, in the northern coast district, that even nominal Hindus are more and more taking to eating the flesh of cattle and buffaloes, since this is much cheaper than the flesh of goats. Apart, therefore, from the demand of large towns and cantonments a considerable amount of beef is eaten by the people of the country.

As would be expected in a country, while cattle are the sole draught power and, where there are, among the bulk of the population, strong

religious objections against the slaughter of cattle, the beef trade depends very largely on animals which are, or have become useless for draught or breeding; and, if the question is regarded without bias, it is clear that this is an excellent thing for the cattle of the country. By the removal of all useless and worn-out cattle, a serious menace to outbreaks of cattle disease is removed; for, if such animals are not destroyed, they are usually allowed to slowly starve to death and, in their weakly condition, are very much more prone to contract contagious diseases. Not only this, but the removal of such animals leaves more room and more grazing for useful animals. In the Tinnevely district, since the export trade in beef cattle from Tuticorin has developed, a great improvement is now noticeable among the village cattle. Useless, worn-out and half-starved cattle are now very seldom seen, as ryots dispose of animals, which are no longer useful, to the export trader. The Colombo beef trade removes large numbers of useless cattle and there is also a certain amount of trade in beef to the Malay States. This is chiefly dried beef, which is prepared in some of the tanneries of North Arcot and Chingleput. In northern coast districts, there is a complaint that animals are occasionally slaughtered, which still have a year or two's work left in them; and that this is possible is shown by the following figures given by a Mala in Vizagapatam of the estimated profit, which he expected from the slaughter of a pair of buffaloes, purchased in the weekly market for Rs. 35:—

	RS.	A.	P.	to	RS.	A.	P.
Two skins	16	0	0	to	20	0	0
Fat 3-4 maunds (local) at Rs. 5							
a maund	15	0	0	to	20	0	0
Horns $\frac{1}{2}$ maund (local)	2	0	0	to	2	8	0
Bones	0	4	0	to	0	8	0
Total	33	4	0	to	43	0	0

In addition to this the flesh would be sold as meat.

There is hardly a weekly cattle market in the Presidency, where cattle are not brought in for sale to butchers, though in many cases their slaughter must be mainly for the sake of skin and bones, since animals are little else.

Male buffaloes besides being slaughtered for the beef are also largely slaughtered as sacrifices to the village deities.

Sheep and goats.—It may be said that all surplus live-stock of this class are slaughtered for meat. At festival times throughout the country goats are killed in very large numbers, but, apart from this, the supply of greyn skins, which are regularly brought for sale to cattle markets, shows to what an extent goats and, in some measure, sheep are slaughtered for food. Fattening sheep and goats for the butcher is not general and it is mainly for the export trade to Colombo that these are fattened, though, to a certain extent, also for the Bangalore, Madras and Nilgiri markets. Hindupur is perhaps the most important mutton butchers' market in the Presidency and some splendid goat wethers are brought here by dealers from the Ceded districts and from the Hyderabad State. The pick of these go

to Colombo. In all the southern weekly markets fat sheep and goat wethers are brought, singly or in pairs, for sale by petty ryots and coolies. These are all bought up for the Colombo market and fetch very good prices up to Rs. 12—14 per head.

XV.—PROFITS FROM STOCK-BREEDING.

It is impossible to form any but a very rough estimate of profits from stock-breeding, since so much of the food and time, given to the animals, has very little sale value; besides which the conditions, under which breeding and rearing are carried on, vary so much in different parts.

The Nellore breeder, who depends on his grazing lands and harvested wet lands for the greater part of the year as food for his herd, sells his male stock, when a year to 18 months old at 3 for Rs. 100. Allowing that 50 per cent of his cows calve each year and that half his young stock are bull calves, a herd of 100 cows will bring in a gross revenue of Rs. 833 from the sale of the young bulls alone. Besides this he adds to his female stock 25 per cent every year. Allowing for an annual loss of 10 per cent on his breeding herd, he still has a 15 per cent increase, which even if valued at the same price as he gets for his yearling bulls, would bring him in Rs. 510, i.e., in all Rs. 1,333, or Rs. 13-5-4 for each cow. To maintain his herd, he must have considerable grazing areas, but, even allowing 6 acres per head for each cow with its progeny, this would probably not cost him more than Rs. 500 per annum, i.e., allowing for assessment and interest on the capital value of the land. This leaves Rs. 833 to pay for his cattle herds and to provide straw for the months when grazing is scarce. This straw he obtains from his own wet lands, and against its value can be set that of the manure produced when the herd is kept on the wet lands. Allowing Rs. 10 a month for the pay and meals of the cattle herds, and 10 per cent loss from deaths among his young stock, this still leaves a net annual income of over Rs. 600 or more than Rs. 6 per head for each cow.

The forest breeder of Kollegal and North West Salem keeps his cattle penned in the reserved forests, except at the harvest time, and pays four annas a head for the year's grazing, besides a small fee for a penning license. His cattle are subject to great variations both in climate and in the supply of food and water and do not, therefore, breed so regularly as better fed "plains" cattle. It may be reckoned therefore that his herd does not drop more than 40 calves per annum to every 100 cows. Thus 100 cows on the same basis will give 20 bull calves, which sell when 9 months to a year old at 3 for 10 for Rs. 100; about 5 for Rs. 100 being taken as an average. The number of male calves will probably exceed the number of female calves, owing to the poor condition of the cows in the hot weather—in fact breeders say that they do—but this need not be considered here. Thus 20 bull calves in a good season should bring in a gross revenue of Rs. 400. The value of the female calves need not be considered, since these will just about maintain the strength of the herd, when allowance is made for deaths from disease, starvation, wild beasts and old age. Out of his revenue he has to meet grazing fees and the cost of his herdsmen, the latter being, usually, the cost of their food and clothing. This should not amount to more than Rs. 100 in all.

Deducting 10 per cent of the gross revenue for mortality among his male calves this leaves a net annual income of Rs. 260 for every 100 cows or about Rs. 2-10-0 per head of his breeding herd.

The Kangayan breeder is fortunate in having a class of animal which is so popular; and the profits of cattle breeding and rearing—for the two go hand in hand here—are much greater than in either of the preceding cases. Much greater value is here placed on the "life" of a young animal, i.e., its value from parentage and breeding. Cows also usually calve, in this tract, every year, since whether in milk or in calf, they receive proper treatment throughout. If a cow calves every year, her progeny when four years old will have an average value of Rs. 125, i.e., Rs. 200 per head for bullocks, and Rs. 50 for heifers, and this, excluding the value of the manure produced, can be taken as the gross annual revenue. Against this there is the following expenditure for the four years:—

	RS.	A.	P.
Grazing for 6 months in the year at 2 acres per head (2½ acres are taken as the area required for a full-grown animal) = 8 acres of grazing land, at Rs. 1-4-0 per acre (12 annas assessment and 8 annas for attendance and interest on the capital value of the land)	40	0	0
Straw, gruel and attendance for the remaining 6 months at Rs. 2 per mensem for 4 years	48	0	0
Depreciation in value of the cow and death of young stock at 10 per cent of the gross income	12	8	0
	100	8	0

This leaves a net profit of Rs. 24-8-0 per annum on the progeny of a single cow. The manure from these animals, which is required for garden cultivation, has also a very considerable value; for on it, the ryot has to depend for his heavy crop yields, which are essential, if garden cultivation is to pay.

In the Ongole tract it is impossible to form any estimate of the profits of cattle breeding, since so much of the cost of feeding is dependent on spare time employed in collecting fodder and grass, with which the young stock are stall-fed; but the profits must be very considerable, since even female stock, which for their age are much less valuable than male stock, are very largely reared, and quite good animals, which have been reared most carefully, can be purchased for Rs. 70 to Rs. 80 when from three to four years old.

XVI.—DAIRYING.

The existing conditions of the milk supply, as far as the retail trade is concerned, are very unsatisfactory, and it is seldom that pure cow's milk can be obtained, unless the milkman brings his cows to the house and the milking and measuring are carefully supervised. Under the joint family system of living, people of the middle and upper classes, who require milk for their every-day use, usually keep

their own cow, or make arrangements with villagers for the hire or loan of a cow, while it is in milk. This is really the most economical method for joint households, and the cost of the animal's keep is hardly felt, since most of the concentrated food is made available in the process of preparing food in the house, such as rice bran, rice water and plantain leaves, with the remnants of the household meals.

It is difficult to see how any improvement is to be expected as long as no milking breed is allowed to survive. In several of the large towns one finds dairies, but these are mainly for the supply of butter for the European community and it is only where the cream separator is used and where it is possible to dispose of the separated milk at remunerative rates that this trade can survive. In towns, however, there is usually a market for separated milk for the manufacture of curds. At these dairies, also, buffaloes' milk is largely used, since this, being so rich in butter fat, yields much more cream, and consequently more butter, than cows' milk. For the same reason she-buffaloes are kept in country districts for the manufacture of ghi and also for the reason that buffaloes are not such expensive animals to feed.

The ghi industry has altered very much within recent years, since rapid means of transit have been developed. Formerly the demand was much more of a local one and was more or less limited; thus there was a competition in the supply and the ghi was good. Now the whole of India, as well as Burma, forms the market, with the consequence that every corner of the country is now exploited by merchants for the supply of ghi. The result is that, at every change of hand from the producer to the consumer, the ghi is liable to be adulterated. Even if the producer does not adulterate the ghi, usually not so much care is taken in its preparation. Moisture is often left in it, which, when the ghi is kept, gives it a bad smell. In the Ceded districts, kusuma or safflower oil is largely used for adulterating ghi. In some cases this is done even by the ryot before it is sold to the petty dealer. The petty dealer, it is usually stated, makes six tins (kerosine tins) out of four of the ghi which he collects. This is done by adding safflower oil or animal fat, which latter is obtained from the Malas, who melt it down from the carcasses of dead animals. It is stated that at each change of hands four tins of ghi are made into six tins and, if this is so, there is no wonder that complaints all over the Presidency are loud when the question of the purity of the ghi supply is mentioned. Every district reports the same complaint—that ghi is not only very much adulterated, but that it has risen greatly in price. Not only in the Ceded districts, but everywhere in the Presidency is the fat of dead animals used for the adulteration of commercial ghi. The General Traffic Manager of the South Indian Railway has kindly had enquiries made throughout that railway system and states that animal fat is occasionally booked in small quantities almost throughout the system and that one of its uses it said to be for adulterating ghi, though it is also used for dressing hides, for axle grease and for the manufacture of soap and candles. Its price varies in different parts from As. 2-10 to As. 5 a pound. As the demand for milk increases, ghi is bound to be more and more adulterated. In a memorandum published by the Government of India in 1884 on the subject of ghi, Mr. Robertson, the then Agricultural

Reporter to the Government of Madras, showed that the quantity of milk (cows) required to make one viss of ghi (8 lb., 2 oz.) would, if sold as fresh milk at 2½ annas a quart, be worth Rs. 7-8-0 while, if made into butter, it would yield Rs. 5-13-0 worth of butter, besides buttermilk, and even now, when complaints are everywhere made of the high price of ghi, this seldom sells at more than Rs. 2-8-0 a viss.

In the ghi-producing districts, good ghi can still be obtained in large quantities, but, under existing trade conditions, this is seldom allowed to reach the large markets, nor is this surprising, since the price of good and bad ghi is very much the same. The adulteration of ghi may, however, be taken as essential, if the supply is to meet the demand and it would be much better, if everyone concerned realized this; for then it would be possible for Co-operative societies and other similar bodies to provide a ghi mixture, consisting of pure ghi and wholesome vegetable oils, instead of the present haphazard methods and filthy ingredients used for its adulteration.

XVII.—WHERE ASSISTANCE IS, OR MIGHT BE, GIVEN BY GOVERNMENT, FOR THE IMPROVEMENT OF CATTLE AND THE MAINTENANCE OF SUPPLY.

(a) *Reservation of Forests.*—There is no doubt that the reservation of lands for forests has already done much to prevent large areas of land, which are unsuitable for cultivation, from becoming barren wastes, by checking unlimited grazing; and has, in consequence, been the means of greatly adding to both the quantity and quality of grazing. A more rigid limit to the present numbers of cattle, which are allowed in the forests, is necessary, however, both in the interests of the cattle of the country and of the forests; and no reserve should be allowed to be overstocked. As has been before stated, people, who live near the forests, usually keep far more cattle than they have fodder for, and, when grazing is scarce, these animals are allowed to starve. The result is, that cows very seldom calve and the young stock never get a chance to grow, but remain puny, stunted animals, of little use or value to any one. If the number of cattle were limited, the animals would be better fed, would breed more regularly and would produce better calves, which would be of some use to the country. Overstocking, again, reduces the quantity and quality of the grass. This is especially the case on steep hill-sides. In the Salem forests near Pennagaram, on many of the hill-sides, regular terraces of loose stones have been formed by cattle. If the forest canopy is thin, which it usually is on exposed slopes, these are bound to be badly scoured after heavy rain, and this is bound to seriously affect the forest growth, with the ultimate result that both forest and grass disappear.

The formation of grazing reserves for cattle, sent away for grazing from intensely cultivated tracts, especially delta tracts, is a matter, which deserves serious consideration. Good and ample grazing should be provided for these cattle which, when they arrive, are usually in miserable condition, having been kept in the villages until the last possible moment. The bulk of these are the breeding stock of these tracts, on which great dependence has to be placed for the maintenance of the supply of plough bullocks. It would be a serious

matter, if the delta tracts were depleted of their breeding stock, for poor as the quality of these animals is, it would be a great strain on other districts to supply the demand, if once the breeding stock of the deltas disappeared.

More adequate arrangements for watering cattle in the forests are also necessary, both from a humane point of view, for the cattle at times suffer severely from lack of these, and from the point of view of the owners of the cattle, who are often tempted to trespass on other reserves in order to water their cattle.

(b) *Private grazing grounds.*—These are most important for the agricultural development of the country; for it is only with regulated grazing that any real improvement of cattle can be effected. This should receive every encouragement.

(c) *Cattle shows and exhibitions.*—More money, in the past, has been spent by Government on these, than on any other method of improving the cattle of the country, and there is very little to show for it. The Board of Revenue has recently circulated enquiries to all Collectors of districts, where shows are, or have been held asking them to report on the utility, or otherwise, of these. These reports have been made available in preparing the following note on the subject:—

(1) Various kinds of cattle shows have, of recent years, been held in this Presidency, but the general opinion on these is, that, unless the show is held in a recognized breeding tract, it serves no practical use; and very few of these have ever been held in such tracts.

(2) Cattle shows in connection with recognized cattle fairs were suggested by the Agricultural Committee in 1888 as an alternative to the cattle side of agricultural exhibitions, which, it was even then recognized, did not bring in any useful results. But the fact that very few of these fairs are held in breeding tracts, seems to have been overlooked, and several shows have since been started at fairs, where practically nothing but bullocks are brought; either imported bullocks brought from a distance by regular cattle dealers, or local or used bullocks brought in by ryots for sale or exchange. This fact explains their failure. There are practically no classes except for bullocks. Every animal brought to these fairs is for sale, and the owner or dealer wishes to sell to the best advantage. If his best animals are shopped out into the show ring, not only may he lose a chance of disposing of the animal, but it takes away from the remaining number the appearance of quality, which the best animals give to his herd. It must be remembered that these are all working bullocks and not breeding stock, and it is natural that the buyer wishes to pay as low a price as he can for his animals. He will, therefore, naturally look outside the show ring for them. If looked upon in this light, the sympathy of any one would naturally be with the cattle dealer in not wishing to show his animals in the show ring. Nor is it clear what benefit will be done to cattle breeding by giving prizes to imported or middle aged bullocks, which are of no use for breeding. The Tiruppur cattle show is the only one held in connection with a cattle fair, which is held in a breeding tract. Here there are breeders, who breed cattle on a large scale, and who do bring in their animals for show purposes; and, it is

* See Appendix E, pages 58-60, Proceedings of the Board of Agriculture, 1910.

understood, that there is considerable rivalry among them for the prizes. The Collector reports, that within the last ten years much more care has been taken in the selection of breeding bulls, but cannot estimate to what extent this is due to the show. These large breeders are, however, well known to ryots and it is quite a common thing for black soil ryots from Tinnevely, Madura, Ramnad and the south, to come up to the Kangayam tract to buy bullocks, which for black cotton soil work and heavy draught work, are much preferred to those from Salem, North Coimbatore and Mysore. These ryots are prepared to pay very high prices for good animals, and this is probably sufficient incentive to these breeders to do their utmost to improve and maintain the local breed, though of recent years a great mistake has been made in importing foreign blood, chiefly Ongole, into the herds, with the result that the animals are slower in movement, and lack the sound, hard feet and hardy constitution of the Kangayam. The cattle show in this connection might be of great value in helping to maintain the true type of the Kangayam cattle.

(3) Cattle shows in connection with the Agricultural Exhibitions have never proved a success. The only exception (and even this seems to have been only nominal) on record is the case of the Nellore Exhibition in 1869. This success, however, seems to have been solely due to the visit of His Excellency the Governor to the Exhibition, and the consequent interest, taken in it in that year by local rajahs and zamindars. Since the abandonment of the Nellore Exhibition, there are no records to show that an exhibition has ever been held in a cattle-breeding tract. It is stated by some that these exhibitions have an educative effect, but, as far as the live-stock side of the exhibition goes, it is not at all clear what these can teach. It is not as if the ryots of the locality were interested, or engaged in cattle-breeding. It is quite new to them, and as the Secretary of the Vizagapatam Agricultural Association says "it is like watering the tree at the top alone." That this opinion is held by many, is clear from the number of people who recommend in place of cattle shows, the establishment of cattle-breeding farms and the supply of breeding bulls.

(4) Cattle shows pure and simple. The Ongole cattle show is the only one which is held in a breeding tract and, to all appearance, is a distinct success; but on closer enquiry into the cattle-breeding of the tract, there are grave doubts as to the soundness of the present system of working the show. The most important cattle-breeding villages in the taluk have been visited. The principal villagers state that there is a deterioration of their cattle due to two causes:—(i) The increase in the export of heifers in calf from the tract. (ii) The loss of bone in the animals due to diminution of grazing grounds, and to the increase in stall feeding. In these parts ryots set apart a certain portion of their patta lands for grazing. This is nominally about one-sixth of each holding, but on rich soils this is actually very much less, since these grazing lands are now chiefly in places which are unfit for arable farming, the land being uneven and much cut up by the rains. When this tract was visited, only the best cattle were to be seen, as the others had been sent away for grazing to the hills, but it was very noticeable how few breeding cows were in evidence. Of the young animals in the village, i.e. young bulls and heifers, a

considerable proportion of them had been purchased to feed up for sale, either from villages in the neighbourhood, or, in many cases, from all parts of the Guntoor district and the Kandukur taluk of the Nellore district. This feeding up of cattle for sale has become a regular profession, which has greatly developed within the last few years. Poor men take a loan of money from the sowar, with which they scour the country to purchase a likely looking animal, usually a heifer, to feed up. When these are ready to calve, they are sold to dealers, who take them down to Madras. The difference between the purchase and sale price is divided, according to pre-arrangement, between the sowar and the man to whom he gave the loan. In the same way these men feed up for the Ongole show, but, in this instance, they get the best animals they can procure, since animals at the show command a higher price than the ordinary market price. Prizewinners of the previous year often change hands at very high prices, to be fattened up for the next show on the off chance of obtaining, either a prize or an enhanced price, and, as far as raising breeding stock and improving the breed of the cattle, it cannot be said that the show, as at present constituted, is a success. The pick of the animals of the district are collected, fattened up, and sold out of the district. They are forced to early maturity by liberal hand-feeding from almost the time of their birth. They are stall-fed and seldom get any exercise, as the length and shape of the hoofs too often show. When they are in calf they are over-fed and naturally the calf suffers, being small and puny. Many of these heifers, especially the best ones, were fattened up, as if for a fat stock show, and large numbers are sold for dairy purposes, usually to people and places where stock rearing is not understood and where little or no value is placed on the calf. The consequence is that these latter are under-fed, ill-cared-for, and usually die. This gives rise to the common belief that the Ongole cattle rapidly deteriorate when taken away from their native place. Of all the heifers which were seen in these breeding villages, only in one case did the owner wish to keep the animal for breeding purposes. The rest were all for sale. In the selection of sires, there is certainly much care taken to get cows covered by a good bull, but no effort is made, other than the *mamul* method of dedicating a Brahmani bull, to provide sufficient bulls, to serve the district. There are certainly large numbers of Brahmani bulls, but the numbers of the good bulls is limited. The Karumanohi village bull serves cows brought from a radius of twenty miles around and, for four months in the year, is said to serve two to three cows a day, but he is an old animal and no steps are taken to replace him when he dies. At Guruvareddipalem there were some excellent young stock by a bull which died last year. There are two other bulls in the village, but inferior to the one that died. Nothing has, however, been done to replace him.

(5) The selection of a Brahmani bull, which in these parts is only done on the occasion of the death of some important man in the village by his relations, must now be a very much more difficult matter than formerly. Even the richest men in these villages do not own more than ten to twelve head of stock including their working bullocks; while formerly herds owned by one man of fifty to hundred animals, were common. Thus the selection from his own stock is very limited, while

specially good young bulls belonging to others have a fictitiously high value placed on them, as probable winners of valuable prizes at the Ongole show. For example, one very fine young yearling bull at Gurusvareddipalem was valued at Rs. 200, and the owner would probably not have parted with it for less than Rs. 180. It is not many dry land cultivators, who only work two or three ploughs, who would pay such prices and it is probable, since there are so many inferior Brahmani bulls that the selection is either an inferior animal, or a very young calf, whose masculine characters have not yet developed. Thus, at present, it seems that the object of the show is not altogether attained. The spirit of competition has, undoubtedly, been roused and the high prices paid for animals has led to great care—too great care in fact—being taken of the young breeding stock, but it has led to the export of the best female breeding stock from the breeding tract. In the case of bulls, this would not be a serious matter, since one bull will serve for a number of cows, but it is a serious matter in the case of female breeding stock. The following suggestions therefore are made:—That the classes for female stock be thoroughly revised, that there should be no class for heifers except for those in milk teeth only. That the classes for cows, which have a full mouth, be developed and more substantial prizes given for these. This means that at least one and, possibly, two or three calves from the best cows would be kept in the district. To improve the male breeding stock, it is suggested that a prize be given to the village, which wins the greatest number of prizes. The prize money will be held in reserve by the Show Committee as a reserve fund, for replacing or supplying good breeding bulls when required. Much more might be made of the Brahmani bull class and some recognition might be taken of the head of the family, which dedicates good Brahmani bulls. At present the Government give a medal to the best bull in the show, which, more often than not, is given to an animal which is not a Brahmani bull. Since all breeding bulls in the district are Brahmani bulls and these are all dedicated when young, such medals usually go to animals, which are intended to be made into bullocks. Special attention when judging should also be paid to the feet of the animals, as it is noticed that these cattle often suffer from too close confinement and from lack of exercise, when being reared; and, that breeding stock, which are over fattened, should lose marks in consequence when being judged. At the cattle show held this year, an attempt was made to start classes for breeders' cattle as apart from the cattle shown by the professional rearer. This deserves every encouragement, but it requires very careful organization. Entries should be sent in sometime before the show, so that enquiry can be made as to the previous ownership of the animals, and the conditions for showing should be made widely known. The prizes should also be very substantial, otherwise in the first instance, breeders may not take the trouble to show animals. It is quite possible that, if successful, this may in time develop a system of registering the service of cows by Brahmani bulls and of the raising up of a strain of pedigree cattle.

(d) *The supply of breeding bulls.*—(1) In the early eighties, several breeding bulls of the Aden strain, bred at Saidapet, were distributed by Government, but with little success; and these were either sold or withdrawn. Of recent years, Government have bought

bulls at shows and fairs which have been distributed to different districts; as previously mentioned, there are only seventeen of these on the rolls. Until the last year or two, no record was maintained of the services made by these bulls, or of the results, nor were proper arrangements made for their upkeep. This has, however, now been rectified and some data, as to how far the services of these animals are utilized, will soon be available. This method of selection leaves very much to be desired. Nothing is known of the animal's pedigree, of its constitution and other inherent qualities, so necessary in a breeding bull, and it is certain that very much better and more rapid results would be obtained if these were known. Then again different breeds are required for different tracts. It is of little use sending an Ongole bull to Tinnevely or Tanjore, where he would be much too big and heavy to serve the small cows of those districts, besides producing a type of animal which would be of little use for the agricultural requirements of those tracts.

(2) The development and extension of the Kangayam breeding tracts is of most pressing importance at the present time.* The demand for bullocks of this breed is greater than the supply and prices are high. It is only the big breeders who own their own breeding bulls, which are often kept for their exclusive use. There is already a considerable amount of cattle rearing carried on in this tract, which could be converted into cattle breeding. The existing agricultural conditions demand that the ryot should keep cattle more than are actually required for cultivation, and there is no reason why these should not be good breeding cattle. Hence, the supply of breeding bulls would probably be a great incentive to petty breeding, which would not only assist the breeding tract, but would also help to supply the markets of the south with good bullocks. A Government breeding farm seems to be the best way of supplying the necessary breeding bulls, since the breeding would be absolutely under control and only those animals, which fulfilled the necessary requirements of a breeding bull, would be distributed. Bulls in the first instance would be distributed in the existing breeding tract, and as time went on, this could be extended to the adjoining taluks, where very similar agricultural conditions prevail. Such a farm would be a costly experiment, but in the long run, it would be much more effective and probably cheaper than the present haphazard method of supplying and distributing bulls. On the success of this would rest similar developments in other parts of the Presidency, where cattle breeding needs encouragement, either now or in the future. The details of such a breeding farm need much more careful local enquiry than has been possible, during the time available for this general cattle survey; and much also might be learned from the experience of other Provinces, where Local Governments have already taken action in this direction.

(3) In other parts of the country, encouragement should be given to landed proprietors to supply good breeding bulls for the use of their tenants; as well as to others disposed to dedicate good Brahmani bulls, and every assistance possible might be given in the purchase and selection of likely animals.

* See paragraph 9, Appendix E, page 81, Proceedings of the Board of Agriculture, 1910.

(e) *Co-operative Credit Societies.*—There are great possibilities in the future for extending the scope of these. In the matter of the ghi supply, this seems to be especially important, as any means of bringing the producer more closely into touch with the consumer, will lessen the amount of adulteration. There seems to be no reason why villages in ghi-producing tracts should not work in co-operation with large town co-operative supply associations. Not only would the village association get better prices for its ghi, but the supply association could supply pure ghi to those who could afford to pay for it, and a mixture of ghi and pure wholesome vegetable oils to the middle classes. The great essential to success would, however, be to always have the ghi of regular quality, and this could most easily be done by using the cream separator. In villages, buffaloes are usually all milked at the same hour of the day, and the milk could be taken to and separated there and then at a central place, the freshly separated milk being returned for the manufacture of curd for domestic use. It will be possible, the Principal reports, in time for short vernacular courses in practical dairying to be arranged for at the Agricultural College at Coimbatore during the vacation time, which would be sufficient training for working small village dairies.

(f) *Improvement of the milk supply.*—Madras city makes the biggest drain on milch cattle of any other town in the Presidency, and the pity of this is that the majority of the Ongole cows, which are brought down here, are heifers with their first calf, i.e., animals which have not yet reached anything like their full milking capacity. If these could be bought up when dry, taken care of and served by a good dairy bull, instead of being sold, as at present, to the butcher, it would be possible to greatly check the present drain on the country for milch cows. Mr. Robertson, the late Principal of the Saidapet Agricultural College, mentions the case of a Nellore cow, purchased, as worn out, from a Madras milkman, which afterwards became one of the best milkers in the farm herd, and many thousands of equally good animals have probably been lost to the country since then; being sold as worn out cows to butchers, when really they have never reached their prime. It might be possible for the Corporation to do this on their sewage farm, or they might even start their own municipal dairy for the supply of milk, and their male stock could be utilized for town work. This would, to some extent, interfere with private enterprise, but, in this case, the health of the community is at stake, which is a much more serious consideration. If such a venture proved successful, other municipalities of the larger provincial towns might also carry on their own dairying, and with such dairies as a basis, it should in time be possible to raise up a better milking strain of cattle.

H. C. SAMPSON.

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Sir J. Shuckburgh.

Sir G. Orindle.

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Secretary of State.

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GOVERNOR

KENYA

CONFIDENTIAL.

copy to Gov. T.T. (5 on 31299/3277.)

Count 8

For action

Sir,

I have the honour to state that I have studied with much interest your confidential despatch No. 143 of 5th October reporting on the progress made in veterinary measures undertaken in the Northern Frontier Province.

2. Your despatch reveals not only that a definite advance is being made on the lines of constructive development, but also that timely regard is being paid to the difficulties inseparable from such development. Bearing in mind the limited scale of expenditure

available

available, I consider ^{that} the reports on the
veterinary training centres, the disease
control measures and the sheep breeding
experiments ^{are} most satisfactory.

3. I recognise that the main obstacle
to the establishment of a permanent cattle
trade between the Northern Frontier Province
and Zanzibar is the fact that the small trader
has not the capital to ensure adequate numbers
of stock for regular shipment, especially in
view of the length of time which must elapse
between purchase in the north and recovery of
the money from the Zanzibar trader, who is
already committed to the Mismayu market.

4. It is therefore to be apprehended
that any small or spasmodic trade that may
develop from the efforts now being made may
be ousted by foreign competition. You may
wish to consider whether, ^{if and} when opportunity
offers, a company or co-operative organisation,
endowed with sufficient capital to break down
the

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the present obstacles, might not
 advantageously be encouraged. I
 recognise that ^{in present circumstances} any such scheme must
 necessarily depend for its finances
 upon private enterprise, and that
 Government assistance would
 [necessarily] be limited to the
 possibility of some system of
 temporary guarantee, if that is
 necessary and possible.

9. Such an organisation, if
 established, could be extended later
 to develop trading centres where
 stock owners would be glad to
 dispose of their animals at any time
 without having to await the small
 itinerant trader. I am advised that
 the number of stock in the Northern
 Frontier Province is greatly in excess
 of what is necessary to supply the
 Zanzibar market only, and the setting
 up of such a purchasing body would
 thus

thus be of the greatest value in connection
with any subsequent market that may be found.

6. Steps are being taken to lay your
despatch under acknowledgement before the
Colonial Advisory Council of Agriculture and
Animal Health, for their information.

(Sgd) P. CUNLIFFE-LIST

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KENYA.

GOVERNMENT HOUSE,
NAIROBI,
KENYA.

No. 143
CONFIDENTIAL.

5th OCTOBER, 1931.

Sir,

with reference to paragraphs 2. and 4. of Lord Passfield's confidential despatch dated the 2nd March 1931, I have the honour to submit the following report on progress made in veterinary measures undertaken in the Northern Frontier Province, of which a full account will also be included in the Annual Report of the Agricultural Department for this year.

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2. It will be within your knowledge that the policy approved included

- (a) Survey and control of stock disease, the latter being exercised by a systematic method of quarantines reducing extension of disease and mortality and releasing non-infected areas for available markets.
- (b) Provision of external and internal markets including the exploration of Zanzibar as a market for the Northern Frontier Province cattle exported through Lamu and the provision of internal market centres more especially for sheep and goats.
- (c) Instruction in the better preparation of stock products including demonstration in ghee making and in the preparation and marketing of hides and skins.
- (d) Instruction and demonstration in better methods of animal husbandry including
 - (i) the improvement and extension of a system of internal marketing;
 - (ii) the establishment, preferably somewhere in Marsabit district of a demonstration and

Extract from T.T. (800 31284/3271) Unwood (H)

THE RT. HONOURABLE J.H. THOMAS, P.C., M.P.,
SECRETARY OF STATE FOR THE COLONIES,
DOWNING STREET,
LONDON, S. W. 1.

and experimental centre for the improvement of the existing type of sheep and the general management thereof, and

(iii) the establishment at Isiclo of a training station on the lines of the veterinary Station at Ngong.

(e) The institution of an enquiry into the breeding and management of camels.

2. A veterinary survey of the northern Frontier

Province continues and foci of infection are being confirmed and quarantined. As a result the export of livestock from the eastern side of the Province towards the Coast through Sura has started, but trading has unfortunately been held up temporarily owing to an outbreak of rinderpest at Lamu. It is also to be regretted that outbreaks of rinderpest and pleuro-pneumonia among the cattle and blue-tongue among the sheep have occurred in the northern Frontier Province but efforts to control these diseases are assisted by the fact that the natives themselves understand and apply the principles of segregation and inoculation while it is interesting to note that the Abdulla tribe of Somalis have asked that all their cattle be inoculated against rinderpest. Measures to meet their request are now under consideration, but it is regretted that there appears to be no immediate prospect of acceding to their request as a preliminary study of local conditions is a necessary antecedent and at the moment staff for such an investigation is not available.

3. During March of this year the Chief veterinary Officer visited Zanzibar (as foreshadowed in paragraph 5. of Mr. Moore's confidential despatch no. 180 of 5th December, 1930) and as a result of his enquiries there has submitted valuable suggestions for the furtherance of trade between the northern Frontier Province and that Protectorate.

The figures show that the great majority of cattle imported into Zanzibar come from Kiamayu for the following reasons

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reasons:-

- (i) The exporting agents in Kismayu are in most instances relatives of the Zanzibar butchers.
- (ii) They are advanced funds by the Italian Government against the sale of bullocks which are in fact the property of the Government having been received in payment of fees and taxes. These cattle are in consequence of good average quality and obtain a ready market.
- (iii) A regular service of Italian steamers calls at Kismayu for shipment of these frequent consignments of livestock to an established market.

furthermore, the Zanzibar butchers, while expressing themselves as desirous to trade with a British Colony, give as their reasons for the smallness of trade with Lamu that:

- (a) There is no cattle raising area near by.
- (b) Cattle exported from Lamu have to pass through a fly belt and are liable to become infected with trypanosomiasis.
- (c) Kismayu cattle are heavier and cheaper than Lamu cattle.

At the same time the British Resident at Zanzibar considers it desirable to foster trade with Lamu as it would clearly be advantageous to Zanzibar to be less dependent on Kismayu and Kismayu butchers for its meat supply, apart from the fact that Lamu is a British port whereas Kismayu is not.

It remains therefore to consider the means not only of ensuring a regular supply of good quality cattle at Lamu for the Zanzibar market but the provision of adequate shipping facilities, always bearing in mind Lord Passfield's observations on the necessity to guard against cruelty in loading and on the voyage to Zanzibar, in which connection definite instructions were conveyed to the Provincial Commissioner, Coast Province, as directed by Lord Passfield.

4. There

4. There can be no question that livestock can be made available for sale in Lamu suitable in quality and quantity and the absence of export fees such as are said to be imposed at Kismayu, coupled with a shorter sea journey should enable cattle to be landed more cheaply and in better condition than those exported from Kismayu. The establishment of livestock markets and detention areas within the northern frontier Province, particularly at Bura and Garissa and the drafting of cattle to Lamu through the Veterinary Quarantine Station at Makowe in such numbers as to prevent overcrowding and so as to obviate the ingress of disease should dissipate any fears expressed in Zanzibar as to the quality of Lamu exports.

5. The question of shipping involves better port facilities at Lamu, the reduction of wharfage fees at Kilindini, reduced freight by the "Conference" Lines and a regular steamship service. This last facility will, I think, automatically follow upon a regular supply of high quality cattle at Lamu.

Arrangements have been made with the Port authorities to give facilities for loading cattle in the steamers at Lamu by means of a floating pontoon which will bring the stock direct from the mainland to the steamer at a small charge thereby reducing expense and handling to a minimum and obviating cruelty. Furthermore, the wharfage charges at Kilindini have been reduced from shgs. 15/- for cattle and shgs. 1/- for sheep to shgs. 1/- and 50 cents respectively.

The East African Steamship Conference has had under consideration and approved a reduced scale of freight charges which should be of benefit in fostering trade from Lamu. The tariffs have been so high as to

render the shipment of stock from Lamu to Mombasa or Zanzibar commercially impossible.

Messrs. Cowasjee Dinshaw of Aden have been approached with regard to the inauguration of a regular steamship service and I am sanguine that the results of correspondence now continuing with that firm will be satisfactory. I am moreover satisfied that stock are well provided for in their ships.

6. A scheme started successfully in Samburu for instruction in ghee making has now been taken over by the veterinary department and great interest therein is being shown by the natives. Furthermore efforts are being made to encourage the natives in better methods of the preparation and tanning of hides and skins. Progress in ghee preparation must be made with caution: these activities can only grow satisfactorily as and when the people become accustomed to the purchase and consumption of grain foods. In the meantime precautions must be taken to prevent a decrease in the supply of milk available for children or for the calves.

(7) (a) The question of internal markets for northern Frontier Province stock presents considerable difficulty and the position is not rendered more easy by the existing widespread economic depression.

The tribes with whom the greater part of the northern Frontier Province sheep and goat trade is normally carried on - the Kikuyu and Meru - have not the resources at the present time to encourage trading on any large scale, and it is upon native trade that the northern Frontier Province internal stock trade must substantially depend. It is clearly impossible at this stage to prophecy when an economic revival will take place but it is equally clear that

that the present depression cannot last indefinitely. Even as it is large numbers of trade sheep and goats are traded by Somalis which pass through the Isiolo Quarantine Station under control.

(b) Experiments in sheep breeding inaugurated at Isiolo have been continued at Laisamis in Marsabit district by the Veterinary Department. These experiments, for which 200 sheep have been purchased are being carried out under the supervision of a Stock Inspector whose duties include also the general veterinary supervision of the District. It had been found that the climatic conditions at Isiolo were not as favourable as at the site now chosen where the experiments have now been varied to include the handling of the native types only under local conditions. It is still early to say whether the scheme will be successful or not and I do not anticipate being in a position to report fully on it for some months. In the meantime I understand that the greatest interest is being shown by the natives in the experiment.

(c) A veterinary training centre has been started at Isiolo under the supervision of a Stock Inspector and good progress in building has been made.

The quarantine area at Isiolo has been cleared of alien Somali trading stock and eighty Moran heifers and two bulls have been bought for the training centre. It is intended to carry on this centre on the same lines as that at Ngong and I have no doubt that in course of time it will become equally successful. Several pupils have already been received and are in training.

8. While the institution of enquiries into breeding and management of camels has not been lost sight of it has not yet been possible to release the staff required for

for the inception of the scheme proposed. It is realised that the work of primary importance is that connected with cattle and sheep and questions such as the improvement of breed in camels and the etiology and incidence of camel disease cannot be undertaken until a large staff and considerable funds are available.

9. The foregoing is a summary of what has already been accomplished in pursuance of the policy recently approved.

It should not be thought, however, that the services inaugurated are being rigidly limited to these activities described above. As an example of the expansion of the main policy I may mention that a Stock Inspector is now engaged in the western area of the Northern Frontier Province in a close veterinary survey, on the lines of that performed in Kajiado District, consisting of visits to each individual cattle or stock owning "manyatta", with a view not only to the identification of clean and infected areas and segregation of the latter but also to winning the confidence of the natives of the area by a practical demonstration of the willingness of government to identify itself with them in finding a solution to the problems peculiar to them. I have every confidence that the results will be important.

Furthermore the Provincial Commissioner and Chief veterinary officer have initiated enquiries as to the best overland routes to be opened in the Coast Province and safeguarded for the marketing of cattle and stock generally with a view to (a) the eventual establishment of recognised routes to "collecting" centres and markets thereby ensuring (b) the prevention of spread of disease by ability to exercise close control over the movements
of

of stock from or through infected areas. As an example I may state that a route via Mariakani and thence to Mombasa has already been surveyed and is in actual use.

10. At the same time it is recognised that the ideal to be aimed at is the gradual inculcation into the native mind of the primary value of cattle and stock products as distinct from the fictitious value assigned to an animal as such. As soon as it is understood that the value of stock lies in products such as ghee, butter, hides, skins and meat rather than in its primitive use as currency and means of barter, so soon will a great advance be made towards the creation of internal and external demand for pastoral produce. Progress has already been made in this direction elsewhere - I would instance the veterinary training Centre at Ngong - and I see no reason to believe that difficulties will arise in the Northern Frontier Province. I believe that education in animal husbandry can best be effected through the natives themselves and it is herein that the great value of such training centres must lie. The pupils of the present will be the elders of the future, whose influence in teaching the mass of the people will be incalculably valuable. This aspect has long been recognised by the Chief Veterinary Officer and forms the groundwork of his general scheme for the improvement of veterinary services throughout the Colony on which I shall address you separately after I have had an opportunity of examining the position with all its implications.

11. With the exception of the cost of purchasing sheep for the experimental station - transferred from Isiolo to Laikipia, the whole cost of the services now approved for the Northern Frontier Province has been borne

by

by the departmental vote of the Agricultural and veterinary Department and is approximately as follows :-

(a) Capital expenditures:

buildings at the veterinary Training Centre, Isiolo.	£	£
	600.	600.

(b) Recurrent expenditure:

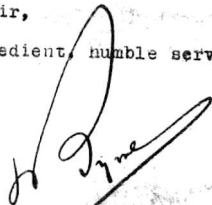
Salary of veterinary officers... ..	840.
Salary of 2 Stock inspectors... ..	700.
Native personnel.	300.
Transport and travelling.	300.
	<u>2140.</u>
TOTAL	£ 2740.

While the principles under which the provision of veterinary services in the northern frontier Province will, of course, be unlikely to vary, the means by which those services are carried out must necessarily be modified by circumstances. It is not pretended that the full benefit of the policy now followed can be attained for many years, nor is it possible to say within any given period to what extent expansion of that policy will be enabled or prevented by financial considerations. For these reasons, while I am disposed to think the recurrent expenditure noted above will remain unchanged materially for some time I am equally unable to define with assurance how far they will be liable to modification by expansion of services in the future.

I have the honour to be,

Sir,

Your most obedient, humble servant,



BRIGADIER-GENERAL.

G O V E R N O R.

C. O.

17009/31/Kenya.

C. O.
R 27 FEB
D 2 March
68

Mr. Eastwood 25

Mr. Allen 75

Mr. Parkins 10

Mr. Tomlinson.

Sir C. Bottomley.

Sir J. Shuckburgh.

Sir G. Grindle.

Permt. U.S. of S.

Partly. U.S. of S.

Secretary of State.

DOWNING STREET,

February 1931.

2 MAR 1931

Sir,

I have the honour to
acknowledge the receipt of Mr.
Moore's confidential despatch No.
180, of the 5th December¹⁹³⁰, in which he
~~outlines~~ ^{the} steps which ~~are being~~ ^{if he has been}

Ans 3

(1)

DRAFT.

KENYA

CONFIDENTIAL

Gov.

decides to
take

for the development of the
Stock Trade in the Northern Frontier
Provinces ^{for the Education of his natives}
^{in improved methods of animal husbandry}

2. The despatch outlines a
definitely constructive programme,
and I have read it with much interest.
With the ~~proposed~~ ^{the} institutio~~n~~ of
taxation I regard ^{the} early development of
marketing facilities as absolutely
essential, and I am glad to learn
that efforts are to be made to stimulate
the trade of the Port of Lamu. I am
informed ^{however} that at one time great cruelty
was

was involved in the loading ~~of~~ ⁱⁿ cattle at Kismayu and on the voyage from there to Zanzibar. If this trade ^{in cattle} from Lamu is to ~~be~~ developed, adequate steps must be taken to guard against cruelty in loading, and for the supply of food and water for the voyage.

I shall be glad to receive any necessary instructions & answers.

If you will give the ~~information~~ ^{information} that ~~this~~ ^{the} ~~number~~ ^{number} ~~one~~ ^{one} or ~~inform~~ ^{inform} me as to the ~~measures~~ ^{measures} ~~proposed~~ ^{proposed} action taken.

3. ~~As a matter of interest, I should be glad to learn the anticipated cost, initial and recurrent, of the measures proposed.~~ ^{It will be convenient if you will advise me as to the anticipated cost, initial and recurrent, of the measures proposed.} ~~I should also be~~ ^{I have also to}

~~glad to learn~~ ^{enquire} when I may expect to receive further information regarding the extent to which it will now be possible to implement the proposals for water-boring and medical services set out in Sir Edward Grigg's Confidential telegram, No. 84 of the 14th March, 1930.

No. 2 on 1604/30.

4. I presume that a full account of the progress made with the veterinary measures will be included in the Annual Report for the Agricultural Department for 1931. I shall, however, be glad to know of any developments in the mean-

time. I have, etc. (Signed) RASCFIELD.

69 /

KENYA.

No. 180



GOVERNMENT HOUSE,
NAIROBI,
KENYA.

5th December, 1950.

CONFIDENTIAL.

My Lord,

In reference to Your Lordship's Confidential despatch of the 14th October, 1950, on the subject of the introduction of the Northern Frontier Province Poll Tax Bill, I am now in a position to outline the steps which I have decided to take for the development of the trade in stock in that Province, and for the education of the Natives in improved methods of animal husbandry.

2. The Acting Provincial Commissioner of that Province and the Chief Veterinary Officer have recently toured the Province together with a view to examining the problem in all its aspects, and have submitted a useful report, of which I append a copy for Your Lordship's information.

3. I concur generally in their recommendations and with a view to giving immediate effect to them I have appointed Captain Mulligan as Veterinary Officer to the Province, to work in close co-operation with the Acting Provincial Commissioner. An additional

- activity -

THE RIGHT HONOURABLE LORD PASSFIELD, P.C.
SECRETARY OF STATE FOR THE COLONIES,
DOWNING STREET, LONDON, S.W. 1.

MAH 1931

Lord Passfield

NO 11 to 11/1/50
11/1/50

2.

activity now proposed is enquiry into the breeding and management of camels.

4. I have further authorised the institution of a training station at Isiolo on the lines proposed in the Report, for which funds are available partly from public funds under the control of the Chief Veterinary Officer and partly from the money paid by Abyssinia in compensation for raids.

5. A letter has also been written to the Resident of Zanzibar suggesting that the Chief Veterinary Officer of this Colony proceed to that Protectorate in order that he might explore the possibility of the development of trade in stock through the Port of Lamu with Zanzibar. As much of this trade is in the hands of the Italian Port of Kismayu some results are expected from the enquiry.

I have the honour to be,

My Lord,

Your Lordship's most obedient,

humble servant,

Am. Williams.

ACTING GOVERNOR.

NORTHERN FRONTIER PROVINCE.

Report of Tour and Recommendations of the Hon. Chief Veterinary Officer, the Acting Provincial Commissioner, Northern Frontier Province, and Capt. Mulligan, Veterinary Officer.

The pastoral tribes of the Northern Frontier Province have never been granted the benefits to be derived from a veterinary service. Their stock population has not been estimated with any approximate degree of accuracy. Much disease, including major diseases, such as rinderpest and pleuro pneumonia, exist, uncontrolled or controlled only to a limited extent by district administrative officers, who cannot be expected to possess the necessary technical knowledge, or to have available the time required for this purpose.

2. On account of the great lack of information concerning disease incidence and distribution, and particularly on account of previous outbreaks of pleuro pneumonia at the Isiolo Quarantine Station, amongst cattle destined for export, it has been considered necessary for some years past to prohibit export of cattle from the entire Province, with the exception of a small export to the Coast. The latter export is considerable in volume, though it has had to be prohibited recently, because of a severe outbreak of rinderpest in the Bura district, which apparently invaded that area from the neighbouring Italian territory. This resulted in a position very serious for the tribes, and the Administration, and occurred at a

time when Government definitely proposed to levy a tax on the tribesmen.

3. For the purpose of explaining the nature and object of the proposed taxation, i. e., the development of pastoral pursuits in relation to the provision of better watering facilities and veterinary services, for the Province, should the tribesmen so desire, a series of district barazas were arranged by the Ag. Provincial Commissioner, who considered that the opportunity was suitable for the Hon. Chief Veterinary Officer to visit the Province, as far as possible investigate the position regarding disease, meet the tribes, hear their difficulties, see their stock, address them, pointing out in what particular directions veterinary services would be of material benefit and explain to them the desire of Government to assist them in this respect.

4. Accordingly a tour was arranged leaving Isiolo on 29th August, 1930, visiting the following districts, at which barazas were addressed by the Hon. Chief Veterinary Officer and the Ag. Provincial Commissioner, on these matters:-

- | | |
|-------------|--------|
| Habbas Wein | Buna |
| Wajheir | Moyale |
| | Bura. |

5. Lamu in the Coast Province was also visited, to enquire into the position created by the recent embargo on the export of cattle from the Northern Frontier Province, on account of the outbreak of rinderpest previously mentioned. A meeting of traders was convened by the District Commissioner, Lamu; various aspects of the trade in stock and stock products were discussed, and it was decided, by the Hon.

Chief Veterinary Officer, owing to the pressing representations made, to re-open the stock trade from the Province to the Coast, subject to quarantine regulations to be controlled by members of the veterinary staff to be stationed at Lamu and Mariakani.

6. It would appear to us that Lamu and the Coast under existing circumstances is infinitely the most desirable outlet for the greater proportion of the Northern Frontier Province stock and stock products, and also for the import of such necessities as are required. Such trade where it exists through Kismayu should be diverted and retained within the Colony by presenting better and more economic facilities. The advantages of the movement of stock on the hoof to the sea for export cannot be too highly appreciated, the elimination of railway freight is an economic factor of vital importance. The provision of stock routes from any part of the Province to the Coast is not obstructively difficult, and with added watering facilities, presents a comparatively simple proposition. The Lamu traders have impressed us that it is their great desire that ^{this} their trade should be developed to the utmost, and that the number of cattle capable of absorption through this outlet is practically unlimited. The Port facilities however leave much to be desired, for handling a large volume of trade, but material improvement could be made without very great expense.

7. The Hon. Chief Veterinary Officer was much impressed by the quantity and quality of stock observed, and the obstructing factor towards development of the disease position with its consequent market restrictions.

8. We have agreed that there is an urgent necessity for procedure, in a preliminary way, along the following lines:-

- (a) Survey and Control of Stock Disease.
- (b) Provision of external and internal markets.
- (c) Instruction in the better preparation of stock products.
- (d) Instruction and demonstration in better methods of animal husbandry.

9. In regard to this procedure, and in further explanation, we think that :-

(a) Disease is not very prevalent throughout the Province; that it exists rather in isolated areas of indefinite distribution; and that it could be materially controlled by a systematic method of quarantine, thereby reducing extension and mortality, thus releasing non-infected areas for such markets as are available. Such a system has already been initiated and could be developed to a much greater extent. The time factor in recognising disease is very important and a watch for invasions of disease from neighbouring territories very necessary.

(b) I. The only available external markets for cattle are Coastal, i.e., Lamu and Mombasa. The Lamu traders consider that exportation through Lamu, as already stated, might be considerable, under proper organisation, but complain that for the Zanzibar market they must compete with Kismayu. It is, we think, much to be regretted that the Zanzibar trade is not entirely Imperial, and we suggest that it might be completely supplied from the Province, with good quality cattle free from apparent disease and even graded if necessary. We have also been informed that Kismayu cattle are absorbed by the Mombasa market - a market which could also be easily supplied by the Northern Frontier Province.

(b) II We recommend therefore that these markets should be thoroughly investigated and explored, and to more easily effect this, that an officer from the Veterinary Department, having a knowledge of Northern Frontier Province Cattle, preferably the Hon. Chief Veterinary Officer, should visit Zanzibar and represent the position to that Government, pointing out the safeguards which are now being instituted, to prevent export of diseased cattle from the Northern Frontier Province, and representing that rinderpest recently conveyed to Zanzibar by trade stock on account of which its markets were closed to the Province might more probably have been conveyed directly or indirectly by cattle from Italian territory.

III The organisation and provision of internal markets, particularly for sheep and goats, would undoubtedly stimulate and facilitate trade generally; such markets would become recognised centres, as is the case of the Moyale market long established, where traders might assemble with a certainty of securing the stock required and the producer the full market value in competition, for stock to be sold, if necessary, on a cash basis.

(c) I Demonstrations in ghee making could be arranged gradually and unobtrusively. Ghee making, although very limited in extent, is already an industry, which could be fostered and assisted to material development. We noted the obvious interest displayed by Galla chiefs and others in ghee making demonstrations exhibited by the Veterinary Department at the recent Show, held during our visit to Lamu. The dairy utensils used, were as simple as could be obtained, easily

portable and were in fact, so we were informed, purchased by a Galla chief after the demonstration.

II The Provincial hides and skins are reputed to be in quality as good as if not superior to any produced in the Colony; unfortunately, the market at present is much depressed but improvement is much desired in preparation and marketing.

(d) I. The export of sheep and goats from the Province approximates 100,000 per annum. The majority are exported through Isiolo and the remainder, a considerable number, through Lamu. This is a material and important industry, and the trade if regulated by a better system of internal marketing is capable of improvement and extension.

II Improvement of existing type of sheep and goat, however, and improvement in general management is required and with these objects in view, sheep breeding experiments are being carried out at Isiolo, but in order to bring this work more closely to the notice of the tribes, we consider that the centre of demonstration and experimentation should be removed from Isiolo to a more suitable area, such as the Marsabit district. This movement also would be likely to favourably affect the percentage of mortality at present experienced at Isiolo, principally due to unfavourable climatic conditions.

III A training station at Isiolo, along the lines of the Veterinary Station at Ngong, would constitute a useful base on which to build up cattle husbandry work for the Province and to provide a centre for training younger members of the tribes in the elementary knowledge of disease, principles of disease control,

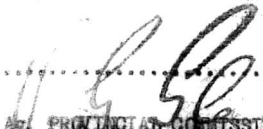
castration, preparation of stock products for marketing and other activities which tend towards the greater development of pastoral industry. To further this object a number of Boran heifers are now being purchased, and it is expected will soon be available. It is anticipated therefore that the work will commence at an early date.

10. In order to give expression to these lines of development, in their practical application, we consider that it is entirely essential that the services of a Senior Veterinary Officer be placed at the disposal of the Ag. Provincial Commissioner, to act in complete co-operation with him, to advise him in all matters relating to pastoral industry, to further explore proposals now submitted, and to investigate and report on the most suitable and beneficial way of utilising Veterinary Services, should they later on be obtained for the Province.

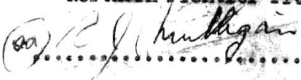
11. We have reached agreement on this, and all other matters herein discussed and request that sanction for this appointment be immediately approved.

Signed A. A. Brassby Edwards

CHIEF VETERINARY OFFICER.



 AG. PROVINCIAL COMMISSIONER,
 Northern Frontier Province.

(cc) 

 Veterinary Officer, Northern
 Frontier Province.

16043/Kanya
/30

DUNN STREET,

14 October, 1930.

(2)

Sir,

I have the honour to acknowledge the receipt of Sir Edward Grigg's Confidential despatch No.130 of the 8th September, and to confirm my Confidential telegram No.213 of 8th October, which read as follows:-

"Your Confidential despatch 8th September I approve introduction of Northern Frontier Province Poll Tax Bill as now amended. I shall be glad to receive as soon as possible further despatch promised in paragraph 5".

2. I note with satisfaction that amendments have been made in the Bill to meet all the points raised in my Confidential (3) despatch No.3 of the 3rd July; but as regards the new Clause 10a, it seems to me that there will always be a possibility of error in estimating the amount which a tribe should have paid in individual taxes, and I desire that it should be laid down - not in the Ordinance, but for administrative guidance, - that any representations made by Headmen as to an excessively high levy made under Clause 10a, must be communicated to the Governor.

I have the honour to be,

Sir,

Your most obedient,
 humble servant,

16043/Kanya
/30

D. W. H. I. S. T. A. T.

14 October, 1930.

Sir,

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2. I note with satisfaction that amendments have been made in the Bill to meet all the points raised in my Confidential (3) despatch No. 3 of the 3rd July; but as regards the new Clause 10a, it seems to me that there will always be a possibility of error in estimating the amount which a tribe should have paid in individual taxes, and I desire that it should be laid down - not in the Ordinance, but for administrative guidance, - that any representations made by Headmen as to an excessively high levy made under Clause 10a, must be communicated to the Governor.

I have the honour to be,

Sir,
Your most obedient,
Public servant,