Governor
Enclosure 462

1913
June

Last previous Paper
Entry
22605

VETERINARY CONFERENCE AT BULAWAYO

Two copy of letter from C.V.O. together with his Report. He has been asked to inquire into the local measures in force as to stamping out infection of which he could advocate the results of his investigations.

~~Mr Lambert~~ Mr G Fiddes

You may like to see especially as to tuberculosis pp: 31-32 of report

We ask: next of despatch to say that Mr Harcourt has read Dr Stordy's report with much interest - & send the duplicate of the despatch: &

the Prop: forwards pursuant to Mr. So far as we know action is being taken - the other recommend regarding underspirit

H. J. R.

15/VII/13

stored
16.7.13

16/7/13

Copy Collection of Mr. Stordy's Report - 19/8/13

Next subsequent Paper

24933 Nyasa

GOVERNMENT HOUSE,
NAIROBI,
BRITISH EAST AFRICA.

14th June 1913.

EAST AFRICA PROTECTORATE.

No.462

Sir,

With reference to my despatch No.416 of 30th ultimo, I have the honour to transmit herewith copy of a letter from Mr.Stordy, Chief Veterinary Officer, together with his report on the recent visit which he undertook to South Africa to attend the Veterinary Conference at Bulawayo.

Mr. Storey Jun. 11th Report

2. I have asked Mr.Stordy to indicate the local measures in regard to dipping, the adoption of which he would advocate as a result of his investigations.

I have the honour to be,

Sir,

Your humble, obedient servant,

H. Edward Belfield

GOVERNOR.

THE RIGHT HONOURABLE
LEWIS HARCOURT, P.C., M.P.,
SECRETARY OF STATE FOR THE COLONIES,
DOWNING STREET, LONDON, S.W.

Office of the Chief Veterinary Officer,

Nairobi,

11th June, 1913.

.38/12/13

Sir,

I have the honour to forward herewith a Report on my recent visit to South Africa to attend a Conference of the Veterinary Officers of the various British and foreign possessions in Africa, called by His Excellency the Governor General of South Africa, to discuss what action should be taken to prevent the spread of Rinderpest to the South African Colonies.

2. Advantages were taken of the Meeting to discuss other African diseases of animals and the best methods of controlling them.

3. During my visit I made a particular point of examining thoroughly the dipping system as adopted in Southern Rhodesia, the Transvaal and Natal.

4. I would respectfully tender my thanks to His Excellency the Governor General of South Africa for the facilities granted me for obtaining information in regard to Veterinary matters as also to Sir W. Milton and his Administration in Southern Rhodesia for similar favours.

5. My best thanks are also due to Mr. Sinclair, Chief Veterinary Officer, Southern Rhodesia, Mr. Gray, Chief Veterinary Officer, Union of

The Hon. The Chief Secretary,

Nairobi.

of South Africa, Mr. Robertson, Acting Director of Research, Pretoria, Mr. Verney, Chief Veterinary Officer, Basutoland, Mr. Chase, Chief Veterinary Officer, Bechuanaland, Mr. Hilder, Chief Veterinary Officer, Swaziland, Mr. Garden, Chief Veterinary Officer, Nyasaland, Mr. Power, Chief Veterinary Officer, Natal, Mr. Jones, Chief Veterinary Officer, Mozambique, and Dr. Rothello Chief Veterinary Officer Lorenco Marques, for their unfailing help and assistance in placing me thoroughly au fait with their methods of dealing with the various diseases of South Africa, also to Mr. Shilston, Veterinary Officer in charge of the Allerton Laboratory, Pietermaritzburg, who gave me some valuable information in regard to the experiments carried out by Lieut. - Col. Watkins-Pitchford and himself in regard to short interval dipping, and demonstrated the method by which the venom was obtained from the poisonous snakes of South Africa for the production of Anti-venene, also to Mr. Barber, Port Veterinary Officer, Durban, for his information regarding his treatment by Permanganate of Potash in Septoetic Lymphangitis. Finally I would thank Mr. Joseph Haynes, C.M.G., for his courtesy is demonstrating to me his method of dipping all classes of stock at his farm at Nels Rust and Meyers Rock as well as the method adopted for the artificial feeding of calves.

6. At the conclusion of the Conference I made a suggestion that as the Veterinarians in British East Africa were dealing with many tropical diseases of stock unknown in the Southern portion of the African Continent, that the next Conference be held at Nairobi, this was considered most favourably on all hands.

I have etc.,

Sd. R. J. Stordy
Chief Veterinary Officer.

Gen. CAP

203

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C.O. 17 JUN

7 July 1913

DRAFT.

C.A.P No 592

H.C. Belfield

MINUTE. 16/7/13

Mr. Jewell 16/7/13

Mr. Bottomley 17/7/13

Sir G. Fiddes.

Sir H. Just.

Sir J. Anderson.

Lord Emmott.

Mr. Harcourt.

Sir,

I have the honour to ack

the rect of Your desp. No. 462

of the 14th of June, and to

enc. you that I have seen a

copy of a letter from the R

Medical Officer to the R.J.

Florida's Chief Veterinary Officer,

together with his report on his

recent visit to S. Africa to attend

the Veterinary Conference at

CAP

Sir,

I have the honour to acknowledge the receipt of your despatch No. 462 of the 14th of June, enclosing a copy of a letter from the Medical Officer to the Royal Florida's Chief Veterinary Officer, together with his report on his recent visit to South Africa to attend the Veterinary Conference at Bloemfontein, and to express to you my appreciation of the valuable information contained in the latter document.

2. I am glad to learn that Mr. Robertson, Acting Director of South Africa, Mr. Robertson, Acting Director of Research, Pretoria, Mr. Verney, Chief Veterinary Officer, Basutoland, Mr. Chase, Chief Veterinary Officer, Bechuanaland, Mr. Hider, Chief Veterinary Officer, Swaziland, Mr. Gordon, Chief Veterinary Officer, Rhodesia, Mr. Bevan, Chief Veterinary Officer, Natal, Mr. Jones, Chief Veterinary Officer, Transvaal, and Cobbold, Chief Veterinary Officer of South Africa, for their satisfying help and assistance in placing me thoroughly au fait with their methods of dealing with the various diseases of South Africa, also to Mr. Gilmour, Veterinary Officer in charge of the African Laboratory, Pietermaritzburg, who was so very valuable in regard to the opportunity granted me by him. - Dft. Meeting-Cleghorn and himself to report to stock Imperial dignity, and demonstrated the method by which the vaccine was obtained from the poisonous venoms of South African for the production of anti-venomin, also to Mr. Mayor, Port Veterinary Officer, Durban, for his information regarding his treatment by Permanganate of Potash in Rinderpest (Bechuanaland). Finally I would thank Mr. Joseph Duncan, C.M.G., for his courtesy in corresponding to me his method of dipping all classes of stock at his farm at Vaja East and Mayara Rock as well as the method adopted for the sanitation feeding of natives.

3. At the conclusion of the conference I made a suggestion that as the Veterinarians in [illegible] and Africa were dealing with many tropical diseases of stock unknown in the Southern portion of the African Continent, that the next Conference be held at Salisbury, this was emphatically approved favourably on all hands.

I have etc.,

Sd. E. T. Stordy

Chief Veterinary Officer.

Bulawayo.

I have read the

report with much interest.

157

Secretary of State for India
Returned to Colonial Office
with covering letter.
Received back from C.O. with Despatch No. 463
Recalled by C.O. per Despatch No. 463

INCLOSURE No 2.
In Despatch No. 463 of 14 June 1913

REPORT ON A VISIT TO SOUTH AFRICA TO ATTEND THE VETERINARY CONFERENCE AND TO ENQUIRE INTO THE SHORT INTERVAL DIPPING SCHEME.

(2)

Report on a visit to South Africa to attend the Veterinary Conference and to enquire into the Short Interval Dipping Scheme.

I left London on the 15th of March, 1913, arriving at Beira on the 27th March, when I proceeded to Salisbury, Bulawayo, Johannesburg, Bloemfontein, Pretoria, Maritzburg and Durban. I left Durban on the 8th May, returning to Nairobi on the 16th May.

At Salisbury I called upon the Administrator, Sir William Milton, and gave him His Excellency's message as to the extent to which the Governor of British East Africa was prepared to assist [illegible] in regard to the Veterinary Conference.

The Veterinary Conference was opened by the Mayor of Salisbury, [illegible] Colonial Secretary, on the 31st March, Mr Blair, Chief Veterinary Officer, Southern Rhodesia, presiding.

The following Delegates were present:-

Mr Gray, Chief Veterinary Officer, Union of South Africa.
Mr Robertson, Acting Director of Research, -do-
Mr Chambers, Chief Veterinary Officer, Northern Rhodesia.
Mr Chase, -do- Zoutpansberg.
Mr Yeoley, -do- Basutoland.
Mr Vidler, -do- Swaziland.
Mr Jones, -do- Mozambique territory.
Mr Garden, -do- Nyasaland.
Mr Bethello, -do- Portuguese East Africa.
Mr Van Pass, -do- Belgian Congo.
Mr Simonds, Deputy Chief Veterinary Officer, Southern Rhodesia.
and myself.

(8)

It was regretted that through an oversight a Veterinary representative from German East Africa had not been invited to attend.

The Conference had been called in the first instance to discuss Rinderpest and its control, but was afterwards extended to include the following Agenda:-

1. Rinderpest.
2. African Coast Fever, including
   (A) Diagnosis.
   (B) Modification of Regulations in consequence of extensive dipping operations.
   (C) Diagnosis (1) Microscopic,
   (2) Macroscopic.
3. Tuberculosis.
4. Intercolonial movement of stock and importation from overseas.
5. Lungsickness.
6. Bolicostic Abortion.
7. Trypanosomiasis.
8. Anthrax, particularly with reference to inoculation.

1. Rinderpest.

The resolutions passed in regard to Rinderpest were forwarded to you under cover of my letter of 22nd May, 1918, but in order to make this Report complete I reiterate them.

The recommendations regarding the supply of Serum, are based upon an offer of assistance by the British East Africa Administration, conveyed by its Chief Veterinary Officer, Mr E.J.Sturdy, which is as follows:-

(4)

"In view of the danger of the spread of Rinderpest to the South African States by Government is prepared to supply up to 250,000 (two hundred and fifty thousand) doses per annum of anti-rinderpest Serum at the approximate rate of one penny per dose, providing always that a sufficient supply is available from the Western Province of Rhodesia, that laboratory assistance is given by the Veterinary Authorities of the States concerned, and that the cost of administering the Serum is met in such a manner that it does not appear in the Estimates of that Protectorate".

Conclusion.

[illegible] Colony [illegible] Nyasaland [illegible] Uganda [illegible] Tanganyika [illegible] Kenya [illegible] Somaliland [illegible] Zanzibar [illegible] Mauritius [illegible] Seychelles [illegible] Rhodesia [illegible] Mozambique [illegible] Union of South Africa [illegible] Bechuanaland Protectorate [illegible] Belgian Congo [illegible] Southern Rhodesia [illegible]

That applications for serum from the German East Africa Administration be refused East Africa receive prior consideration, until such time as the former is in a position to supply the requirements, or until the disease spreads beyond its borders.

5. That in the event of German East Africa requiring additional Veterinary Assistance for the purpose of combating Rinderpest, the States represented at this Conference offer to assist by according professional Officers for duty in that territory.

6. That if Rinderpest invades any of the territories adjoining German East Africa, the Governments of the territories more directly concerned render them all Veterinary Assistance within their power including contributions of Serum.

7. That on account of the vital importance of the early discovery or outbreak of Rinderpest, those States bordering German East Africa which are insufficiently provided with Veterinary Assistance, strengthen their staffs without delay, and that not less than two Veterinary Officers be stationed on the German East Africa border between Lakes Tanganyika and Nyasa for the purpose of watching the situation.

The Conference desires to direct special attention to the desirability of Veterinary Surveys in the Bechuanaland Protectorate, which places that territory at a great disadvantage and in a position of extreme danger should the disease extend further Southwards.

8. That States engaging new Veterinary Assistants, or whose present Veterinary Officers are not intimately acquainted with Rinderpest, send Officers to some centre where they can have the opportunity of studying the disease in its present manifestations.

(6)

9. That the Rhodesian Administration establish a mobile [illegible] along the [illegible] African border similar to that which is being planned in Northern Rhodesia, and that joint arrangements be made by these Administrations for the [illegible] of the [illegible] Arrangements [illegible] which is 560 miles.

10. In all territories [illegible] absolutely necessary that forces prohibiting the [illegible] or removal of [illegible] hide, or any other animal [illegible] carcase [illegible] Underwood, which will [illegible] provide for [illegible] duties.

11. That in the event of the disease [illegible] Northern Rhodesia in spite of the efforts made to prevent its spread and before reserves of Serum have been [illegible] by the British East Africa Administration, [illegible] arrangements be made for the establishment of a Serum Station at some point in proximity to the Railway in Northern Rhodesia, and the Government which [illegible] be in a position to supply staff and [illegible] Station, to undertake its management.

12. That if an outbreak of Rinderpest is localised in extent, and Serum not immediately obtainable, the infected animals and all those in contact be destroyed; but if Serum is available, only those actually suffering from the disease should be killed and those in contact injected with large doses of Serum while the adjoining herds are treated in a similar manner.

(7)

If the outbreak be extensive or destruction inadvisable, virulent blood and Serum or fresh bile should be employed for the inoculation of infected herds, and the surrounding herds passively immunised with Serum or Glycerinated bile.

No opportunity should be lost of preserving in Glycerine, all Rinderpest bile for use in cases of emergency where Serum is not available.

[illegible] the measures of Resting Dr. Woolfel, [illegible] British German East Africa [illegible]

[illegible] Coast have occurred on the Anglo-[illegible] border in the district of Taita, South-East of Sharati, [illegible] Lumbwa, Naivasha and Ukamba, the latter being the farthest North.

An outbreak [illegible] successfully stamped out by the use of anti-[illegible] to prevent the disease travelling further South. It is proposed to [illegible] actively immunise [illegible] cattle North of the Ruaha River.

The infected district of [illegible] is bounded both East and West by broad [illegible] belts, which contain, however, large numbers of buffalo, whose [illegible] anticipate should [illegible] the bars.

The [illegible] of the disease in German East Africa has been rather more severe than in the East Africa Protectorate. They have manufactured 6,000 doses of Serum but are anxious to obtain more fresh [illegible] pending the establishment of a laboratory and Serum Station.

Dr. Woolfel was leaving for Nairobi to obtain first

(6)

9. That the Veterinary Administration establish a mobile [illegible] along the [illegible] Africa border similar to that [illegible] in Northern Rhodesia, and that [illegible] arrangements be made by these Administrations for the [illegible] of the belt, the arrangements to be worked [illegible] as one unit.

10. In all territories [illegible] I am of opinion that [illegible] Forces prohibiting the [illegible] use or removal of [illegible] hide, or any [illegible] to convey [illegible] except, [illegible] and [illegible] under [illegible].

11. That in the event of the disease [illegible] Northern Rhodesia in spite of the efforts made to arrest its [illegible] and before reserves of Serum have been [illegible] in the British East Africa Administration, [illegible] arrangements be made for the establishment of a Serum Station at some point in proximity to the railway in Northern Rhodesia and the Government which is [illegible] position to supply staff and equipment for such a station undertake its management.

12. That if an outbreak of rinderpest is localised in extent, and Serum not immediately obtainable, the infected animals and all those in contact be destroyed; but if Serum is available, only those actually suffering from the disease should be killed and those in contact injected with large doses of Serum while the adjoining herds are treated in a similar manner.

(7)

If the outbreak be extensive or destruction inadvisable, virulent blood and Serum or fresh bile should be employed for the inoculation of infected herds, and the surrounding herds passively immunised with Serum or Glycerinated bile.

No opportunity should be lost of preserving in Glycerine, all Rinderpest bile for use in cases of emergency where Serum is not available.

On my way to Nairobi I met the Chairman of Meeting Dr. Woolrel, C.M.G., [illegible] Colonial Veterinary East Africa Protectorate.

[illegible] have [illegible] on the Anglo-German border in the vicinity of Kisii, Kericho, or Mumias, near Kisumu, and [illegible] Uganda and Usoga on the north of Victoria Nyanza.

As an outbreak [illegible] would [illegible] stamped out by the use of anti-[illegible] to prevent the disease travelling [illegible] it is proposed to [illegible] actively immunise [illegible] cattle North of the Tsavo River.

The infected district of [illegible] bounded both East and West by broad Tsetse fly belts, which contain, however, large numbers of buffalo, whose [illegible] must anticipate should [illegible] on the [illegible].

The outbreak of [illegible] in German East Africa has been rather more severe than in the East Africa Protectorate. They have manufactured 6,000 doses of Serum but are anxious to obtain more from us, pending the establishment of a laboratory and Serum Station.

Dr. Woolrel was leaving for Nairobi to obtain first

(8)

first hand information in regard to our methods, which Mr Brandt was happy to give him.

I attach a map of German East Africa showing the infected areas, and the blue line marks the approximate position of the proposed belt of actively immunised cattle.

LIVE STOCK DIPPING.

The value of dipping in regard to East Coast Fever.

An animal subjected to thorough dipping every 72 hours can, in South Africa, graze with impunity over East Coast Fever infested pastures.

The elimination of arsenic from the animal's skin is so rapid, however, that animals dipped at longer intervals than 72 hours lose the protection so afforded.

This interval is the one adopted in the infected areas of Rhodesia, Transvaal, Natal and Swaziland with excellent results.

Upon the grossly infected commonages of Utrecht, Southern Rhodesia, some 300 deaths from East Coast Fever had been recorded before dipping was undertaken. Since the establishment of dipping, however, among 1,800 head of cattle using the pasture only 26 deaths have occurred in the past 30 months.

In the Swaziland Native Reserve, where the mortality had been very great, some 8,000 head are dipped every three days. The cattle are kept grazing upon the same infected pasture and the losses from East Coast Fever have already been reduced to under 5% in dipping areas. The area was formerly heavily infested with ticks and it is now difficult to find any on the cattle.

(9)

In Natal, where there are 1,500 dips in use the same good results are reported.

Mr J.Rayner, who is the pioneer of dipping in South Africa, and for some years constantly dipped the stock on his farm every seven days; this, however, did not suffice to prevent the introduction of East Coast Fever on his farm on two occasions, and it was not until the introduction of a dip which could be used every three days that he was able to absolutely stamp it out.

Other benefits from dipping.

In Southern Rhodesia prior to dipping, calves lost from East Coast Fever, Liver Disease in Calves, Quit, Tsetse (mostly navel infection) and other sick house diseases, up to 90% or more calves. With dipping, the Chief Veterinary Officer reports that the mortality from all such diseases was practically disappeared, viz.

Mr J.H.Hales of the Matoppos Farms informed me that he annually lost calves dipping from 60% to 75% of the young calves, his death rate now is reduced to 8%.

Mr W.Hayes of Hale Hall, formerly one of the worst tick infested areas on the Natal Coast lost 60% to 80% of his calves; last year he raised 400 calves with a mortality of 8%.

The condition of the adult stock, in dipping centres, has in no way suffered but on the contrary, is generally considered to have materially improved and steers are fattened quicker.

Apart from the danger of infection from East Coast Fever, dipping is carried out on account of the beneficial effect on the general health of the stock by killing the blood-sucking parasites; this at weekly intervals.

It is, in many cases, extended to all animals on the farm, horses, mules, donkeys, pigs, sheep, goats and dogs.

Details of dipping tank.

The plan and specification of the dipping tank is attached hereto, and copies will be furnished to all farmers throughout the Protectorate. Capacity - ordinary 3,888 gallons, large tank 5,806 gallons. The ordinary size tank is the one in general use; most farmers consider that the 4' 6" tank is too large.

The sheer drop type of tank has been found essential to ensure complete submersion of the animal as this is not obtained with the steep slope type the animals sliding in too rapidly fail to wet their heads and necks.

In Natal, the width of the tank is 3' 6" at the top and 1' 6" at the bottom.

Spraying has now been abolished and tank dipping adopted throughout South Africa.

To regulate the passage of the cattle through the dip, in some tanks a sliding door sorted for, the handle is used to close the door in the tank. Where large numbers of cattle are dipped, the "race" but from the tank should be extra long to avoid congestion and prevent delay in passing the cattle out.

In black cotton soil care must be taken to [illegible] the walling on the soil after rains and the sides of tanks constructed on such soil often require to be strengthened with buttresses.

(11)

In Swaziland the walls are 10" thick, are built o
[illegible] and rendered with cement.

In Rhodesia, they cost from £150 to £250.

In Basutoland for dips and in Natal, where the [illegible] has the most help, the materials cost about £70.

The sloping part of the bath, [illegible] is provided with [illegible] with only solid cement ridges ½" to ¾" high. The [illegible] in both of these slopes are not to be [illegible] very slippery and are thus liable to cause accidents.

To prevent freezing of the tanks during the rains, many South African farmers have a roof over the dip.

Wooden plungers, having a round flat disc on the end of a pole, are used for stirring up the dip script to use and three crooks are used for immersing herds of cattle when necessary [illegible] for medicating them in the bath.

Necessities of Dip.

1. Laboratory Dip.

Cole Watkins-Pitchford's formula of Arsenite of Soda, Soft Soap and Paraffin has proved itself an [illegible] satisfactory for the destruction of ticks without injury to [illegible] animals. Many farmers are using the Arsenite of Soda alone but there is less scalding and greater soaking however, when the full formula is used. The greatest care is necessary in the preparation of the bath to avoid acid-ity and the hydrometer (an instrument for determining the arsenical strength of the dip) should be kept in constant use.

The original composition as advised by Lieut.-Col. Watkins-Pitchford, and also known as the five-day dip on the full strength dip (standard strength), consists of:-

Arsenite of Soda (80% of arsenicum oxide) 8½ lb.
this has since been reduced to 6 lb.

Soft Soap .. .. .. 6½ lb.

Paraffin .. .. .. 2 gals.

Water .. .. .. 400 gals.

There is also ¾, ½, and 5/12 strength dip, according to the recommendations of Lieut.-Col. W.Watkins-Pitchford, containing respectively 6-6/8, 4½, and 3⅓ lb. of Arsenite of Soda.

The instructions for mixing the dip are as follows:-

Dissolve the soap in about 5 gallons of boiling water; whilst still hot add this soap solution in small quantities at a time to the paraffin and beat or stir to a creamy lather. This makes the soap emulsion. Dissolve the Arsenite of Soda in a sufficient quantity (about 1 gallon) of boiling water and when completely dissolved add cold water up to 30 gallons. Make sure the dip is made in the dip tank. The soap solution may then be gradually added, stirring thoroughly all the while. Water should then be added till the 400 gallon tank is full. When it is desired to refill the dipping tank the above procedure can be adopted for as many times as is found necessary, or one mixing may be made sufficient for the purpose. Four hundred gallons, however, is a sufficient quantity to handle at one time. If a film of oil floats to the top of the dip in the tank the dip should be stirred with a stick or board, before commencing to dip, or the oil may easily be removed by skimming. The proportion of alkali present in the dip soap

soft soap (a proportion varying with different samples) determining to some extent the degree of emulsification of the oil.

The dip known as the three-way dip or half strength, originally, consisted of 8 lb. (this one since been reduced to 4 lb.) of Arsenite of Soda, 4 lb. of soft soap and 1 Gallon of petroleum.

To six hundred gallons of [illegible] 4 lbs. residue of Soda (80% Arsenic) 8 lbs. soft soap, 1 gallon petroleum.

The above ingredients are to be mixed in the same manner as directed for the preparation of the laboratory dip, which is briefly as follows:-

The soft soap and Arsenite separately in a sufficient quantity of hot water, and the soap solution to the petroleum and beat into an emulsion, then add the solution of Arsenite and hot water to make up to 600 gallons, stirring vigorously all the while.

It is found convenient to use heat in the preparation of the dip as above - the dipping fluid may be prepared as follows:-

Fill the 4 lb. of soap, which is to be broken, fill up with water (about 1 gallon) the soap should then be broken up by the hand into small pieces. It is then to be heated over a stove, and by continuous stirring, the 4 lb. of soap will be dissolved in about fifteen minutes. Then add the petroleum as above and beat into an emulsion. Take, in a similar manner, the 4 lbs of Arsenite - which will be found to become dissolved in about the same time with constant stirring.

This solution, together with the emulsion, should then be placed in the mixing tank and water added with constant stirring up to 600 gallons. This quantity may then be allowed to run into the dip the tank.

(14)

If it is desired to mix at one time sufficient materials for the whole contents of a dipping tank, of say, 5,000 gallons capacity, the following method may be adopted:-

Place the total quantity of soap & 24 lbs. into the 400 gallons in the tank at 160 about 200 gallons of soft water. The mixture should remain - with occasional stirrings - until next day, - when the soap will be found to have completely dissolved.

The paraffin (24 lbs. total) may now be added and the whole beaten into an emulsion.

Although it will probably be found the most convenient to dissolve the Arsenite of Soda in a few gallons of hot water - this may be carried out in a short time with cold water in the following manner:-

Place two or three pounds of the total of water and stir vigorously for five or ten minutes, allow any undissolved particles to settle and pour off the liquid into the tank containing the emulsion. Treat the Arsenite to that remaining in the bucket as before with water again - repeating this till all the Arsenite has become dissolved.

After thoroughly mixing the emulsion and Arsenite solution, the whole may be run into the dipping tank and water added until this is filled to the required quantity.

3. Paraffin and Petroleum Emulsion, with Gin.

is a very convenient preparation and can be used in varying proportions either for 6, 8 or 7 days; it is effective in the destruction of tick life, and some claim that it is the only fluid that will destroy the male Ambiyomma hebraeum (the heart water tick).

It is more expensive than the laboratory dip but has the advantages of easy preparation, eliminating the risk of

risk of error in composition, and the saving of fuel and time. I was also informed that its depressing effects upon tick eggs are somewhat less than those produced by the laboratory dip.

The improved dip is stated to be a homogeneous mixture, unlike their previous production in which the arsenic was apt to sink to the bottom of the drums with the result that fatal accidents were liable to occur unless the drum was vigorously stirred before using.

The new dip is used in Rhodesia, Swaziland, Transvaal and many parts of Natal both by the Government and the public.

The isometer has also been adjusted to register the strength of the dip.

In both dips owing to the bacterial growth, oxidation takes place, converting the arsenite into the arsenate, the latter compound having been proved to be less efficacious against ticks; this, however, is of little moment as the dip is being constantly used added to and experiments are now in progress with a view to obtaining the most suitable germicide to add to the fluid to destroy the bacteria causing the oxidation. It has, however, been recently demonstrated by Mr Lewis, Chemist to Messrs Cooper and Nephews, that there are two kinds of bacteria at work in a dipping tank, the above mentioned one, which oxidises the arsenite to arsenate, and a second which reduces the arsenate so formed back again to arsenite.

In about a month a balance between the action of the two bacteria is struck when there is as much arsenate reduced back to arsenite as there is of arsenite oxidised into arsenate. This chemical action, however, only

only takes place when a tank is being kept in constant use every few days. If a bath stands for a fortnight, the reducing bacteria quickly clear out, the preceding bacteria quickly thereafter and the whole of the organism becomes oxidised and innocuous.

In addition the Government retains the right to analyse any dip either privately or publicly owned in order to ascertain the efficacy of the fluid in use, but accepts no responsibility for any accident caused by dipping operations.

Dips require, as a rule, to be cleaned out every three months, this, however, is dependent upon the number of cattle passing through it and while in some cases it may be necessary to clean it every six or eight weeks, in others it may only be necessary every six months.

Mr Haynes, who dips every 7 days some 800 head in each of his dips, cleans his dips every three months.

In my first statement at Mazoe regarding the dipping of cattle, I stated that the three-day dip was effective for such it appears, I find that same is not the case and in South Africa an official announcement has been made to this effect, as follows:-

The following Notification appears in the South African Union Government Gazette for 23rd February, 1917:-

"With reference to the compulsory dipping of sheep and "goats ordered to be carried out in terms of Government "Notice No. 284 of 1913, certain farmers having expressed "their intention of dipping their flocks in cattle dipping "preparations, it is desired to point out that a mixture "of soda, as used for cattle, is not an effective acaro- "destroying liquid of sufficient strength, nor cannot,

"and cannot, therefore, be used for the dipping of sheep and goats".

The sheep belonging to natives can be passed through the dip when it is required to reduce tick infestation. Kaffir sheep and goats can be dipped every 7 days in the 5 days strength.

In order to keep the dip at a uniform strength, careful measurements should be taken of the height of the fluid in the tank at the completion of each days dipping and before commencing the next dipping, in order to calculate the adjustment required to be made. These measurements will give either the amount of evaporation that has occurred or the amount of rain which has fallen into the tank. In the case of evaporation, water alone requires to be added in the case of rain only the requisite proportion of dip to the amount of rain water which has entered.

Below is a handy table, calculated for Cooper's dip, which should be kept in book form and written up each day.

Date.	Weather.	Measurement of dip at water level.	Rain.	Evaporation.	Adjustments. Dip.	Adjustments. Water.	Measurement of dip ready for use.	Number of animals dipped.	Height of dip at water level at completion of dipping.	Remarks.
1/4/15	Sunshine	6'	Nil	Nil	-	-	6'	200	5' 9"	
2/4/15	Rain	5' 10"	60 gals.	-	3 3/8 gal.	-	5' 10"	200	5' 5"	

The dimensions of the tank from which the above calculations were made gave 60 gallons to the inch.

In the East Africa Protectorate type of tank, 6' 6" wide by 41' in length at water level; the approximate capacity per inch depth at the top is 74 gallons.

Date.	Weather.	Measurement of dip at water level.	Rain.	Evaporation.	Adjustment. Dip.	Adjustment. Water.	Measurement of dip ready for use.	Number of animals dipped.	Height of dip at water level at completion of dipping.	Remarks.
1/4/13	Sunshine	6'	Nil	Nil	-	-	6'	200	6' 9"	
2/4/13	Rain	5' 10"	60 gals.	-	3" s.d.	-	5' 10"	200	5' 5"	

The dimensions of the tank from which the above calculations were made gave 60 gallons to the inch.

In the East Africa Protectorate type of tank, 6' 6" wide by 41' in length at water level; the approximate capacity per inch depth at the top is 76 gallons.

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Cost of dipping.

With the Laboratory dip the cost per 1,000 gallons is under. I quote the prices given me by Messrs Howse and McGregor, the ists, Nairobi.

	Rs.	cts.
40 lbs. Arsenite of Soda (80 per cent)	14	28
30 lbs. Soft Soap	9	64
10 gallons Parraffin	8	75
	32	67

or £2/2/0 f.o.r. Nairobi, 9/- higher than Maritzburg prices. That equals Rs. 8/17 per 1,000 gallons. It has been estimated that a beast carries away with him from the dipper approximately ¼ to ½ of a gallon of fluid at each dipping; thus 100 beasts would carry away 75 gallons and if the dipping is done every third day, and there are 3 per month, this equals 750 gallons per month. The value of the dip lost would, therefore, be, at Rs. 8/17 per 1,000 gallons, Rs. 6/12 per month per 100 head of cattle or a little over 5 cents per month per beast or 70 to 80 cents per beast per year. In one word a rupee per year per beast would cover all expenses.

With Cooper's Dip, in the Native Reserves of Swaziland, the cost is estimated at 75 to 80 head of cattle per shilling. The charge made at public or communage tanks is 1d. per head, allowing unweaned calves free.

In Natal every head is charged for.

Cash at time of dipping is demanded at public dips.

A system is in force in Swaziland whereby every male 16 years of age or over pays 2/- in addition to his £1 Poll Tax. This sum is devoted to the erection of dippers and the dipping of his cattle for one year, and includes an insurance against any of his regularly dipped cattle dying of East Coast Fever. Any such deaths are compensated for according to the following rates:-

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Large ox	25.	10.	0
Small ox	3.	10.	0
Full grown bull	4.	0.	0
Cow	3.	10.	0
Heifer	2.	10.	0
Yearling	1.	10.	0
Calf		10.	0

Europeans in Swaziland pay 2/- per head of cattle owned by them per year for the first two years of dipping and a further sum of 1/- per year for the next three years making a total of 7/- per head for five years dipping, at the end of which period, it is anticipated that East Coast Fever will be eradicated. European's cattle are not insured.

These Rates suffice to pay for the dipping but not, of course, for the Veterinary Staff or Stock Inspectors.

There are 18 tanks in working order at present, three are under construction and a further six will be ready within the next six months.

The natives fully appreciate the value of dipping and many of them bring mobs of cattle 15 miles to a tank every 5 days, the cattle thus travelling 30 miles on each occasion.

12,000 cattle are dipped every 5 days in Swaziland and 9,000 every 5 days.

Within a radius of six miles from the dip, dipping is compulsory; it is voluntary beyond that distance.

In the Zululand Native Reserve, 250 tanks are being erected which will be controlled by the Native Affairs Department who their cost recovered by levying a tax.

In Matabeland, the natives pay 1d. per head per week for the dipping.

Where three days dipping is enforced with the Europeans nor natives are charged for dipping when done in a public bath, as the operation is carried out for the eradication of a contagious disease.

Accustoming animals to the dip and intervals between dippings.

Cattle are first dipped at seven day intervals for the first month, in a dipping fluid slightly stronger than the three days strength. The following month the cattle are immersed at five days intervals at the three days strength, after which period the regular three days dipping can be carried out, or the five days dipping at five days strength, or the seven days at seven days strength. This is the correct method but in practice is frequently neglected and new accessions to the herd are subjected to the same routine as the original herd without ill effects being recorded. Calves are also passed through at the strength in use. Most farmers, however, do not dip calves until a fortnight to one month old.

Cows in calf and mares in foal are dipped up to the date of parturition but dipping is suspended until slinking has taken place.

For the first few dippings it is usually necessary to forcibly haul the animals into the bath, either by ropes round the horns or buttocks or by a bar behind them, but this soon becomes unnecessary and when a herd of cattle are accustomed to the operation they will voluntarily pass through at the rate of 400 per hour.

Goats and donkeys are exceptions to the above general rule and are always somewhat obstinate.

It is obvious that no rough handling should be given to the heavily pregnant animals and common sense precautions should be taken.

On infected farms dipping takes place every 72 hours; clean farms in the danger zone every three, five or seven days according to the proximity to the infected area; farms well removed from the danger zone every week or seven days strength.

Precautions to be observed when dipping.

The weather must be borne into consideration; on a bright sunny spring dipping should commence early when the animals dry before the sun is hot which, to a great extent, prevents scalding.

In cold weather in South Africa, dipping is usually suspended but the condition of cattle furnishes the best guide.

The life history of the tick is prolonged in cold weather for which reason dipping at such times may be at longer intervals with equal results.

Cattle should never be dipped when hot; they should be allowed to stand in the collecting and watering yards for at least half an hour before being put through the bath.

On grossly infested land it is advantageous to clip the tail tuft to allow the dipping fluid to penetrate the layers of ticks in this situation but where tick life is less abundant it should be left as being a predilection seat for ticks; it assists in collecting them.

Dressing of the ears with equal parts of oil and paraffin or with crude petroleum is carried out and is supplied by a piece of rag or preferably a paint brush. When, however, the tanks are built with a sheer drop of not less than 5'6" the thorough immersion thus obtained obviates its necessity.

Dangers of Dipping.

1. Poisoning.

The farmer must remember that whatever fluid is used he is dealing with a deadly poison, and unless the most constant care is exercised in the preparation of the dips accidents will follow.

Most cases of poisoning have been due to the dipping fluid being over strength, death being caused by absorption of the arsenic through the skin and from thirsty cattle drinking the fluid. Every dipping plant should have drinking troughs placed in the cattle tracks with an ample supply of water.

Provided that personal supervision is given to the mixing of the bath and the thorough watering of the animals before dipping them, the mortality from poisoning is negligable.

In Southern Rhodesia, during the past three years, 100,000 head of cattle have been regularly dipped and deaths from poisoning have been about 1 per 10,000.

As the animal emerges from the tank, the dipping fluid flows down its face and is frequently licked by the animal with no ill effect. The same applies to calves sucking their mother after dipping. The udders of milch cows should, of course, in all well regulated dairies be properly washed before milking but I fear that this is more honoured in the breach than the observance.

A South African physician has blamed dipping as the cause of a peculiar dysentry among farmers' children due to traces of Arsenic in the milk from unwashed cows. It has, however, been proved without doubt that this peculiar dysentry was of valuable long before the adoption of dipping.

The flesh of regularly dipped animals has been shown to be fit for human consumption.

Opinions vary as to the effect of dipping on the milk yield, but the consensus of opinion is that while the yield is slightly less on dipping days the total annual yield is increased through reduced tick infestation of the animal.

Animals with wounds or abrasions should not be dipped until an oily dressing has been applied to the sores.

Unthrifty calves frequently become scalded by the dipping fluid; dipping should be suspended in such cases, the animals housed and the skin treated with an emollient dressing.

8. Reinfection.

There are solids not with, the chief being that young stock dipped together with fully grown are liable to be drowned or hurt. The remedy is obvious - calves should be dipped by themselves. It should be pointed out that constant dipping interferes to some extent with the natural function of the skin which affects the respiratory tracts, breathing being quickened and there may even be catarrh and salivation. The effect is greatest with the strongest solution of the dip and is last felt by the animal on the third day after being dipped, more particularly in hot weather. It is the custom of farmers to give working cattle easier tasks on these days.

Dipping at the three days strength has less effect on the cattle, however, the percentage of arsenic being much smaller.

Pollution of streams and water supplies must be avoided.

A large number of the tanks in South Africa are situated at considerable distances from water supplies and the water is laid on to them, which is the most satisfactory method, but

but in other districts, tanks are erected in fairly close proximity to streams and rivers and this is decidedly to be deprecated.

Dipping tanks are provided with a large cess pit into which the boiled dipping fluid is poured when the tanks are cleaned out. Care should be taken that the situation of these cess pits does not allow of percolation into neighbouring water supplies. Where possible, sites with rocky formations should be selected for the erection of the dipper and its draining pit. Another precaution to be adopted is the addition of lime or bluestone to the waste dip thus forming an insoluble compound.

Loss of immunity to Redwater through constant dipping.

Redwater contracted by cattle in early life may be considered a benign disease, but, should an animal escape this disease as a calf, the virulence of the disease is increased in proportion to its age. Thus, in a country where Redwater is enzootic, cattle constantly dipped will, in a short period, become susceptible to Redwater infection.

It is essential for the success of a dipping scheme that it should be general, for, should only a proportion of the farmers adopt it, and their neighbours neglect it, the former would be at a considerable disadvantage with their cattle on the market, owing to the susceptibility of their animals to this disease.

With the adoption of a general scheme this disadvantage is eliminated, but in any case, we are in a position at the present time to immunise cattle both against Redwater and

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and Gall-sickness (anaplasmosis) by means of inoculation, with a negligible percentage of loss. This inoculation is now general in South Africa, no less than 10,000 doses having been used during the past year, and farmers avail themselves of this method even when removing stock from one district to another.

Trypanblam is used in doses of 100 c.c. of 1% solution hypodermically in cases where the artificial infection produces too strong a reaction and is almost invariably efficacious.

This inoculation is a simple operation and is usually carried out by the farmer himself.

Fencing in connection with dipping.

Fencing, of course, is always a desirable adjunct to a farm and affords considerable protection against the introduction of disease but on farms where dipping is regularly practised, is no longer a necessity.

Cattle acclimatised to dipp days dip can be immediately subjected to the three days dip on the appearance of disease and Mr Sinclair, Chief Veterinary Officer, Southern Rhodesia, states, that with systematic dipping, East Coast Fever need no longer be greatly feared as the losses from the disease can be reduced to 0%.

In Rhodesia the farmer is greatly in favour of fencing under the conditions offered by Government and such fencing is, of course, encouraged by the Veterinary Department.

Compulsory Dipping.

Compulsory dipping has been instituted in some districts of Matabeland by Government. In such districts owners are compelled to erect dipping under Government conditions with a specified time, usually three months.

If an owner fails to comply with the order, the tank is erected by Government and the farmer is charged with the cost. Compulsory dipping can also be enforced on the application of the majority of the farmers to the District Magistrate in districts where East Coast Fever prevails, or the farmer voluntarily erects his dip he becomes entitled to the £50 bonus.

In Natal, farmers whose farms have been devastated by East Coast Fever, are not allowed to restock until they have erected a dipper and fenced their farms.

Government assistance in dipper erection in South Africa.

In districts where East Coast Fever is prevalent, farmers can erect dippers on the same terms as those governing fencing, the cost being spread over ten years, no repayment being demanded during the first two years and every farmer voluntarily erecting a dipper, passed as efficient, is granted a bonus of £50.

There is no Customs duty upon dipping material, and cement and other materials for the erection of dippers are carried on the railways at a 50% reduction.

In Rhodesia, tanks are erected and managed by Government at big centres and trading stations, one white inspector and two natives being usually employed, the charges are 1d. per head of cattle dipped, the unweaned calves free. In Natal the charge is the same but calves are also charged for.

Government is not in favour of general public dipping stations but relies upon farmers themselves carrying it out.

(2)

Quarantine Regulations and Dipping.

In South Africa, Quarantine Regulations have not been withdrawn, as the aim they have in view is the eradication of the disease from the South African Colonies, and stringent regulations, in regard to the movement of cattle, are still in force. In infected areas the farmer who does not dip imposes quarantine upon himself and he is not allowed to move his cattle off or on to his farm. Only farmers with clean farms and who are constantly dipping every three days are allowed to work transport within an infected or suspected area.

I pointed out to the Conference, and discussed more particularly with those Veterinarians who have been actively employed in East Coast Fever eradication, that with the large East Coast Fever enzootic areas throughout East Africa, the large native population and the geographical situation of the Protectorate, we could not hope to eradicate the disease.

Taking as a guide the effects of dipping in South Africa, both in East Coast Fever districts where every animal must be looked upon as susceptible, and in clean but tick infested areas where dipping operations have been established, I feel confident that the adoption of dipping in this Protectorate would be a boon to the Stock Industry; the mortality from East Coast Fever could be reduced to a minimum, gall sickness and other tick borne diseases would be reduced, contagious Opthalmia and White Scour, Liver Disease, Ringworm, Mange and other calf diseases would be practically eliminated, and the increased percentage of calves raised would in itself more than compensate for the expense and trouble entailed; injuries to the teats of cows by ticks of the Amblyomma species would also be avoided.

The introduction of susceptible cattle upon farms where dipping is regularly carried out, even though such farms were sites noted in an East Coast Fever area, would be rendered possible, and the present very heavy mortality, in large measure avoided.

Moreover, it may be anticipated that dipping will have a marked beneficial effect upon the eradication of ulcerative and epizootic lymphangitis in equines.

Again, the hairy native sheep and goats can be passed through the cattle dip regularly.

These animals are great harbourers of the ixodic parasite which, while not affecting them themselves to any severe degree, is a constant menace to woolled sheep. The latter would be dipped in a separate sheep dip to avoid the contamination of the wool from the comparatively foul cattle dip and the injury to it from becoming mixed with hair from the cattle and from the hairy sheep and goats.

I outlined to the various South African experts the measures adopted in the past in East Africa, and in view of the success obtained through dipping in the South, asked their advice upon general lines along which a dipping and quarantine system could be evolved in this Protectorate.

1. To the man who is prepared to dip regularly, as he would be benefiting not only himself but the community at large, every possible assistance should be given.

A man who dips his cattle should be offered preferential rates on the rail when wishing to move them, while the non-dipper pays full rates.

2. Farmers in infected areas with dipping tanks, and who are dipping their cattle every three days might be permitted to move cattle into the clean areas of the Protectorate

Protectorate provided that cattle can be immersed every three days during their journey to other areas. Other persons wishing to move cattle into clean areas would have to place their cattle in a quarantine paddock where they would be dipped at three day intervals for one month beforehand if it is found that this can be done with safety. If it is found that animals have to gradually accustomed to the short interval dip, it may mean that some period of quarantine will have to be prolonged. A charge would be made for the dipping.

3. The clean zones, dipping at intervals of seven days will be found sufficient and the benefits therefrom so apparent that once started there is little chance of the operation (a very simple and inexpensive one) being neglected.

4. Ports of exit should be established on the confines of the Native Reserves where cattle would undergo a period of dipping prior to their removal, but every effort should be made to educate the Native to the advantages of dipping, by erecting dippers in their infested centres and giving them practical demonstrations of the benefits obtainable.

Since my return, I have discussed the matter with the Provincial Commissioner, Malvasha, and the Officer-in-Charge, Swaziland, with regard to the dipping of the Native cattle. These Officers are in full accord and will willingly co-operate should a dipping scheme be instituted.

The best ports of exit for stock from the Native Reserve are now under consideration, where dips should certainly be erected.

To get the full benefits of a dipping scheme, it should be general and I hope in the near future to meet the delegates from the various Farming Associations to discuss with them and to draw up a detailed scheme applicable to this Protectorate.

I would specially invite attention to the special facilities and privileges afforded by the South African Government in the furtherance of this dipping scheme and would earnestly request that Government support should be given in this Protectorate to a similar extent.

The Veterinary Department of German East Africa is at the present time drawing up a short interval dipping scheme for the suppression of East Coast Fever, more especially along the principal transport roads to Moschi where it is proposed to erect dipping stations along the routes in an endeavour to keep Moschi clean and at the same time maintain transport.

8. Tuberculosis.

The discussion on this subject showed that this disease has a great prevalence in South Africa. It has been brought to light more specially by the present excellent methods of meat inspection adopted in all large centres throughout South Africa particularly Johannesburg, Durban and Capetown.

Statistics reveal that Afrikander cows are rarely infected but that imported stock or their progeny the disease is widespread. Calves are seldom infected; only two cases having been found among 7,081 slaughtered. It was shown on all hands that the disease is on the increase among cattle in South Africa.

A large number of pigs have shown both localised and general tubercular infection. Mr Mr Irvine Smith, Director of the Johannesburg Abattoirs, is of the opinion that generalised conditions indicate infection from bovines, while the localised infection is traceable to human origin. Although a large quantity of veldson has been examined, and post mortems made, no case of tuberculosis has been demonstrated among the South African antelopes.

The British Royal Commission on tuberculosis has shown that bovine tuberculosis is a very frequent source of human infection, especially among children; this in itself would be a sufficient reason for imposing the most stringent regulations to prevent its introduction into this Protectorate which is at present free; moreover, the economic loss would be enormous and would prove a great set back to the stock industry of this country.

Acting on the advice of the Conference it is my intention to draft, with the assistance of the Hon. Attorney General, rules governing the importation of cattle by which the Veterinary Department will be empowered to retest with tuberculin all cattle arriving in this Protectorate from overseas. The tuberculin test must be looked upon as an accurate diagnostic aid though not absolutely infallible, and it would pay the Government to offer full compensation for animals destroyed as reactors, in such very few cases where tubercular lesions could now be demonstrated on post mortem examination rather than run the grave risk of its importation.

The experience in South Africa proves conclusively that even among animals living under the most natural conditions, tuberculosis is rapidly spreading.

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In Mozambique formerly no cases of tuberculosis among cattle have been recorded but the disease is prevalent among pigs.

4. Intercolonial movement of stock and importation from overseas.

The discussion on this subject showed that our present regulations, with the exception of re-testing for tuberculosis, required little revision.

6. Lymphangitis.

Mr Jones, Chief Veterinary Officer, Bechuanaland Protectorate, has a great deal of contagious pleuro-pneumonia to deal with. His method for the control of the disease is the inoculation of the lymph taken from the thoracic cavity of an animal in a suitable stage of the disease. The lymph is filtered and mixed with glycerine in the proportion of 1 glycerine to 9 of lymph. It is again filtered and the material is used on the second day but will keep for four days. A hypodermic needle is used and the inoculation is made four inches from the end of the tail. When the reaction (swelling of the tail) is at its height a line is seared four inches above the swelling. The hot iron should be applied until serum exudes. A second line is seared four inches above the first and this is continued every four inches up the tail should the swelling extend. Mr Jones does not consider that this inoculation transmits the disease.

Dr. Woolfel informs me that contagious pleuro-pneumonia of cattle does not exist in German East Africa.

c. Enzootic Abortion.

Several of the delegates who spoke were inclined to the opinion that Enzootic abortion did not exist in South Africa.

Mangaly it is a disease which has not been recorded in East Africa.

7. Trypanosomiasis.

An interesting discussion followed on this very prevalent tropical disease. Particularly interesting was the description of the different methods of treatment adopted by Mr Jones, Chief Veterinary Officer, Mozambique Territory, and the prevalent form of trypanosomiasis in that country are the T. vivax and T. congolense. This trypanosomiasis is common in many districts in Mozambique Territory, as it is around Beira, where the Glossina is widespread, but where no specimen of Tsetse fly has been found. Mr Jones considers that the Hippobosidae and tabanidae are implicated in its transmission. Three methods of treatment are used:-

1. The intravenous injection of Antimony potassium tartrate (tartar emetic) in doses of 1 grm. in 50 c.c. of distilled water for an adult, the approximate live weight of such animals being 7 to 8 cwt.

Mr Brodsmus, one of Mr Jones' Veterinary Officers, has given up to 4 grms without ill effects but usually in extra large animals.

The solution is injected at blood heat, and great care is necessary to avoid the drug entering the subcutaneous tissue tense fashion or abscess. It is recommended that the cord used to render the vein tense should be removed prior to the withdrawal of the needle. Two days after the injection

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injection arsenious acid is given in 1 grm. dose, every other day for a week, during the following week the dose is increased to 1½ grammes and to 2 grammes during the third week. An interval of three weeks is then allowed when a second intravascular injection of the tartar emetic is given followed again by the arsenical treatment for three weeks. Dr. Jones, while superintending the above injection, had abandoned all animals without it.

The results that [illegible] extremely [illegible] are appearing at the present time. The treatment is [illegible] to be borne if only [illegible] is to produce a [illegible] is sufficient. The last [illegible] fatal. Dr. Jones [illegible] [illegible] twelve months, two of [illegible] in December but all are still alive.

The arsenic is given in the food, separate food being [illegible] each animal.

[illegible]

The injection of tartar (sodium potassium antimonyl-arsenate) in doses of 1 grm per 100 lbs. body weight, administered hypodermically. This treatment is costly but fairly satisfactory. [illegible] of arsenic followed by the antimonial [illegible]

[illegible]

[illegible] injection of these epizootic lymph-(gland) [illegible] A small syringe like [illegible] The dose [illegible] injected is at least one litre of distilled water. Dr Jones has noticed no collapse following the injection of these large doses.

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this injection is followed by the occasional treatment as in the first and second methods.

The animals treated by this method remained in the Tsetse fly belt and the results over short periods were satisfactory. Dr Johnston considers, however, that to obtain the best results the cattle should be removed from the fly belt.

The first and second methods are not to be adopted in each area and the circumstances of fly free areas.

Whichever of these methods should be considered best in the light of further experience, re-infection should be resorted to, using as few tsetse flies as possible, otherwise there is the possibility of establishing a fly proof trypanosome.

The Nagana-Salvarsan treatment followed by Immunization is now widely used in German East Africa. The most suitable dosage of Salvarsan was the following, there are, however, a few cases of failure.

There is an area free from fly situated to the South of Mesalland on the Angola-Congo border. This is contrary to our previous [illegible] of the [illegible] of Tsetse in Africa.

Mr. Swellengrebel is now carrying out experiments for the study of Trypanosomiasis on one of the Islands off Dar-es-Salaam.

Discussion.

The greater part of the discussion on this subject was devoted to the question as to whether the Tsetse spread the disease or not.

The majority of the Colonists were in favour of destroying in-contacts in small enclosures and only having pastures

recourse to inoculation should the disease be widespread.

[illegible]

The [illegible] the diseases discussed at the official sittings of the Conference. At private meetings, however, the views of the various delegates were obtained upon a number of others, the [illegible] of chief interest to this Protectorate [illegible]

Horse Sickness.

In many parts of Southern Rhodesia and the Union of South Africa the mortality recorded from this disease during [illegible] [illegible] years. [illegible] [illegible] [illegible] the [illegible] sufficiently [illegible] in- [illegible] which have occurred in [illegible] [illegible] practically unknown [illegible] horse sickness [illegible] [illegible] Africa [illegible] the price of horse flesh, I suggested that further experiments in South Africa [illegible] by housing horses in [illegible] stables provided with [illegible] screens of different sizes [illegible] of value [illegible] to arrive at the size of [illegible]. The suggestion was favourably received and [illegible] the Director of Veterinary Research [illegible] to conduct experiments on these lines. I further pointed out that in East Africa there was a disease of equines, rapid in its onset and indistinguishable clinically or by post mortem examination from the dikkop form of horse sickness but which has been proved by experiment to be non-inoculable with blood.

The same experience has been noted by Mr Robertson. No explanation was arrived at, but care will, in future, be taken to preserve blood from such cases for experimental purposes.

Rabies

Dr. Green of Salisbury, who is managing the Pasteur Institute there, fixed me some valuable information as to the methods adopted by him for obtaining and preserving the necessary material required for the Pasteur treatment of hydrophobia. He has since kindly furnished a treatise on the subject to Dr. Ross, Government Bacteriologist, and to Dr. Fleming, C.M.G., Principal Medical Officer of Southern Rhodesia, and to Dr. Green I would like to express my thanks.

Further information was also received from Mr Hall in charge of the Pasteur section of the Government Laboratory, Pretoria. This information, for which I thank him, has also been placed at the disposal of Dr. Ross.

Meat Inspection.

I visited the Municipal Abattoirs at Johannesburg and Durban and was kindly shown over them by their respective Directors, Messrs Irvine Smith and Mathews.

The Johannesburg Abattoir is thoroughly up to date in every detail. At this place some 100,000 head of live stock are handled per month, the estimated value per annum amounting to £5,000,000. The live stock arrive at a railway siding where every head is examined prior to slaughter or sale. Every carcase passed for human consumption is stamped six times, under a penalty of

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Calves

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(26)

under a penalty of £50. All cases of pemphigus diagnosed
immediately notified to the Veterinary Surgeon in charge
Johannesburg, and a report sent, stating all symptoms
to enable him to trace the place of origin. All dead and
condemned meat and the skin to be treated [illegible] valuable
by-products, [illegible] before, and the [illegible]
[illegible] a valuable [illegible] the [illegible] for
[illegible] and would well pay for the [illegible] existing
in the prevention of the spread of [illegible] parasitic
disease.

An Act [illegible] measure
is shortly to be [illegible] to replace the old [illegible].

Disease of Bulls [illegible]

Mr Conyngham, Government Veterinary Surgeon,
Johannesburg, gave an hour's interview to [illegible] on
a peculiar disease affecting the testicles of bulls under his
charge.

I visited a number of the sick animals [illegible]
peculiar paralytic symptoms [illegible] and known
of the etiology of the disease but its history pointed to a
dietetic origin.

From Johannesburg, I visited the Research Laboratory,
Pretoria, and was given the latest information in regard
to Pathological Research in South Africa by Dr Robertson.

Entozoic Investigations.

Mr Barker's Assistant. It is desirable to get the [illegible] possible. All buds are incised, the cavities [illegible] and touched with crystals of Permanganate of Potash. All fresh buds are similarly treated on their appearance. All wounds are kept covered with Stockholm tar and carbolic Castor Oil 1/10 to keep off flies. The latter dressing is also efficacious as a preventive. Of 14 cases treated by Mr Barber, 9 recovered, one is still under treatment and two died.

Anthrax.

The usual form of Spirochaete, so well known in East Africa, is common in the South of the Colony, however, the Spirochaete colubinae (rat parasite) is also prevalent.

In the territories through which I passed the varieties of piroplasmosis and anaplasmosis of East Africa were found similarly prevalent.

Heartwater, Anthrax and Quarter-Evil were prevalent in Bechuanaland Protectorate.

I propose to visit the Veterinary Officers of British East Africa to see all they can do in the artificial rearing of calves which I know is well attempted in this Protectorate.

Fleas found in Agricultural Shows.

Invitations were forwarded to the Veterinary Officers where I had an opportunity of inspecting the stock classes exhibits of Friesland, Ayrshire, Shorthorn and Polls and

and Afrikander breeds, Merino sheep and thorough-bred sires for use in South Africa and for the native breeders in Basutoland.

On my return voyage I had an opportunity of inspecting the Quarantine Station at the Port of Lorenco Marques in charge of Dr. [illegible]. The station has accommodation for horses, cattle and dogs. It is somewhat far removed from the town, and the site for the new station about to be erected is conveniently situated to both wharfs and railway.

I attach a map of German East Africa showing Rinderpest infected areas and fly belts.

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