Services, particularly on the research side. The director of the institute should supervise the training of these scholars, and direct their efforts towards the solution of problems of economic importance to the colonies.

In the report of the Lovat Committee suggestions are made for the permanent staff, which includes a director and three senior officers, together with temporary and visiting staff. We are in general agreement with the recommendations made in those sections, 48 to 54 of this report. It has, however, occurred to us that in addition to the nucleus of permanent staff and the junior scholars undergoing training, both the affairs of the institute and of veterinary research in general, would benefit if some provision could be made for the inclusion of a few more senior research workers. We refer here to men of the type that often receives Senior Beit Memorial Fellowships or special grant from scientific bodies. It is probable that one such fellowship of the value of £700 per annum will be provided by private subscription in Kenya, and there are reasons for hoping that each fellowship, financed privately, will be the means of obtaining a similar grant from one of the bodies interested in tropical research. The proposal is that these whole-time research fellows should devote their studies to the solution of a particular problem or to a group of related problems, working partly at the central institute and partly in the field, or in colonial laboratories where material for investigation is available.

Referring back now to our earlier consideration of the improvements that might be effected in the ordinary graduate course, it is quite evident that improvements in graduate training will be reflected in the capacity of graduates to benefit by intensive post-graduate courses, but at the present moment, one is more likely to achieve rapid results by the post-graduate method. The profession is invited to support whole-heartedly the recommendations of the Lovat Committee, and above all to remember that when the educational reforms suggested have been effected, it will still be necessary to press for the early adoption of the recommendations dealing with improvement in the prospects and conditions of service of the profession in the colonies. If the promises of that report with regard to improvement of the status of the service are not realized, it will be found that in spite of improved educational facilities and of such inducements as scholarships, there will still be a shortage of suitable candidates of the right calibre.

Paper No. 39.

VETERINARY EDUCATION IN MADAGASCAR.

By H. Poisson, Dr. Med. Vet., D.Sc., Chief Veterinary Officer, Madagascar.

On his visit to South Africa in 1924, Major Geoffrey, Chief of the Veterinary Service of Madagascar, had much admired the way the South African Veterinary Department had been organized, and he resolved to emulate, in a small way, all he had seen.

This was the starting point of the foundation of a school of native auxiliaries, laboratories and zootechnical farms—all of which, while remaining centres of re-production of selected animals, would be used equally for the practical teaching of the native cultivators.

I. SCHOOL OF N.

This establishment, which is 1926. Studies last two years, a nature.

During the first year, pupils physical, chemical and natural diseases are professed.

Practical work in the first year through manipulation of the first year. Pupils are initiated in surgery or therapeutics only.

A competition establishes the school. Examination at the end of the term.

Monthly exams to be held in the subjects being taught. Successful pupils are allowed to try teaching.

II. LAB.

In 1924, there was commenced an ostrich farm (Tulear). This was to supply the requirements of a few hundred kilometres distant by a meteorological office. The office as a summary analysis of the various reports of different geological epochs, the Province and its phases varying.

The southern hilly-out aged edaphical conditions of both calci and a special haunt. These were the biological laboratory in this country. Central Laboratory at Tanja existed a few years, ever since it was started. It is still in embryo and efforts are being made to get especially the data pertaining to the country, every prefect is instructed and many recent volumes have been published.

Since 1924, Major Geoffrey, has been in touch with the South African Union's library of veterinary literature, and enables us to keep in touch with the country, not veterinary education but in embryo, but like the future.

III. ZOOTECNI

More primitive than the laboratory in certain districts, is (Tulear), which was the first one ostriches, sheep, Angora goats a (Fort-Dauphin), started about (Durieux), undertakes the breeding pen. Beneplaine of the Androy.
The director of the Native Auxiliary School suggested that the Native Auxiliary School should provide economic education for scholars. In this way, they could serve as economic officers of the future. It is important that scholars and other senior officers be educated in general agreement sections. 48 to 54 of this period is the nucleus of a few in the field of the type that student or special grant from the fellowship of the value subscription in Kenya. This fellowship, financed by a nil grant from one of the students is that these studies should be related to problems, working in the field, or in colonial management.

The improvement of the graduate course, it is training will be reflected in the future. The project is to achieve rapid graduation is invited to involve the Lovat Committee, which is a project to achieve rapid educational reforms. The necessary to press for the adoption of the improvement of the education of the candidates of the right and to the adoption of a school of full farms - all of which, when completed, would be the native cultivators.

I. School of Native Auxiliaries.

This establishment, which is not yet completed, started work in 1926. Studies last two years, and are of a technical and practical nature. During the first year, pupils are given a general training in physical, chemical and natural sciences, as well as biological ones. In the second year, pathology, general parasitology, and contagious diseases are professed.

Practical work in the first year has for its object the teaching, through manipulation, of the elements of the courses taught in the second year. Pupils are initiated in the practice of current operations in surgery or therapeutics and in those of autopsy.

A competition establishes the conditions of admission to the school. Examination at the end of the year shows the results of the teaching given. Monthly compositions and interrogations are also held in the subjects being taught. Those pupils who have not been successful are allowed to try again only after another year's teaching.

II. Laboratories.

In 1924, there was commenced the Befanamy Laboratory at the ostrich farm (Tulear). This very modest establishment was set up to supply the requirements of a district with a dry climate and a few hundred kilometres distant from capitals. There was added to it a meteorological office. The equipment of the laboratory permits a summary analysis of the various types of soils, sedimentary and of different geological epochs, which are met with in the whole Province and possess varying elements of fertility.

The southern leased-out cattle are very important, but the edaphical conditions of both cattle and plants turn this country into a special haunt. These were the reasons for the establishment of a biological laboratory in this country.

Central Laboratory at Tanangaroa.—This has only been in existence a few years, ever since the school of auxiliary veterinarians was started. It is still in embryo in material and organization, but efforts are being made to gather together collections for study, especially data pertaining to parasitology. From the beginning of this year, more prefected instruments have been sent from France, and many recent volumes have been added to the library.

Since 1924, Major Geoffroy, Chief of the Veterinary Service, has been in touch with the South African Veterinary Department, and the Union's library of veterinary works, being well equipped, enables us to keep in touch with the scientific studies followed up in that country anent veterinary matters. In this case, too, the organization is but in embryo, but likely to give good results in the near future.

III. Zootechnical Farms.

More primitive than the laboratories already in existence, and started in certain districts, are the farms. The one at Befanamy (Tulear), which was the first one started, deals with the raising of ostriches, sheep, Angora goats and pigs. The one at Ambiyombe (Fort-Dauphin), started about ten years ago by Chief Veterinarian Durieux, undertakes the breeding of the sheep improved on the peneplaine of the Androy.
The same may be said of the one at Betroka (Plateau Bara) to which a small laboratory has been added.

At Antsirabe (Vakinankaratra), volcanic region in relieves of 4,500 to 6,000 feet, Veterinary Officer Ducand has started and organized 3 farms: one near the town Antsirabe, and on the old properties of the Department of Agriculture; one at Vavavato range, and a third at Faratsiho. Attention is given to the improved breeding of sheep, goats and pigs, as well as of cattle, with stock recently imported from France.

Three other farms are in course of establishment: one at Mahafaly country (Dry Region)—Tulear Province; another at the Iboaaka (Betsileo), and the third at the Mandrandrano (Itasy Province—volcanic region). But all three are not as yet very advanced and it is not possible to foretell what they will yield in time.

IV. STUDS.

Two studs of bovine, equine and porcine species have been operative for a good few years; one at Tananarivo, and the other at Fianannahsto. During the covering season, secondary depots of reproductors (stallions, bulls and boars) are placed in the various localities of the central region.

CONCLUSION.

It is not possible to compare what exists in Madagascar with what is being done in South Africa. Our Department is still in its infancy, and we are but beginning. We have everything to do, to organize, to learn, although we have for a long while been kept back through very limited means and an insufficient technical staff.

It is not too much to hope that in the near future the staff will be larger, and that the educated natives will be more numerous. Then we shall be able to start new schools, laboratories and zootechnical farms, according to the needs of the Colony. But this is still to come.

The fine example of energy and attention in the work done by the Department of Agriculture of the Union of South Africa, which has been most successful in all undertakings, is to us the best guarantee and most convincing sign of ultimate success.

**ANIMAL INDUSTRY IN MADAGASCAR.**

**List of Establishments for Animal Industry.**

**Diego-Suarez**—2 establishments:


**No. 2. S.P.M.** (Société des (Society Skins Society of Madagascar Director, Mr. Guignabert. Croco)

Tamanarivo.—Establishment of cold storage, and tinned pork.


Secondary works.—Establish (Tananarivo and establishment smaller establishments manufactures sions.


Secondary works.—Mervev sions. Lard and products prepared.

Ambohimahasoa.—Laborato w poultry, and prepared products in Salt-meat Provisions and Lard the high plateau of Enyrrne and salt—meats and the rendering of lan and Chinese—abound around centre Fianarantsoa.

Tulear.—A fishery has just begun.

**Work for Preparing Hides** companies (Garnier, Marseillais (Paolotti, Ottino) own, everywhere and manufactures Morocco article. In the larger we daily the slaughtered beasts preserved meats.

The veterinary officers, and can take the inspection of the works! They are under oath and can repeat fraud. They issue the sanitary exported.

Vohemar.—In view of its being from tuberculosis, the port of V bound for Mauritius. A veterinary inspect the cattle to be exported a

**Statistics for 19**

1. Slaughter of Establishment Oxen: 71,213. Live-weight

   Dressed...

   Pigs: 25,983. Live-weight

   Dressed...

   Dressed per cent.: Oxen, 4
at Betroka (Plateau Bara) to
ed.
volcanic region in relieves of

ser Ducand has started and

in Antsirabe, and on the old

ature; one at Vavavato range.

given to the improved

t as well as of cattle, with stock

of establishment: One at

ear Province; another at the

Mandrindrano (Itsasy Province)

not as yet very advanced and

will yield in time.

or corn species have been oper-

Tananarivo, and the other at the

season, secondary depots of

these species are placed in the various

at existe in Madagascar with

Our Department is still in its

We have everything to do.

one for a long time while been

an insufficient technical staff.

in the near future the staff will

lives will be more numerous.

schools, laboratories and zoos

of the Colony. But this is

attention in the work done by

Union of South Africa, which

productions, to us the best

ultimate success.

MADAGASCAR.

Animal Industry.

des conserve alimentaires de

ditions of the Amber Mountain

Rue Colbert—Director, Mr.

Cooked pork and beef

l. (Société Rochefortaise des

company of Tinned Provisions).

Mathurins—Director, Mr.

Boonamary C.G.F. (Com-

Storage Company). Head

No. 2. S.P.M. (Société des peausseries de Madagascar)—

(Society Skins Society of Madagascar). Head office at Majunga—

Director, Mr. Guignebert. Crocodile skins.

Tamatave.—Establishment of Rochefortaise Society. Pork in
cold storage, and tinned pork.

Tananarivo.—Establishment of Soanierana—S.I.C.E. (Société
industrielle et commerciale de l'Emyrne)—(Emyrne Industrial and
Commercial Society). Head office at Marseille: 6, Rue Colbert—

Director, Mr. Toy-Rion. Provisions for the Army—Tinned Beef

Secondary works.—Establishment Bernardi at Tearahonena
(Tananarivo and establishment Merlo at Tananarivo). These two
small establishments manufacture prepared products and pork provi-

Antsirabe—"La Bretagne" Works.—Head office: Rouchy to

Antsirabe. Pork provisions and prepared products in pig and poultry

feeds. Jams.

Secondary works.—Merven to Antsirabe.—Salt-meat provi-
sions. Lard and products prepared in pig's meat.

Ambohimahasoa. Labordé works.—Tinned beef and pork,
poultry, and prepared products in pig's meat.

Salt-meat Provisions and Lard Works.—In all the districts of

the high plateaux (Emyrne and Betioho) a good many works for

salt—meats and the rendering of lard—most of them owned by natives

and Chinese—abound around centres like Tananarivo, Antsirabe, and

Fianarantsoa.

Tuiear.—A fishery has just been started for working squalus' skins

and by-products.

Works for Preparing Hides of Oxen.—The large commercial

companies (Lyonnais, Marsaillese, etc.), and some private firms

(Paouletti, Ottino) own, everywhere, works for preparing hides of

oxen for export—either salted or arsenicated. Ottino's works at

Tamjoimbato (Tananarivo) treats the hides for industrial purposes,

and manufactures Morocco articles, belts, shoes, etc.

Inspection.—In the larger works, a veterinary officer inspects,
daily the slaughtered beasts and supervises the production of

preserved meats.

The veterinary officers, and chiefs of a "cirecription," under-
take the inspection of the works for salted meats, lard, and hides.

They are under oath and can report to the authorities in cases of

fraud. They issue the sanitary certificates for goods that are

exported.

Vohemar.—In view of its being within a district that is immune

from tuberculosis, the port of Vohemar (North) ships live oxen

bound for Mauritius. A veterinary officer is attached to this port to

inspect the cattle to be exported and issue sanitary certificates.

Statistics for the Year 1928.

1. Slaughter of Establishments' conserves:—

Oxen: 71,213. Live-weight (Middle term) ... ... ... ... ... ... ... 643 kgrs.

Dressed ... ... ... ... ... ... ... 144 kgrs.

Pigs: 25,983. Live-weight (Middle term) ... ... ... ... ... ... ... 97 kgrs.

Dressed ... ... ... ... ... ... ... 69 kgrs.

Dressed per cent.: Oxen, 49; Pigs, 71.
2. Slaughter for public consumption by Europeans and Natives of Madagascar:—
   Oxen ... ... ... ... ... ... ... ... ... ... 609,500.
   Pigs ... ... ... ... ... ... ... ... ... ... 98,869.
   Sheep ... ... ... ... ... ... ... ... ... ... 8,948.
   Goats ... ... ... ... ... ... ... ... ... ... 2,157.

LIST OF QUESTIONS SUGGESTED FOR DISCUSSION
AT THE PAN-AFRICAN VETERINARY CONFERENCE.

I. LEGISLATION.

A. The possibility of attenuating the stringent South African laws referring to the introduction of cattle imported from Madagascar, such as the total destruction of the carcasses because of a slight touch of tuberculosis, imposition of previous subcutaneous tuberculization, together with a statement of temperature-takings.

B. Nature of the regulations to be complied with by exporters from Madagascar of preserved provisions such as beef, pork and poultry meats in tins or jars; salted and smoked pork. Possibilities of importation, through South African ports, of wool, mohair, ostrich feathers, etc., for sale by auction.

C. Community of regulations anent the branding of cattle and the leather trade.

II. CATTLE DISEASES.

A. Dangers, eventual or otherwise, of the introduction of South African diseases (horse-sickness, nagana, etc.) through mules or donkeys bought in South Africa for importation into Madagascar.

B. Eventual dangers of the introduction into Madagascar of horse-sickness, nagana, surra, rinderpest, peripneumonia, Maltse fevers, through the importation of animals of various species, more especially donkeys and she-goats coming from Abyssinia, the Red Sea, and East African Colonies.

C. Conditions anent preventive practical vaccination of imported oxen and their offspring against the different varieties of virus of piroplasmosis and anaplasmosis.

D. Discussion on the best preventive or curative treatment to be followed against the parasitic infestations of the bovine, ovine and porcine species.

III. RESEARCH.

Discussion on the likely methods of vaccination against ruminants' heartwater and blue-tongue, and the ulcerative lymphangitis of the horse.

IV. VETERINARY PROBLEMS CONCERNING THE NATIVES OF AFRICA.

A. The possibilities of employment of the natives as veterinarians, assistant-veterinarians, auxiliaries, vaccination operators, cattle hygienists, etc. Degree of theoretical and practical instruction to be given to them.

B. Practical means of education of the cattle-breeding natives for the purpose of rapidly improving cattle and for fighting epizootics. Means of persuasion and, if necessary, of coercion.