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JOURNAL

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N29.6-2 P. SRINIVASA RAO, G.M.V.C.,

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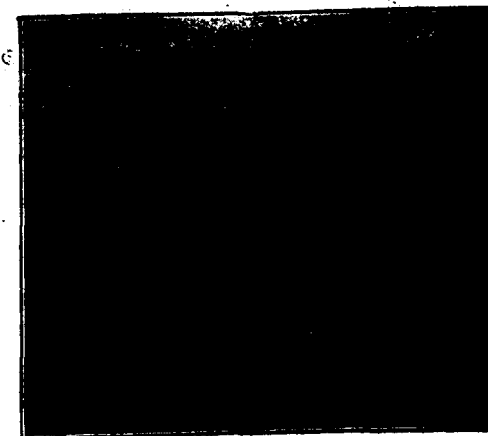
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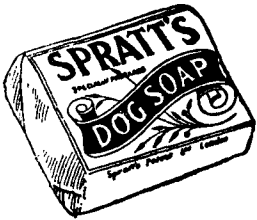
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(The Journal of the All-India Veterinary Association)

Vol. VI.]

OCTOBER, 1929.

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our pages all these years. But we cannot be a party to a school of thought which makes it the be-all and end-all of life. We live for the profession and not the profession for us. What about the advancement of Science? Is its expansion also to be confined to the geographical limits of provinces? Will it not aid science if inter-provincial notes are compiled and discussed personally? What about the *esprit-de-corps* which we wanted to build up amongst the members of the profession throughout India? Are we to make it also a transferred subject? Again, who is to plead for questions of All-India nature, such as suppression if not complete eradication of serious infectious diseases of cattle and other domesticated animals, revival of the post of Inspector-General of Veterinary Services to safeguard the interest of the profession with Government of India on establishment of Veterinary Council, introduction or expansion of Veterinary Department in Indian States etc.?

Let us examine if there is any substantial work to the credit of the association till now.

1. This very journal owes its existence to it. Is it not a great achievement by itself?
2. Through its efforts various provincial associations have been started and rejuvenated.
3. Some of the Indian States were approached with the request to open Veterinary Department in their respective states. Thanks to the enlightenment of the Princes, most of them have organised regular Veterinary service and the others are taking steps in that direction.
4. The association fought for a change in the designation of the members from Veterinary Assistant to the more suited and respectable one of Veterinary Assistant Surgeon. This has been given effect to in most of the provinces and presidencies.
5. The views of the Indian Veterinarians were represented before the Royal Commission on Agriculture and superior services in India, an affair

which was possible only because of the national nature of the All-India Veterinary Association.

6. It has been responsible to bring together Veterinarians of various parts of this vast continent, to exchange ideas, compare notes and discuss professional matters for the benefit of all concerned.

These are some of the services rendered to the profession by the Association, which come to our memory just now. We dare say there must be some more. Are not the above enough to warrant a virile existence of the All-India Veterinary Association?

Further, look around and see how nations are on the march even on matters Veterinary. Is not England having National Association and America its own, in fact every country of any repute is having a national veterinary association. It is only then it will be possible to speak on behalf of the entire body of Veterinarians of any country. Are we to lag behind others? Is stagnation and its attendant evils to be our lot? What a sad comment on our sense of unity, if we allow matters to drift as they are now! We are after all a compact body educated and enlightened enough to understand the evils of disunion, much in common to make us unite and march on and yet if we are found wanting we dread to predict the future. What is after all the sacrifice required of each individual member—regular payment of Rs. 3 to Rs. 5 per annum to his provincial association, which in its turn will contribute towards the upkeep of the Parent Association. Will everyone be so good as to indulge for a few minutes in introspection and answer the query if he is doing his duty by himself, his profession and his country?

Those who are in charge of Provincial Associations should see that the annual contribution to the parent association is made without fail. Bihar must stir up and make arrangements to hold the next conference at Patna in December 1929. We wonder what is Mysore doing and Hyderabad as well. Nothing but a sense of duty has forced us to write this article. We believe in the dictum that there is safety in the multitude of counsel. We have laid bare the condition in which the association is working. It is for the profession, nay for each

mediate redress and relief. For aught we know Mr. P. J. Kerr, the Director, has recommended very strongly the claims of his subordinates for favourable consideration of the Government. But as the world knows, the Government of Bengal is more busily engaged in Ministry-making than otherwise. But it must be said to their credit that in spite of the worry, congestion of work, confusion and chaos that must naturally follow the oft repeated Ministerial crisis, the Executive Half has really paid some attention to the memorial of the Veterinary Assistant Surgeons. We have a copy of a communication in which they recognise the "growing discontent in the rank and file of Veterinary Assistant Surgeons" and add that "The Government of Bengal are satisfied that the grievances of the Veterinary Assistant Surgeons are genuine and after a careful consideration propose to raise the scale of pay of these officers from Rs. 50—10/5—100 to Rs. 50—3—95 (Efficiency bar)—4—135." We are thankful to the Government of Bengal for such candid recognition of the grievances of the profession in Bengal. But their remedy is queer—to put it mildly—they recognise the "economic grounds" which urge the revision of salary and yet look at the start! Just where they are! Can inconsistency go any further? What magnanimous relief they try to give in their new scale! Rs. 3 per annum! Is the Government of Bengal so bereft of imagination as not to see the ridiculous nature of the proposed scale? Or is it a case of wanton sport on their part? The disturbed feelings are too sacred to be lightly treated. The toad under the harrow knows where each prick goes. Humanity demands a more honest dealing of the question.

The communication under reference asks of the District Boards if they are prepared for a proportionate increase in their contribution, if the new scale is given effect to. This is due to the dual control obtaining in Bengal. Will the District Boards at least reply and say "Most certainly," but the new scale is still not a "living wage" for these doctors and that they would be prepared to bear a little more expenditure even if the Government is pleased to deal with the Veterinary Assistant Surgeons more fairly? Is it too much to expect this much from progressive Bengal? Towards such a reply every Veterinary Assistant Surgeon working under a District Board should try and persuade the Board.

It will be a fitting reply to the light-hearted manner in which the question is tried to be solved by the Government of Bengal. We only hope that better counsel will prevail and that our appeal will not fall on deaf ears.

THE BOMBAY DEPUTATION

We are thankful to the Hon. Dewan Bahadur Harilal D. Desai, Minister in charge of the Veterinary portfolio in Bombay, for receiving a deputation of the Bombay Veterinary Graduates' Association, an account of which we are publishing in this issue and for giving them a patient hearing.

We congratulate the Bombay branch firstly on the success of their strenuous efforts to get a hearing of their Minister and secondly on the excellent choice of the head of the deputation. None who knows Mr. Dhakmarvala will put him down for an 'agitator'—a term with which many a good cause is most unjustly brushed aside, because of the prejudice against the person at the head of affairs. That he is the very soul of caution, circumspection and moderation is a well-known fact. Under such happy augury the deputation seems to have been well received and were impressed with the attitude of the Hon'ble Minister.

But we are unable to understand the pernicious plea of financial difficulties put forward at *all seasons of all years*, when the question of increment of pay of the Veterinary Assistant Surgeons is raised! Is it going to be an eternal excuse? When is the Government going to be solvent then? We fear the Government are out to try the impossible game of fooling *all* people for *all* time.

The Government of Bombay must be ashamed of the progress made in that presidency ever since the inception of the Civil Veterinary Department, Bombay. Earliest of presidencies, in the matter of organising Veterinary aid is spending the least of all presidencies over its Civil Veterinary Department. Is there any wonder then that there is so much of rancour, despair and desolation amongst the rank and file of the Civil Veterinary Department Bombay? Will the Hon'ble Minister realise the urgency of the matter and tackle the question? Time alone should answer.

Veterinary Surgeon to execute all his onerous duties with cheer and in the interest of science, when there is not any sort of incentive for work, is putting too much of premium on human nature. Our arguments must sound strange in the ears of many of our readers. But facts must be faced and truth told however unpalatable it might be. Perhaps we are doing injustice to the past and present incumbents at this farm. If so, we shall only be glad to express our regret. But we have a shrewd suspicion that all that could be done at this farm is not being done and that not a little of this constant change of officers is due to this want of encouragement in way of extra remuneration. This is a desideratum for this farm and the Veterinary Surgeon must be allowed to carry on with his work unhampered by any interference from non-professional quarters.

The next but the most important of all is the post of Lecturer on Animal Hygiene at the Agricultural College, Coimbatore. It is a college which is affiliated to the University of Madras, where students for the B. Sc. degree in Agriculture are trained. All the other Lecturers are officers of Gazetted rank excepting the Lecturer on Animal Hygiene. Apart from the humiliation which this distinction implies the College is stultifying itself by such a procedure. We understand that Mr. Anstead, the Director of Agriculture till recently, was trying to get this post also gazetted. But we do not know why his efforts have not fructified till now. May we hope that Mr. Hilson, his worthy successor who is reputed for his sense of justice and fairplay and as an officer caring for efficiency will take up the question at an early date and see that the post of the Lecturer on Animal Hygiene is brought up to the status of Lecturer on other subjects.

We have commented on the disabilities of the Veterinary Assistant Surgeons lent to the Agricultural Department in Madras, with the meagre information at our disposal. We should be glad to be corrected if we are in the wrong. The disabilities though few are vital. They deserve the immediate attention of the new Director of Agriculture in the interest of his own department.

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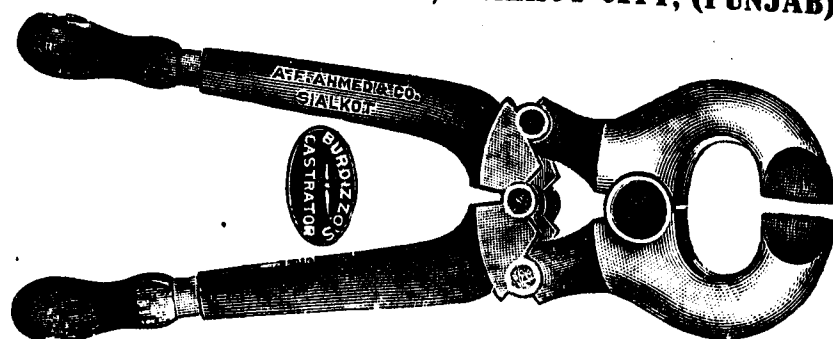
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Notes

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Notes.

It will be interesting reading if anyone interpellates the Government of Madras the number of years of touring life which a Veterinary Assistant Surgeon is forced to do *continuously* before he can aspire for a hospital charge.

We will be not wrong if we say it is somewhere between 12 and 14 years—a veritable Rama's exile, but without its redeeming feature in a Sita and a devoted brother!

All these, not for a kingdom mind, but, for Rs. 60—4—120 and then retire!

Unless something is done to relieve this heart-rending situation, we predict that progress in matters Veterinary will be at a stand-still—nay will degenerate in Madras—nay India. We know the exasperated feelings of the profession only too well, not to be able to see the coming disaster.

We are no alarmists. But we feel in duty bound to warn all those concerned of the danger ahead. We beg to offer our humble advise to the Hon'ble Minister, his Secretaries and members of the Legislative Council to try and get into a private conversation with any Veterinary Assissant Surgeon in the presidency and see how the flood gates of grief and despair are thrown open!

We appeal to the Hon'ble Minister and his Secretaries as well as to the members of the Legislative Council to take up the question of revision of pay immediately and do justice to the Veterinary Assistant Surgeons.

What is possible in Bombay is impossible in Madras! We are not talking of the pyrotechnics of the commercial magnates of that 'Gateway of India', but only of a poor deputation of Veterinary Assistant Surgeons waiting on the concerned Minister.

We learn on reliable authority that the Government of Bombay have not come to pieces by receiving a deputation of a non-service association, which has not been recognised by the Government.

On the other hand our information is that they have enhanced their reputation for fair-play and justice and are admitted to be in advance of other presidencies in that respect.

To think of such a deputation in Madras! Why! It is Blasphemous! Whoever can tolerate such an unholy body consisting of non-service men also waiting in deputation on a Government member!

The deputationists may be men of experience knowing the needs of their country. They may have very useful suggestions to make. But!...

They may be respectable members of a respectable profession and association. But Heaven and Earth! The audacity of the claim!

And if the *Service Association* craves for permission to wait in deputation, it is told by a zealous guardian "that it will be waste of time and money and no useful purpose will be served"!

Verily, verily, the profession in Madras is between the Devil and the Deep Sea.

From the daily papers we learn that rinderpest is raging in a very virulent form throughout the presidency, but the general complaint of want of serum still remains and the outbreaks remain unattended for want of men and unchecked for want of serum, with the result that thousands of cattle are dying every month.

We have discussed more than once, in the pages of this Journal the advisability and necessity of opening a serum institute for the presidency.

We were told that the Local Government has not only decided to open one for this presidency, but has also moved a good deal in that direction. It is a mystery why one has not yet been opened. Disease is raging. Cattle are dying in thousands yet nothing is heard of the proposed Serum Institute.

Hope every member of the Legislative Council will take up this question in right earnest and urge on the Government to open the Institute without any further delay and thus save the poor ryots from loss of cattle.

We publish in this issue a brief summary of the proceedings of the 1st Anniversary Meeting of the Mysore Veterinary Medical Association, in Bangalore. We note with pleasure the progress made by the Association during the first year of its existence and we congratulate the several Office-bearers on the success and we hope a similar progress will attend the activities of the Association during the coming years.

In contrast with state of affairs in other parts of India, it is gratifying to note that the administrative head of the department i. e. Director of Agriculture and the professional head of the department i. e. superintendent C. V. D. take keen interest in the welfare of the members of the profession in Mysore and encourage them with their presence and advice, to meet and discuss matters affecting the progress of the members. Resolutions regarding the pay and prospects of the members or not tabooed there. On the other hand such questions were taken up by agreement while Dr. Coleman was yet in the chair. How we wish for similar state of affairs in all parts of British India!

While the All India Association and other provincial associations are yet struggling hard to get recognition at the hands of the heads of the Veterinary Departments and the governments in different Provinces, Mysore Association is fortunate in having the official patronage and guidance from the beginning and thus secured recognition at the hands of the State Government. Mysore is again a model in this respect also.

We look eagerly for the publication of report of the Committee appointed "to go into the question as to how best to control the cattle diseases". From what Dr. Coleman has said at the meeting, it appears the Committee has passed resolutions which, "if carried into effect will place a very heavy responsibility upon the Veterinary Officers of the State, incidentally a heavy responsibility from the standpoint of honour". We request the Government of Mysore to publish these resolutions and the orders passed thereon, for the benefit of those outside the state.

We join Dr. Coleman in his exhortation to the members of the profession in Mysore to acquit themselves honorably when they get the responsibility referred to in the above para. The veterinary surgeon has always stood firm against the temptations alluded to in Dr. Coleman's speech, and we have every reason to hope they will continue in their honourable career.

We invite the attention of the members of the profession in India to the frank and encouraging way in which Dr. Coleman has spoken on the several resolutions passed at the meeting. How we wish for similar sympathetic guidance in British India at the hands of the Heads of the Civil Veterinary Departments.

We have much pleasure in acknowledging the receipt of a Moonlit Stainless Steel Scalpel, manufactured by Messrs. A. F. Ahmed & Co., Sialkot City.

It has a very high polish equal to the nickel plated imported ones. We are of opinion that there will be no necessity for replating since the metal itself is a nonrusting one.

We recommend to the readers of this Journal, to give a fair trial to this local manufacture and draw their attention to their advertisement in this issue.

Original Articles

HOBBLE GALLS

"THE SATAN OF ELEPHANT CAPTURING OPERATIONS."

BY

A. B. BOPAYYA, G.M.V.C.,

Veterinary Assistant Surgeon, Coorg Forest Department.

The fetters used to the fore or hind legs of elephant in captivity to prevent them from straying out or escaping are called hobbles. These are usually made of iron chains, to be strong, safe and durable as it is absolutely necessary to fetter the elephants always while off work, as an elephant in captivity even for over thirty years will escape into his forest home, if let out to graze without hobbles on. This is one of the idiosyncrasies of elephants. They do not appear to attach themselves to place or man. The wounds caused by these hobbles are called 'Hobble Galls.' The hobbles are usually put on the fore legs. They rest round the pastern and over the feet. As such, hobble galls occur thereabouts on the new captures when hobbles are first put on. As all captures without perhaps a single exception have to go through these galls, I call this a necessary evil. As these

galls make or mar an elephant or an elephant capturing establishment, I put these evils before the profession.

An elephant is captured by pit or Keda system. It is then enkraaled (impounded) or tethered out. When the capture is sufficiently trained to permit attendants to handle its limbs, feet, etc., the pasterns are anointed and soft rope hobbles are put on to get the capture used to the coming heavy hobbles. After a couple of days or so the part is frequently anointed and the real hobbles are put on.

The First Stage.

When the elephant is left in the kraal with hobbles on, it feels that the freedom it enjoyed from the date of its birth is arrested. It tries to get rid of the new ornament, but it cannot do so. While trying to move with hobbles on, it pulls with one limb the other with elephant force. The heavy chain, the force of pulling, the struggle, the function of the chain, etc., produce abrasions for the outward appearance but the serious damages on the skin, subcutaneous tissue, muscles, and tendons at the part are continually at work. The part is contused. Inflammation is going on. The cause is there, slight swelling is noticed at the part and attended to with fomentations, healing oils etc. The animal evinces pain. There is slight sympathetic fever. The hobbles are taken off and put on to give as much relief as possible to the capture. In the course of a few days the animal is taken out of Kraal with hobbles on. He is tethered outside for some hours or days and let out for grazing with hobbles on. During this period the part is pressed unevenly by the bonds of the chain, the bruises become wounds and below the skin suppuration is going on. The elephant is bathed, fed and the wounds attended to. Under the skin a chain of multiple abscesses are developing round the pastern. The elephant is losing flesh. He is in a new environment. His freedom is limited. The pain is pulling him down. He feels his captivity and his separation from his herd.

The Second Stage.

His galls are daily increasing. In some cases there will appear capturing rope galls round the neck and hind legs. He will have dashed against the walls of the kraal or a stone

on the sides of the pit wounding himself that way too. He will at times dash against the wooden floor and injure his toes also. He is getting thinner. He feels life irksome. The hobbles are on. The wounds are burrowing in and the subcutaneous abscesses are bursting out.

The result is, a chain of wounds of various depths occurs round the pastern and fetlock with varieties of pus oozing out. Tetanus has to be guarded against.

The Third Stage.

The capture has now extreme pain. The limbs are sometimes swollen half way up. He prefers to spend the day and night standing and resting, munching a bit here and there to avoid movement and consequent pain. He is getting thinner and paler daily losing his power of resistance. His wounds have to be healed and his condition has to be improved but one is acting against the other. A dilemma has to be faced. If however, wounds are over the average dropsy appears, ascites follows and the appetite is deprived. When the question "what do you think of the elephant" is put, a puzzle stares at the Veterinary Surgeon's face.

The Fourth Stage.

The elephant is very weak and a bag of bones. His wounds are dressed. He is given extra ration, tonics, massalas cut grass, bamboo, etc. He may be enkraaled daily and attended to. The elephant begins to pick up. The galls granulate and begin to heal. After some time he is let out again to graze. He takes months or years to become as he was when caught.

These are the causes of dropsy, ascites, debility and death of many captures year after year. The loss of elephant life is considerable and the amount wasted is not only thousands. If the few number of elephant herds in South India is taken into account, India cannot afford to lose one elephant from avoidable causes.

Late Mr. Ambre, a Range officer of Madras, tried to prevent these galls by putting on leather gaiters. Mr. Devadass made some improvement on this. As it is the weight, pull and pressure that play the havoc more than friction the

gaitors do not appear to be of much use. Again, when the wound is once caused these are contra indicated as the crude leather faces and rubs the wound all the time.

'Prevention is better than cure'.

This does not mean that one can completely avoid hobble galls. But it is possible to reduce them to a harmless limit. The system in vogue is to enkraal a capture and leave it alone for a week or weeks and then start training gradually in the belief that immediately after captivity if the elephant is subjected to training he will feel it harassing and break down. After a close study of the idiosyncrasies, habits and nature of elephants I was convinced that no animal loved and remembered routine as an elephant. To make the best use of these habits I prescribed the following method of training. Mr. G. G. Robinson, I.F.S., Chief Forest Officer of Coorg, who knew the havoc of these galls and who could not bear the sight of these cruel and ghastly wounds issued necessary orders to follow the prescription. It has warded us amply and will continue to do so.

When the pit-fall report is received in the camp the Mahut and Kavadi to be employed on the capture should be appointed. These must first approach the pit, when the capture attempts to charge these from the pit they must give him a couple of severe strokes with a small stick and make him retire proving to the elephant that man is far superior to him and that he can subdue an elephant. Training should start from the pit. These two attendants must be prominent in the whole operation curbing him whenever he attempts to charge. None should yell out and run from the capture until he comes to the kraal as this is sure to teach him to frighten attendants whenever possible and give him hopes of escape and mastery of the situation. To ensure this, little fellows, and unnecessary people should not be allowed to approach the capture either on the way or in the camp. When the capture is enkraaled none but the two attendants should be close by for three four days. These men one after another should keep on talking to the elephant. Whenever he attempts to charge from within the kraal, he must receive a threatening command such as 'Haare'. One of them should always be on him never leaving the kraal. In

the night he will lie down and sleep. As soon as he gets up he will dash against the wall of the kraal. The usual command must go and he must be talked to. Next morning in the majority of cases he will be able to recognise these attendants and show signs of submissiveness to them. They must bathe him, anoint his body, dress his wounds, offer him twigs, sugar cane, jaggery, etc. One of them must be there as if he is chained to the neck of the elephant. On the third morning he will be quiet, receive jaggery by the mouth and approach the attendants with confidence. Training should go on vigorously but very kindly, always establishing man's superiority. The elephant will learn 'Hallow and Hadi' i. e., lifting up his fore and hind feet. On the 4th day other attendants may approach and teach him to *byto* i. e. sit down. On the fifth day ropes can be passed round his neck and girth and under the tail as collar, girth band, and crupper. He can be handled freely. On the sixth day rope hobbles may be put on. On the 9th or 10th day the capture is fit to be taken out of the kraal, thus reducing the period of imprisonment from months to 9 days. He will be very friendly with the attendants. He should not go out to graze on the 11th day. Owing to the continued and kind training the elephant does not go down in condition. On or about the 14th day when bruises and slight swelling at the hobble place are noticed, the hobbles are removed at the grazing area, and the trailing chain is fastened to a stump or tree as the elephant goes on grazing, one attendant always following the elephant. The bruises and small wounds heal up in a few days, elephant keeping his condition quite fit. The *satan* has no place in the elephant camp.

A REPORT UPON THE CAUSE AND PREVENTION OF DOG DISTEMPER.

BY

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G. W. DUNKIN, M. R. C. V. S., D. G. H.,

(From the Farm Laboratories of the National Institute for Medical Research, Mill Hill, Middlesex, England.)

(Continued from Volume VI, page 47)

The Immunization of Ferrets.

A ferret, just as appears to be the case with a dog, which has recovered from one attack of distemper is immune to further attacks of the disease. This immunity is solid and lasts for a long time, probably for life, and forms a very striking contrast to the susceptibility and low resistance of the normal animal. Experiments were therefore undertaken to try and discover some method of bringing about the resistant state without causing active disease. It was considered probable that any method which proved successful in the case of the ferret would also prove efficacious, with minor modifications, in the case of the dog.

Experiments have shown that it is possible to induce a considerable degree of resistance in the ferret by the administration of vaccines. This resistance may be consolidated and rendered durable by the injection of a dose of appropriate living virus. The vaccines employed differ in detail according to the method of manufacture, but they all consist essentially of virus which has been inactivated (killed) in some way. The treatment of the virus must not be too drastic or the efficacy of the product diminishes. The vaccine causes no significant bodily disturbance, but renders to ferret, after a short time interval, resistant to the living virus which was used in the manufacture of the vaccine. The animal which has received both vaccine and virus is solidly immune.

The vaccines are thus similar to the bacterial vaccines which are employed extensively to-day (typhoid vaccine). There is, however, a very important difference. Bacterial vaccines made from artificial cultures of bacteria are carefully controlled and even counted if it is desired. As has

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been explained the distemper organism in spite of long continued effort, has not yet been cultivated on artificial media, and therefore the best raw material for the manufacture of vaccine is not available. Experiment showed that certain tissues of distemper ferrets, taken at the height of the disease contained a large amount of the infecting agent, and further that the amount might be adequate to allow of the pounded tissue being converted into an efficient vaccine by several different methods of treatment. The method is far from ideal and is lacking in precision. For example, the virus content of the raw material cannot be measured with accuracy, and thus the potency of the final product is variable and indefinite. In spite of the drawbacks the method has proved to be exceedingly useful in actual practice, and the results were a great encouragement to explore similar channels for the immunization of dogs.

The spleens from sick ferrets may be converted into efficient vaccines in several different ways. These have been described by us in a recent publication (1928a) and need not be referred to in detail as ultimately choice was made of one method which gave excellent results not only in the case of the ferret but also in the case of the dog,

The Manufacture of Vaccines for Ferrets.

Ferrets suffering from acute distemper are killed by an overdose of chloroform on the fourth or fifth day of illness when they are usually *in extremis*. The carcass is dipped in two per cent. Lysol and pinned out. The spleens are removed with sterile instruments, using strict aseptic precautions. The spleens are weighed, pounded in a sterile mortar and rubbed up into a smooth mass as quickly as possible. Sufficient saline is added to yield a 20 per cent. suspension of spleen pulp, and after brief stirring the contents of the mortar are transferred to a sterile bottle containing glass beads. The bottle is shaken vigorously in a machine until all the fragments seem to be broken up. The contents of the bottle are then filtered through a double thickness of sterile butter muslin, into a sterile bottle. All shreds of tissue are thus removed and discarded. A small quantity of the filtrate is removed for a potency test. Sufficient strong formaldehyde solution is added to the main bulk to yield a final concentra-

tion of 0.1 per cent. after which the mixture is shaken and transferred to the cold store. After four days the formalised spleen suspension is invariably non-infective for ferrets, and sterility tests are made, both for aerobic and anaerobic bacteria. If the product proves to be sterile, as is usually the case, it may be used as a vaccine without any further treatment. Owing to the presence of a small amount of formaldehyde, however, vaccines of this kind are irritant when injected subcutaneously. A non irritant product can be made by adding sufficient ammonia solution to give a faintly alkaline reaction. In practice ammonia is added until a reaction of pH 8.0 to pH 8.2 is secured, and thus all free formaldehyde is converted into urotropin and the final product is devoid of irritant properties.

For the potency test referred to above, the 20 per cent. suspension of spleen pulp is diluted freely and doses corresponding to 1/10,000 grm. and 1/100,000 grm. of spleen are injected into two ferrets. Both animals should sicken with distemper within ten days. If they do not do so it is clear that the virus content of the material which was converted into vaccine was low and the resultant vaccine will probably prove to be inferior. Owing to the long incubation period of distemper in the ferret it is necessary to assume that the material will yield a good vaccine and finish the preparation of the vaccine at one sitting. It is not advisable to keep the ferret spleens whilst the potency of these organs is being determined, as during the wait of ten or more days considerable deterioration will occur in the virus content of the tissue.

Experience of upwards of 40 different batches of vaccine prepared in this way shows conclusively that it is not difficult to secure a product which is fairly uniform and usually quite efficient, while if due care be taken and the concentration of formaldehyde recommended be employed there should be no difficulty in securing a sterile product.

The complete immunization of ferrets is achieved as follows:—Small areas of skin in the selected animals are shaved and sterilized by the application of tincture of iodine. Two cubic centimetres of vaccine are injected through the sterile area into the subcutaneous tissues by means of a

syringe and fairly large hypodermic needle. The animal is put aside for two weeks. At the end of this time a quarter of a cubic centimetre of living virus (approximately a hundred fatal doses for an unvaccinated animal) is injected either into the skin or subcutaneously. The strain of virus should be the same as that employed in the manufacture of the vaccine. No symptoms should follow the administration of the vaccine or the virus, and a fortnight after the last injection the ferret should be immune to all strains of distemper virus, whether secured from ferrets or dogs.

With this technique it proved possible to immunize about 90 per cent. of ferrets at will, and the immunity was shown to last for months. Immunized ferrets have been placed with interested landowners who have promised to work them as usual and to report on the after history of the animal. In some instances reports have been received stating that the immunized ferrets have withstood infection, but naturally in many instances exposure to infection has not yet occurred. In one instance four immunized ferrets were placed with eight others and worked as usual. In the course of time distemper appeared in the ferretty. The four immune animals survived without showing any symptoms of the disease, the eight untreated animals all died. Up to date no adverse report has been received regarding these immunized animals.

The vaccine made by the method described has been shown to keep for some months without serious deterioration, and it was found that organs other than spleens might yield vaccines with similar properties. On the whole, however, the spleen gave the best and the most uniform product.

In concluding the consideration of the immunization of ferrets, it may be pointed out, even at the cost of reiteration, that crude distemper virus (distemper ferret tissues) may be inactivated with formaldehyde, and that virus so treated forms an efficient vaccine. One dose of this vaccine renders a ferret resistant to infection by some hundreds of fatal doses of the same strain of virus as was used for the manufacture of the vaccine. A ferret which has received both vaccine and virus becomes immune to all strains of distemper virus.

Vaccination alone (the injection of formalized material only) is inadequate to ensure a solid and lasting immunity.

Experiments showed that the resistance following vaccination is gradually lost. After three to five months some of the ferrets which were tested with living virus showed symptoms but ultimately recovered. In other experiments, the protection was so poor at the end of a year that one half of the experimental animals died after the injection of living virus.

The Immunization of Dogs.

There is good evidence that one attack of distemper in a dog followed by recovery, results in a solid immunity which lasts for life. Put in another way, a dog but rarely has more than one attack of distemper. It is true that there are instances in which distemper has been diagnosed more than once in the same dog, but it is probable that in the majority of these instances there has been some mistake in the diagnosis. Mistakes in diagnosis are inevitable in the case of a disease which varies so much in severity and in which complications are so common and so prominent that the underlying infection is not suspected, or if it is suspected, cannot be definitely recognised. In some few instances it is possible that particular dogs have had multiple attacks of distemper, just as there are human beings who have been subject to more than one attack of measles, but it appears to be the general rule that one attack of distemper confers lifelong immunity just as is the rule with measles. This striking immunity has led every research worker to attempt the immunization of dogs, whenever he was convinced that he had discovered the cause of the disease. It is only reasonable to suppose that if the actual agent which produces distemper were discovered, it should be possible to induce immunity by vaccines made from this agent. However that may be, it is clear that the majority of those who have claimed that a given organism was the cause of distemper have supported their claim by accounts of protection conferred on dogs through the use of vaccines, sera, etc., made from their supposedly causal organism.

Copeman (1900) maintained that vaccines of his organism were of value to preventing disease. Phisalix and Ligniers, who independently isolated what appears to have been the same organism, also considered that the favourable results attributed by them to vaccination indicated that their

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bacillus was the true infecting agent. Phisalix vaccine, was investigated by a committee in this country, and the report was not favourable. *B. bronchisepticus* isolated independently by M'Gowan, Ferry, Torrey and Rahe, has been converted into vaccines, and these have been very extensively used in the treatment and prevention of distemper. The good results which were reported did lend support to the view that the causal organism had been discovered, but Hardenbergh (1926), in a recent analysis of a series of cases, failed to find any good evidence that vaccines of this organism conferred protection against the disease.

It may be fairly said that none of the vaccines made from visible bacteria have been successful in preventing distemper in a long series of cases. They have not stood the test of time, though at the outset the results seemed favourable. It is very probable that the research workers were misled through unwittingly carrying out experiments on dogs which had previously had distemper in a mild form and were therefore, immune from the start. In this connection it must again be emphasised that a specially bred dog is an inestimable boon to the research worker, for work of this type. Even so, the disappointments of the past serve as a warning to the investigator to be cautious in interpreting all protective experiments.

As has been indicated previously, the evidence secured from the study of the experimental disease shows that the visible bacteria which have been isolated from time to time are not the cause of the acute infectious fever which is the foundation of all cases of true distemper. The visible bacteria are to be regarded as secondary invaders, and as such, play a subsidiary part. Their importance varies from case to case, and it remains quite possible that bacterial vaccines may be favourable in diminishing or limiting the complications which are all too common in this disease.

Putting on one side the protection experiments with visible bacteria, there remain a few records of attempts at immunization by other means. Bryce (1882) collected blood from a distemper dog, boiled it and added carbolic acid. The resultant product was injected into two puppies, and the result was considered favourable, but the work does not

appear to have continued. Puntoni (1923 and 1924) propagated distemper virus from dog to dog by intracerebral injection and found that the brains of such dogs were rich in infective material, and yet free from ordinary bacteria. The infecting agent in emulsions of such brains might be inactivated by formalin, and the resultant product would form an efficient vaccine. His work was hampered and at times interrupted by his failure to secure susceptible animals as and when they were required. Towards the end of 1927 Lebailly (1927) claimed that it was possible to make efficient vaccines from the spleens of dogs suffering from distemper. The account of his experiments is brief and certain important details are lacking, but he also seems to have secured some measure of success.

No exact repetition of Puntoni's work was attempted, as this would have involved the passage of distemper virus intracerebrally, with the result that there would have developed symptoms of distemper encephalitis, and it did not seem probable that this particular form of encephalitis could have been recognised with certainty. It was more probable that errors would have arisen. The work of Lewy and Kantorowicz (1923), Lewy, Fraenkal and Kantorowicz (1925), Lewy, Lewy and Kuttner (1926) showed quite clearly that the study of distemper by intracerebral passage was beset with special difficulties which make the interpretation of the results uncertain. Puntoni's results have been tested indirectly by the manufacture of vaccines from the brains of dogs with the acute nerve form of distemper, and it is clear that vaccines so prepared may be of considerable value. Lebailly's results were tested, as his experiments were very similar to those which gave good results in the case of the ferrets. There is no doubt that it is possible to prepare vaccines along the lines followed by this worker, but the method he followed is capable of improvement in several important particulars.

Ferret Vaccine for Dogs.

The vaccines which proved to be so valuable in the protection of ferrets were tested on dogs, and it was found that a single dose of such a product was inadequate to protect a dog against a dose of living virus. The size of the dose was

increased, and the results did not appear to be much better. Multiple doses were then tested, and it was found that if three doses were given at intervals of a week, a resistant state might be established in every case. The degree of resistance varied slightly from animal to animal, but the vaccinated dogs always showed a very mild response to the injection of living virus, whereas the control (unvaccinated) dogs developed an unmodified disease.

Five separate experiments were carried out to determine the value of triple vaccination with vaccine prepared from ferret spleens. Twenty dogs in all were vaccinated three times, and 15 others were employed as controls. The controls were kept in the kennels alongside the vaccinated animals throughout the whole experimental period. One or sometimes two weeks after the last dose of vaccine had been given the control and the vaccinated animals were injected with living virus, and the responses in the dogs were noted. Bi-daily temperature records were kept of all animals throughout the whole experiment. The 20 vaccinated animals all did well, and only five of them had any considerable degree of fever, which, however, was of quite short duration. In none of this series was there any untoward symptom throughout the mild illness, which would probably not have been recognised as distemper by an impartial observer. The majority of the 15 controls had typical acute distemper attacks and the diagnosis was usually obvious. In the control group there were, however, only two fatal cases, and there were three examples of very mild disease. It seemed clear that a very considerable degree of protection could be secured by the three doses of vaccine. It was further established that the dogs which had received living virus were solidly immune, for large doses of living virus could be injected subsequently and no disturbance followed. Again, it appeared that any strain of distemper virus could be injected with impunity. The work was extended to privately-owned hounds and dogs, the owners of which were willing to try and secure immunity even though the immunization technique could not be guaranteed to be free from risk. The results of the field work will be considered later. Here it may be noted that the results seemed good, but there were no adequate controls.

Consideration of the method shows that it is far from ideal, and though of considerable theoretical interest, it is not of great practical utility. In the first place the amount of vaccine which can be obtained from a small animal like the ferret is not great, and the time occupied in the whole process of immunization is considerable, lasting, as it must, for more than a month. Moreover, it was disappointing to find that a vaccine, which in a single dose protected ferrets completely, did not give absolute protection to a dog after three injections at intervals of a week.

The Manufacture of Vaccine for Dogs.

The results claimed by Puntoni and later by Lebaillly seemed to be superior to those which were secured by the use of ferret vaccines, and it was considered possible that the difference might be due to the fact that both these workers employed dog tissues in the manufacture of their vaccines. Efforts had been made early in the work to secure vaccines from dog tissue, but all the experiments were disappointing. Renewed efforts which included the examination of dog tissues harvested at different stages of the disease led to the production of very efficient vaccines from the distemper dog. The details of this work have just been published (1928b), and reference must be made to the original paper for all details by those interested.

The vaccines were made in the manner that has already been described for ferret material. It was found that abdominal lymph glands, spleen, liver and brain, might all be made into efficient vaccines on some occasions and not at others. A review of the successes and the failures indicated that the first prerequisite for the manufacture of good vaccine is a rich supply of virus in the organs from which it is made. When the virus content of the tissue selected from the distemper dog was shown to be high (minute doses proving infective for ferrets) the vaccine proved to be efficient. When the virus content of the tissue was low the vaccine made from it usually proved to be inferior. For example, the brain in the average case of distemper does not contain much virus, and if it is employed for the manufacture of vaccine, the resultant product is worthless. The brain in the acute nerve type of distemper sometimes has a high

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virus content, and can then be converted into good vaccine by the ordinary method. The abdominal lymph gland and spleens gave almost uniformly good results when the tissues were collected between the 7th and 18th days following infection. Spleens collected at the time recommended by Lebaillly—the height of the first febrile reaction—did not give such good results. The liver was variable, but with this organ again it was found that if it contained much virus, the vaccine made from it was usually of good quality, and if the liver did not contain much virus, the resultant vaccine proved to be inferior. It does not seem possible to choose an optimum time for the collection of these tissues as the difference in response in different dogs is so great, but it is clearly advisable only to collect tissues from dogs which are hard hit by the disease, and preferably at the time when they appear to be at their worst. Experience of a number of successes and failures allows one to form a good idea as to which tissue should be included in the batch of vaccine in any given case. On several occasions it has proved possible to work up liver, spleen, lymph glands and brain together and secure more than a litre of vaccine from one distemper animal. There is still, however, a great deal of work necessary in order to define the conditions for the manufacture of vaccine, in quantity, and of uniformly good quality.

The results with a good batch of vaccine made from distemper dog tissue are really most remarkable. A single dose of five cubic centimetres of vaccine, administered subcutaneously, will induce such a degree of resistance in the recipient, in one week, that injection of a large dose of virulent virus produces very little effect. There may be some slight fever for a day or two accompanied by alimentary disturbance, but the dog remains cheery, active and takes its ordinary ration with gusto. The control animal has an acute fever, often vomits and refuses all food, has severe diarrhoea, wastes rapidly, and is nearly always dull and apathetic within four days of the onset of the disease. The vaccine was made from a mixture of tissues from a distemper dog. The difference in the temperature records is striking, and the difference in symptoms was equally obvious. Another animal of the same litter was vaccinated at the same time, with an

equal dose of vaccine, and gave no response whatever to the living virus.

A Satisfactory Immunity.

Dogs which have been immunized by vaccines followed by living virus prove to be solidly immune. They resist large doses, not only of one strain, but of all strains of distemper. They may be placed in contact with acute cases of the naturally occurring disease and do not become infected. They have further been shown to be immune to virus given intracerebrally, so that it would seem that the nervous system partakes in the general immunity. As far as can be determined, the immunity is long-lasting. Certain dogs were placed with persons interested in the work, and they promised to report if ever distemper symptoms developed. No report of this nature has been received.

The results with this technique seemed so good that work with privately-owned hounds and dogs was undertaken on a larger scale, and the results will be found summarised towards the end of this report. It should be emphasised that the complete immunization process includes the administration of living virus as a final measure. For test of resistance induced by vaccines a potent strain of virus is used, but for field work a weak strain, which appears to have become attenuated for dogs through oft-repeated ferret passage, is employed. Further, it should be noted that the vaccinated dog which develops a mild fever following the injection of living virus does not appear to be a source of danger to susceptible animals. It is quite likely that on occasions where the response to the vaccine was poor and where consequently the modified distemper attack following the living virus injection was severe, infection might spread, but experiments have shown that it is legitimate to carry out the whole of the immunization process in contact with susceptible animals. In no instance did infection pass from the treated animal to the susceptible companion.

From what has been recorded regarding the two types of vaccine, it will be seen that a single dose of vaccine made from ferret tissue is sufficient to protect a ferret against the living virus, but three doses of this product are required to induce a resistant state in a dog. On the other hand a single

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dose of vaccine made from dog tissue may render a dog irresponsive to living virus. The value of dog vaccine for ferrets thus became of interest, and it was found in a series of experiments to be nearly worthless. Three doses of dog vaccine of proven quality for dogs, given at intervals of a week, did not appear to evoke any resistance in ferrets. The vaccinated animals seemed just as susceptible as the controls.

Thus, ferret vaccine is good for ferrets and relatively poor for dog; dog vaccine is good for dogs and bad for ferrets. The fact that the homologous vaccine is superior to the heterologous, in the case of dog distemper, is not only of practical importance, but also of considerable theoretical interest, and it would probably repay further study.

The results in this special case are not directly transferable to other diseases due to filterable viruses, but, if borne in mind, they should prevent undue optimism regarding complex vaccines of the kind under discussion. These may prove to be efficient with one species of animal, but it does not follow that they will be as efficient with other species.

Preventive Serum.

In the case of diseases in which recovery is followed by a solid and durable immunity, it is frequently possible to demonstrate protective substances in the blood of the immune animal and to increase the amount of the circulating protective substances by repeated injection of the noxious agent (hyperimmunization). If such substances are produced in reasonably large amount, it is sometimes feasible to collect the blood from an immune or hyperimmune animal, separate the serum and use this serum for immunizing susceptible stock. In the case of rinderpest, for example, the injection of serum along with virus produces a mild type of the disease and, on recovery from this, the animal is immune. The amount of serum and the dose of virus have naturally to be nicely proportioned.

It was considered possible at the commencement of the work that dog distemper might belong to this class of disease, and that it might be possible to secure a serum with valuable protective properties. As was reported previously, all the earlier experiments gave negative results, and it was stated

that the immunity of the recovered dog, or ferret, was not due to circulating antibodies, but to the resistance of his tissues. The serum of recovered animals did not appear to delay the onset, or modify the severity, of an attack of distemper. At this stage of the investigation serum from hyperimmune dogs also did not give encouraging results, and this line of investigation was abandoned for a time.

Quite recently the matter has taken on an entirely new aspect, for it has been shown to be possible to secure a serum with valuable protective properties. This advance appears to be due to the fact that we now know how to secure material very rich in virus and the administration of this to immune animals leads to the appearance of antibodies in the blood. It appears to be necessary to inject some millions of infective doses, preferably more than once, into the recovered animal in order to secure a valuable serum, and the virus employed must be taken from the same species of animal as is used for the manufacture of the serum.

Little work has, so far, been carried out with the serum, as there has been considerable pressure on the staff and equipment in endeavouring to define the conditions for making distemper vaccines. It seemed better policy to consolidate that success before commencing intensive work in the new channel. It may be said, however, that the serum is sufficiently potent to prevent a small dose of virus causing disease. Dog serum, which is the only serum so far secured, will only work in dogs; it does not prevent or seem to modify the disease in the ferret. It is impossible to assess the value of the new serum until much more information is available, but it should be possible, by grading the dose of virus and serum, to establish the immune state in a susceptible dog with very little bodily disturbance. It is even possible that a serum-virus method may, in the end, prove superior to the vaccination-virus technique. It is possible that really potent serum might prevent disease after infection had occurred, but before symptoms developed (serum treatment in the incubation period of the disease). It is also possible (though it is felt to be improbable) that a potent serum might be of use in treating animals in which the disease was already

established. Finally, it is highly desirable from the scientific standpoint that the mode of action of protective sera in the case of diseases due to filterable viruses should be studied in detail. At the present time, as the work of Andrewes (1928) shows, the way in which these sera prevent disease is ill-understood, and the older conception of their action must be reconsidered.

The Protection of Privately-owned Hounds and Dogs.

The successful immunization of dogs under laboratory conditions led naturally to an extension of the work into the field in various parts of the country. Many dogs, of various breeds, have now been immunized by veterinary surgeons according to the technique described above and with material supplied from the Farm Laboratories. Altogether, 949 dogs comprising various breeds have been treated by 44 veterinary surgeons during the last two and a half years. The practices of these gentlemen are scattered over the British Isles in such widely-separated localities as Perth, Tiverton (Devon), Watford, Margate, Hereford, Manchester, Malton (Yorks), Co. Tyrone, etc.

Results Secured by the Vaccine.

It will be convenient to consider the results secured under two separate headings; 1. Foxhounds. 2. Dogs of other breeds.

1. Foxhounds.

From the information available it appeared that the most anxious time for masters is that which follows on the assembly of hounds into kennel from walk. In many instances distemper breaks out about this time and, partly owing to the overcrowding which frequently exists, the disease runs riot through the whole of the young entry. In view of this state of affairs, the practice recommended was to administer the vaccine while the hounds were still at walk and to inject the virus just after assembly. With this procedure hounds should have developed some degree of resistance, in response to the injection of vaccine, by the time they were assembled, and accidental infection in the kennels was of small moment because a final injection of living virus was always given to consolidate the immunity.

This procedure was sometimes difficult to follow. In some hunts the walks were so widely separated that it was thought to be impracticable to proceed along these lines, and in one case hounds were assembled before the injections commenced. The result was disastrous, for distemper broke out before the immunization was completed, and of the 10 couple in question five couple died. At the same kennel 11 couple were vaccinated at walk and given virus on assembly. They were housed with non-vaccinated hounds. Distemper broke out. One immunized hound died and 66 per cent of the uninoculated hounds perished.

Three hundred and twenty-five couple of hounds belonging to 15 different packs have been treated. The number of inoculated hounds in each of these packs varied considerably, but it was usually small as the amount of vaccine available was not large. In all cases the vaccination was confined, for obvious reasons, to the young entry. Some disappointment has been caused among masters of fox-hounds at the paucity of puppies it has been possible to inoculate, but clearly the extent of the field work has been limited by the supply of vaccine available. The shortage of vaccine, although unfortunate from the owner's point of view, has actually been of assistance to the investigation. Had there been unlimited supplies of vaccine and all, or most, of the susceptible hounds in any pack been immunized, the results would have been much more difficult to interpret owing to the absence of control animals. Untreated hounds of the same stock and age running with the immunes from an index for the incidence and severity of distemper in the kennels, and allow one to judge of the degree of protection afforded by the inoculation.

Both masters of foxhounds and veterinary surgeons have been most kind in supplying information regarding the condition of hounds during the inoculations, the occurrence of any outbreak of distemper in the packs, and the results in the immunized and untreated animals. It may fairly be said that the inoculations gave very little trouble, and there was only one case of a hound dying during, and possibly as a result of, the inoculations. In the great majority of instances the whole immunization was carried through without any anxiety. Some of the hounds were immunized more than

two years ago, and others have been done quite recently. In some cases they are known to have been exposed to infection, and in others they have not yet come in contact with the disease, so that the degree of protection is not known in some instances. The records from certain packs are, however, so striking that hopes are raised regarding the whole. A few reports may be quoted:—

The Puckeridge.—In this pack 12 couple were inoculated in February, 1928. In April of this year distemper broke out in the uninoculated hounds, but none of the treated hounds developed the disease. Thirty-five couple of uninoculated hounds contracted distemper and 11 couple died.

The Tiverton.—The master reports in a letter dated July 8th, 1928, as follows: "Of the young entry for 1927 and 1928 which had been inoculated, none had distemper. There was an outbreak of this disease in the kennels in December, 1927, among the two year-old hounds, but none of the vaccinated hounds developed the disease. Four vaccinated hounds were sent to neighbouring kennels in which distemper was present, but none of them were ill."

The Warwickshire.—Twenty-two couple of the young entry of this pack were inoculated in March, 1928. The master, replying to a questionnaire, has written as follows: "All the inoculated hounds have been exposed to distemper infection, but none has contracted the disease. Forty-five and a half couple of uninoculated hounds have developed distemper, and of these 24½ couple have died."

2. Dogs of other Breeds.

Two hundred and ninety-eight dogs of various breeds have been dealt with, including the following: Labradors, wire-haired terriers, dachshunds, cairn terriers, golden retrievers, spaniels, pointers, bull terriers, bulldog, whippet, toy spaniels, Dandie Dinmonts, Skye terriers, Shetland collie, Alsatian, retrievers, mastiff, Kerry blue, Keyshond, Aberdeen, etc. The inoculation of these dogs, including the administration of living virus, was carried through without serious trouble or anxiety in nearly every instance. One Dandie Dinmont died following, and probably as the result of, the administration of virus. A few dogs did not respond very

well to the vaccine and had severe fevers following the virus, but these were of short duration.

The majority of the dogs in this group are well bred and frequently exhibited at shows where, as is well known, there is always an excellent chance of infection being acquired. The owners of these dogs agreed to report whenever an inoculated dog acquired distemper, and up to date no report of this nature has been received. On the other hand, information shows that the inoculated animals have withstood infection in certain cases. Four puppies belonging to a litter of wire-haired terriers were inoculated in May, 1928, and in a litter dated September 22nd, the owner states that two of these puppies have twice been in contact with other puppies which were suffering from distemper. No ill-effects followed this accidental exposure to infection from a case of severe distemper diagnosed and treated by a veterinary surgeon.

Fifty-two puppies in a well-known kennel of Dandie Dinmonts have been inoculated during the past two years, and distemper has never been contracted by any of them, though they have appeared at dog shows. On two occasions the owner has purchased and introduced into her kennel an addition to her stock and both of these subsequently died of distemper.

The results of the field work, whether they concern fox-hounds or other breeds of dogs, are most encouraging, and, coupled with the laboratory findings, they indicate that it is possible, or will be possible in the future, to immunize hounds and dogs at will. It is true that the inoculated animals have yet to stand the test of time, and it must be shown that the immunity does not deteriorate with age. In view of the fact that the final step in the immunization process consists in the administration of living virus, it is unlikely that the immunity will deteriorate. It is also desirable that larger numbers of hounds and dogs should be dealt with, but this is a matter of time and adequate supply of vaccine. So far as the results go they are most gratifying.

The Future.

It is hoped that the foregoing statement of the work which has been carried out under the auspices of the "Field" Distemper Fund will have given the reader some idea of the

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nature of the problem set before the research workers, some conception of the difficulties which were encountered and how they were met, and finally, the nature and the degree of progress that has been made.

There remains for consideration the aim and scope of future work. It is almost certain that the complete conquest of the distemper problem and the final subjugation of the disease is bound up with the successful cultivation of the virus apart from the living animal. In this direction no success has been forthcoming in spite of oft-repeated effort. It is desirable that renewed attempts should be made to overcome this outstanding difficulty. Baffled in this direction, it has yet proved possible to evolve a vaccination method which promises to do much to prevent the ravages of distemper in selected groups of animals. It is desirable that this vaccination method should be made as perfect as possible and as readily available as can be arranged, and efforts are being made with this object. Quite recently a protective serum has been secured, the value of which it is impossible to estimate at the present time. It may prove to be of practical utility or merely of academic interest. In either case it is desirable that it should be investigated to the limit of what is possible. These two lines of investigation have for their prime object the benefit of the majority of the canine population, but beyond this there is the value of the increased knowledge regarding an acute infectious fever, knowledge which may suggest the correct method of study, or the best method of preventing or controlling infectious fevers injurious to other animals and to man.

PORTLAND

(PRESIDENT),

On behalf of The "Field" Distemper Council.

REFERENCES.

- Andrews, C.H. (1928): "The Action of Immune Sera on Vaccinia and Virus III *in vitro*" *Journ. Path. and Bact.* 31 (Part 4 in the press).
 Aristotle: *Historia Animalium* Lib. VIII, cap. 22.
 Blaine, Delabere (1817): "Canine Pathology" etc., 8vo, London, see p. 42.
 Bryce (1882): "Inoculation as a Preventive of Distemper in Dogs," *The Veterinarian*, 55, p. 207.

- Carre, E. (1905): "Sur la maladie des jeunes chiens," *C.R. Acad. des Sci.* 140, p. 689; "Sur la maladie des chiens," *ibid.*, p. 1, 489.
- Carre, E. (1926): "La maladie des chiens," *Rev. gen. de med. vet.*
- Copeman, M. (1900): "The Micro-organism of Distemper in the Dog, and the Production of a Distemper Vaccine," *Proc. Roy. Soc.* 67 p. 459.
- Dunkin, G. W. (1926): "Vesico-pustules and Distemper," *Vet. Rec.* 6, p. 193.
- Dunkin, G. W., and Laidlaw, P.P. (1926): "Studies in Dog Distemper I: Dog Distemper in the ferret," *Journ. Comp. Path. and Ther.* 39, p. 201.
- Dunkin, G.W., and Laidlaw, P.P. (1926): "Studies in Dog Distemper. II: Experiential Distemper in the Dog," *Ibid.* p. 213.
- Ferry, N.S. (1911): "Etiology of Canine Distemper," *Journ. of Inf. Dis.* 8, p. 399.
- Ferry, N.S. (1912): "Bacillus bronchisepticus (bronchicanis) the Cause of Distemper in Dogs and a similar Disease in other Animals," *Vet. Journ.* 68, p. 376.
- Ferry, N.S. (1912-13): "Further Studies on the Bacillus bronchicanis, the Cause of Canine Distemper," *Amer. Vet. Rev.* 41 p. 77.
- Fox, H. (1923): *Diseases of Captive Wild Mammals and Birds*. J.B. Lippincott Company, Philadelphia, London, Chicago (see p. 599).
- Galli-Valerio, B. (1908): "Der gegenwartige Stand unserer Kenntnisse von der Aetiologie der Hundestaupe," *II Abt. Ref.* 41, p. 563.
- Green, R.G. (1925): "Distemper in the Silver Fox (*Culpes vulpes*)," *Proc. Soc. exper. Biol. and Med.* 22, p. 546.
- Green, R.G. (1926): "Distemper in the Silver Fox (*Culpes vulpes*)," *ibid.* 23, p. 677.
- Hardenbergh, J.G. (1925): "The Significance of Bacillus bronchisepticus in Cases of Canine Distemper," *Journ. Amer. Vet. Med. Ass.* 68, p. 309.
- Jenner, E. (1809): "Observations on the Distemper in Dogs," *Med. Chir. Trans.* 1, p. 165.
- Krajewski (1882): Original not available. Abstract in *Jahresbericht ueber die Leistungen auf dem Gebiete der veterinar Medizin*, 2 p. 45. (1883).
- Kregenow, C. (1909): "Ueber die Filtration des Staupecontagiums," *Cent. f. Bakt. 1ste Abt. Orig.* 50, p. 326.
- Laidlaw, P.P., and Dunkin, G.W. (1926): "Studies in Dog Distemper III: The Nature of the Virus," *Journ. Comp. Path. and Therap.* 39, p. 222.
- Laidlaw, P. P., and Dunkin, G. W. (1928): "Studies in Dog Distemper IV: The Immunization of Ferret against Dog Distemper," *Journ. Comp. Path. and Therap.* 41, p. 1.

- Laidlaw, P.P., and Dunkin, G.G. (1928): "Studies in Dog Distemper—V The Immunization of Dogs," *ibid.*, p. 209.
- Laosson, A. 1882: Ueber die Geschichte and Contagiositat der Staupe," *Ing. Dtss. Dorpat.*
- Lebailly, C. (1927): Vaccination preventive et specifique des chiens contre la maladie du jeune age, *C.R. Acad. des Sci.* 185, p. 370.
- Lewy, F.H., and Kantorowicz, R. (1923): "Neue parasitologische Befunde bei der nervosen Staupe der Hunde," *Arch. f. wiss. u. prakt. Tierhik.* 49, p. 137.
- Lewy, F.H., Fraenkel, E., und Kantorowicz, R. (1925): "Encephalitis lethargica und Hundestaupe," *Klim. Wochschrft.* 4, p. 1. 254.
- Lewy F.H., Fraenkel, E. und Kuttner, H. (1926): "Encephalitis lethargica und spontane Tierencephalitis," *Kein Wochschrft* 5, p. 272.
- Lewy, F.H. Lewy, F.M. und Kuttner, H. (1926): "Encephalitis Lethargica und spontane Tierencephalitis," *ibid.*, p. 886.
- Lignieres, J. (1903): Sur le microbe de la maladie des chiens Pasterrellose canine," *C.R. Soc. Biol.* 55, p. 918.
- Lignieres, J. (1903): "Sur la vaccination de la maladie des chiens," *ibid.*, p. 921.
- Lignieres, J. (1906): "Sur la maladie des chiens et le virus filtrant de Carre," *Bull. de la Soc. Cent. de Med. Vet.* 83, p. 622.
- M'Gowan, J.P. (1911): "Some Observations on a Laboratory Epidemic, Principally amongst Dogs and Cats, in which the Animals affected presented the Symptoms of the Disease called 'Distemper'" *Journ. Path. and Bact.* 15, p. 372.
- Phisalix, C. (1903): Observations a propos des deux notes precedentes de M. Lignieres," *C.R. Soc. Biol.* 55, p. 921.
- Puntoni V. (1923): "Saggio di vaccinazione anticimurrosa preventiva eseguita per mezzo del virus specifico," *An. d' Ig.* 33, p. 558.
- Puntoni, V. (1924): "Ancora sulla vaccinazione anticimurrosa per mezzo del virus specifico," *An. d'Ig.* 34, p. 406.
- Report of a Committee (1904) formed to carry out experiments with the vaccine of Dr. Phisalix, *Journ. Comp. and Therap.* 17, p. 274.
- Senfelice, F. (1915): "Ueber die bei der staupe vorkommenden Einschlusskorperchen," *Cent. f. Bact. 1ste Abt. Orig.* 76, p. 495.
- Torrey, J.C., and Rahe, A.H. (1913): "Studies in Canine Distemper," *Journ. Med. Res.* 27, p. 291.

NATURE HAS A REMEDY FOR EVERY DISEASE.

BY

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The aims and ideals of modern progressive scientific medicine are mainly to cure wherever possible, to give immediate relief as far as possible, and to console and comfort the victims afflicted with disease under all circumstances.

The great immortal Paracelsus, the famous German physician of the sixteenth century, who may be considered as the "father of modern medicine," has very wisely made the following assertion:— "Never must the physician say the disease is incurable; by that admission he denies God our Creator; he doubts Nature with her profuseness of hidden powers and mysteries". This is a violent attack on fatalistic medicine by one of the greatest medical geniuses the human race has ever produced.

That nature has a remedy for every disease and consequently there are no incurable diseases, has been proved time and again by the most eminent clinicians both human and veterinary physicians of modern as well as ancient times.

A host of diseases, which are considered incurable in the light of empiric dead-house medicine, have been proved to yield to treatment successfully by the prominent clinicians of the middle ages, like Avicenna and Maimonides, or the later more modern physicians like the medical geniuses Paracelsus, Metchnikoff, Ehrlich, Scudder and the like.

With all our achievements in medical science with the most marvellous advancement in bacteriology, pathology, roentgenology, etc., which subjects are most valuable in diagnosis, we are still lagging behind in the treatment of diseases. The reason is simply because we have neglected the most important of medical subjects, viz., clinical rational therapeutics. It is true, we have advanced fairly well in the field of serotherapy and chemotherapy. We have, however, unfortunately, neglected the most important branch of therapeutics, viz., the plant remedies, the products of Nature's laboratory. It is toward the plant kingdom that we have to

look forward to as a final and all embracing resort and inexhaustible source for an efficient therapeutic armamentarium.

It is an established scientific fact that nature has destined the animal kingdom to live on the plant kingdom. Consequently, man or animal cannot live without plants, either in health or disease. It is the vegetable kingdom that furnishes pure air as well as wholesome food for man and animal.

To all probabilities, nature has developed myriads of plants, not for the fun of being wasteful, but for serving the purpose of food in health and medication in disease. Plant remedies, if intelligently used according to indications, may be justly considered as food remedies, because they act as nutritive substances supplying the system with certain vitalizing agents, nutrient elements, vitamins, neuratones, antineurones, chlorophyll which is essential to hæmoglobin formation, etc., which serve the function of maintaining a normal metabolic equilibrium through the media of a normal alkaline liquor sanguinis and electrically balanced neuroplasm.

The most marvellous curative effects are produced by vegetable remedies, due largely to the electric-magnetic energy of the sunlight, which is stored up in the plant kingdom. To doubt the usefulness and efficacy of plant remedies is equivalent to doubting the usefulness of bread in hunger, water in thirst and oxygen for the lungs.

To illustrate this point of view, we shall take the following irrefutable scientific facts. The simple orange which is a member of the vegetable kingdom, improves the calcium metabolism, in the human and animal economy better than any other remedy known to science. The humble lemon replenishes the system in its potassium deficiency more efficiently than any other medical agent available. Echinacea Augustifolia, a plant remedy, has been proved clinically so well as on laboratory findings to raise the opsonic index by increasing the phagocytic power of the leucocytes and adjusting the percentage count of the neutrophils more satisfactorily than any other single remedy known to medical science.

Illustrations innumerable could be introduced to confirm the above mentioned fact, that vegetable remedies are essen-

tial for the welfare of the animal race, but they would make the discourse too long and so we will pass to the more important subject, the practical use of plant remedies in disease.

In order to produce satisfactory results in the treatment of any disease, whether acute or chronic, local or constitutional we must be able to find the cause and remove the same. It is a medico-philosophic axiom that no effect could be produced without a cause. It is logically concluded that no effect could be removed without the removal of the causative factor, which constitutes the basic element of every pathologic phenomenon.

The great majority of supposedly incurable diseases are undoubtedly curable by the *Vis Medicatrix Naturæ* provided we do not interfere with nature's curative schemes, but on the contrary if we shall aid nature in its curative schemes by all means and measures available.

It must be definitely understood, however, where the tissues are damaged beyond redemption no repair shall be expected. An accomplishment of this sort would virtually mean resuscitation of the dead, which is an utter physical impossibility. Consequently, it must not be expected by any rational thinking mind. Resuscitation of the dead, whether of an entire organ or individual tissues or cells, would amount to the performance of miracles which is absurd and dangerous to believe in. It is true that occasionally by the aid of every expedient medical skill, under favourable conditions, and the intelligent co-operation of the client, certain satisfactory results will ensue unexpectedly, even in the most desperate diseases. This occurrence however, is not a miracle by any means, although it is rare and may therefore be described as miraculous under the influence of enthusiastic admiration. It is, nevertheless, nothing but a natural physical result produced under certain conditions, which have rendered such an occurrence physically possible.

Even with our present limited therapeutic knowledge, fortunately, there are available quite a number of plant remedies, products of Nature's laboratory in addition to a few scientific serums and chemicals, which if intelligently used, will prove to be a blessing to the great majority of supposedly incurable animal diseases.

I do not mean to say we should entirely discard the inorganic and sympathetic drugs in treating our dumb animals; however, for the past twenty years I have been dropping them one by one until they can be counted on the digits of one hand, that I use anymore only occasionally, and the only ones I use anything like regular, is Cupri sulphate, Soda hyposulphate and Magnesium sulphate. Even for external applications I am using plant remedies or products distilled from plant remedies, for instance, if a horse has a punctured stifle joint, I irrigate it out with hypericum oil, containing echinacea and oil of cloves, keep the parts bathed with acetone and oil of eucalyptus, and never any more keep a Hydragryri bichloride tablet in my shop; however I am not censuring the man that does, and while I use echinacea, thuga, iris, veratrum, lobelia, gelsemium, hypericum and rhamus Californica quite often, there are a great many other plant drugs that I use when indicated.

It is in my opinion a great mistake on the part of the Veterinary profession and detrimental for ailing animals, to treat names of diseases by experimental serums, coal-tar derivatives, by products of dye houses, which only add fuel to the fire by interfering with the natural leucocytic phagocytic functions and thus depressing animal vitality, which is endowed with nature's defensive resistance. The rational method of treatment consists in the removal of the cause of pathogenesis, whenever and wherever possible, and in sustaining the vital powers of the patient afflicted with disease.

Instead of trying to find a serum and antitoxin for the cure and prevention of every disease that the animal is heir to, if one would pay more attention to stimulating the bacteriophages, and assist nature to throw off disease, one would probably be more successful in saving the life of our patients. And another branch of therapeutics has been badly neglected, and that is the non-specific proteogen treatment which should be given by the parenteral route.

***RABIES.**

BY

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Rabies has always held a unique interest for members of the Veterinary and Medical professions, because of several important features of the disease. One of these unfortunate features is that practically all of the lower animals are susceptible and that it is communicable to human beings. The more recent literature abounds in descriptions of cases in which the infection was transmitted by unusual methods. Mr. Menon, Assistant Veterinary surgeon in Malaya recently (14th April 1928) reported that in the village of Ancharakandy, British Malabar, a good many crows were showing symptoms of madness and were attacking people and that two women were undergoing Pasteur Treatment in Tellicherry Hospital, in consequence of having been bitten by one of these crows. It was thought that they had become infected as the result of eating the carcasses of a jackal that had died of rabies.

When symptoms of the disease appear, there is no hope of recovery. The symptomatology is probably, as well understood as of any other disease of man or animals and methods of its extermination are also known, but cannot easily be applied in a large country. These facts are true of no other disease excepting possibly yellow fever. Although the symptoms of the disease and methods of control are so generally known, there has been a steady increase in the number of cases from year to year during the past five or ten years. For this reason it has come to be considered as one of the important public health problems. Although the number of deaths is not appalling, the sufferings and fear caused by chance infections are such as to make it one of the most dreaded of the diseases. During the past 2 or 3 years there have been several surveys made of the rabies situation, both as a world wide and a national problem and the greater part of the data and subject matter used in this paper will be

* Read at the first Anniversary Meeting of the Mysore Vety. Medical Association on 22-6-29.

drawn from reports of these surveys. Probably the most important single piece of literature on this subject is the report of the International Conference on Rabies which was held in April 1928. (Tropical Diseases, Bul. Vol. 24 No. 6 P. P. 493-International Rabies Conference by A. C. McKendrick).

In order to discuss the latest information regarding the control and prevention of this disease, a brief resume of the information regarding its etiology, distribution, history and symptoms will be given. Dr. V. A. Moore's definition of the disease is that it is an acute, specific infectious disease of animals and man. The latest information on research projects does not give much in regard to its etiology. It seems to be commonly accepted that the causative agent is a filterable virus, but there is some discussion as to whether it is a protozoon or a bacterium, and whether Negri bodies represent a stage in the evolution of a living micro-organism or are produced by cellular action or degeneration. In text books where rabies is discussed, one finds the general statement that the disease is very widespread. In the United States, surveys have been made from time to time but they were based on fragmentary data. In 1921 Seller found that the rabies existed in 29 states and that nearly half of over 5000 heads examined that year were diagnosed as positive. In 1928 Rece and Beatty of Indiana attempted a similar survey and found that rabies is on the increase in the United States. A comparison of the charts which were used to show the distribution of the disease in 1921 and in 1928 indicates that it has become much more extensively distributed than it was in 1921. The loss of stock and expenses incidental to treating man and animals must run the expense account of this strictly preventable disease into many millions of pounds per year.

Rabies is an ancient disease. It was introduced into the United States about the middle of the eighteenth century.

The usual symptoms of rabies are known to all veterinarians and will not be discussed in detail here. Symonds in his (Rabies in the Lower animals Bul. 1 of 1925 of the Institute for Medical Research F.M.S.) article 'Rabies in the Lower animals' shows that there is a considerable variation in symptoms and that many cases are of the type intermediate

between the typical "furious" and "paralytic" forms. The furious type is not common and the ordinary idea that the infected animal is always a savage beast rushing madly about, frothing at the mouth and attacking anything and everything that it meets is erroneous. As a rule most of the dogs affected seem to want to wander off quietly and be left alone. Although the symptoms may differ with cases, there seems to be a general similarity about the course and progress of the disease. It is a progressive one and should be diagnosed by no single symptoms but by the chain of symptoms and the course. Usually it is impossible to observe a case from the beginning, and it becomes necessary to rely upon a laboratory examination to furnish a definite diagnosis. A differential diagnosis of rabies from such other conditions as epilepsy, injuries and tumours in the brains can usually be made from the history of the case and examination of the brain. There are many conditions which exhibit symptoms analogous to rabies but are caused by other agents.

Ascariasis in pups and even obstinate constipation may have similar results. Fracture or dislocation of the lower jaw may be mistaken for "the dropped lower jaw" of rabies, especially since these cases are usually accompanied by an increased salivation. Any dog brought to a clinic for treatment and showing an indefinite dullness, loss of appetite, stiffness or tenderness along the back or of the hind quarters, twitching or slight apparent paralysis of the hind legs unless definitely diagnosed, should be kept in mind during the next four or five days as a possible case of rabies.

Some writers believe that the period of incubation may stretch over a year or more and that the average is six months. Certainly so far as one may judge by the history many cases develop about the 35th day after inoculation with of course cases developing earlier and later but seldom before the 14th day and infrequently beyond the 60th day.

The control or eradication of the disease is its most important phase judging from the amount of space devoted to it by every reference which I have consulted. In England the

disease was stamped out in 1902 by the energetic action of ordering and enforcing that no dog should be allowed out of doors except when muzzled or under proper control; the institution of a six months period of quarantine for all imported dogs and the destruction of stray dogs. Since it is common knowledge that the infected dog may travel for long distances, this procedure would seem to be ineffective, and it has so proved. During the past few years since the time the two Japanese investigators, Umeno and Doi in 1922, reported the use of a vaccine as a prophylactic for the disease, there has been increasing interest in its control in America by immunization against it. Umeno and Doi produced their vaccine by keeping an emulsion of the nervous tissues of a rabbit dead from a fixed virus in a mixture of glycerol and phenol for 2 weeks at room temperature. In the dog this vaccination is to be used as a single injection of 5 c.c. subcutaneously and the immunity produced lasts for one year. Until recently there has been no uniform standard of quality or quantity of the dose in the anti-rabic vaccines (or bacterins) on the market. Probably upwards of a million dogs in the United States have been vaccinated against rabies. There have been almost no reports of such dogs contracting rabies through natural infection.

Judging from my personal experience, I say that I have done at Bangalore both single injection of 5 c.c. and pasteur treatment in quite a good number of dogs both among Fox Hounds belonging to the Hunt Club and also public and this treatment has stood well so far.

Apparently there is no agreement on authenticated data that vaccination short of a full course of Pasteur treatment such as is given to human beings is reliable if given after the animal is bitten by a rabid animal. The Fourth Committee of the Paris International conference discussed the prophylactic vaccination of animals and their conclusions are reported in the *Tropical disease Bulletin* Vol 24. Briefly summarized, these results are to the effect that the conference could not recommend any change in existing sanitary legislation. Prophylactic vaccination of dogs should be continued and the dose repeated yearly and that any suitable cases should

permit of some relaxation of regulation subject to the following measures :—

1. That all dogs bitten by a proved rabid animal should be destroyed, even if previously vaccinated and dogs when suspected of having been bitten should be vaccinated and kept under isolation for six months. Prophylactic or curative vaccination of cats should never be employed. The restriction of the liberty of the dog, unless muzzled, to the premises of the owner and the destruction of the ownerless dog will also completely eradicate rabies.

After reading several references about rabies, one feels sure that there is a still great opportunity for reaserch on this disease. The several things which might be investigated are (1) the nature of the virus, (2) whether the street virus encountered in certain countries is an attenuated form as thought to be in South Africa, (3) period of incubation, (4) resistance of the virus under natural conditions outside the body and (6) practical dosage.

Clinical Articles.

A PECULIAR CASE OF IMPACTION OF RUMEN IN A BULLOCK*

BY

BABU H.C. DAS GUPTA.

Stationary Veterinary Assistant Surgeon, Rangpur.

Subject :—One Grey C. B. Bullock aged about 6 years in fairly good health.

History :—On March 9, 1929, at about 4 p.m. one carter named Navadvip of village Abli about 8 miles from Rangpur town-under Gangachara P. S. District Rangpur, came to the hospital with a loaded cart drawn by a pair of bullocks. On arrival at the hospital, the man reported that the animal yoked on the left side of the cart had been suddenly taken ill, as it felt difficulty in moving with the loaded cart, and he came forthwith with the animals for some immediate relief and before proceeding on his journey again. It was elicited on

*Read at the 5th Conference of Bengal Veterinary Association.

enquiry that the man had come to town for some bazaar purchases and had begun his journey in the morning with the bullocks in apparently quite healthy condition. The animal had no sign of illness previously, and a good feed was given to them before commencement of the journey. On arrival at the destination he had let them loose and did not pay much attention to them until he prepared himself for the return journey.

The Hospital is the next door to the bazar.

Symptoms on Observation :—The animal was unyoked and a thorough examination made; there were dullness, inappetence, suspended rumination, colicky pain denoted by pointing the muzzle towards the abdomen, anxious look, laboured breathing, doughy swelling of the abdomen, in the left flank pitting on pressure by hand, groaning, constipation, a temperature of 102.4 and an accelerated pulse, while the visible mucous membranes were rather pale. To my enquiry it was reported that the animal had not passed any stool or urine for nearly four hours. There was much uneasiness, and the animal lay down on the right side as soon as released from the yoke.

Clinical Diagnosis :—Impaction of Rumen.

Treatment :—I began the routine treatment by administering a dose of Mag. Sulph., Sodibicarb, Nux Vomica etc., after 3 hours followed by a dose of linseed oil, oil of Turpentine and Spt. Ammon Arom. The animal passed some urine but no stool. It then got up and stood for a while, but preferred a recumbent position again. On back-raking, some hard pellets of dung were removed. The abdomen was massaged and all attempts made to give it relief by watching and nursing carefully throughout the night, but to no effect. The animal appeared very much prostrated and its temperature began to fall. Morning came but without any sign of improvement. Another dose of Ol Recini was pushed on, but the animal became worse. Temperature became subnormal, inside of the mouth and the body became cold, pupils got dilated, respirations shallow, pulse thready and irregular, and head drawn towards the back, the animal succumbed at about 8 a.m.

It was astonishing that there was no symptom of any

brain disease or delirium as generally comes on in the later stage of such derangement of digestive system.

I was naturally curious to have a *postmortem* examination made as none of my medicines appeared to have taken effect, and I clinically concluded it to be some sort of obstruction in the bowels.

Postmortem Appearance:—The carcase was removed to a burial ground and I ordered to have the abdomen opened first to see its condition. On opening the abdomen, some serous fluid was found in the peritoneal cavity and the rumen was found enormously impacted. On proceeding further no intussusception or volvulus of the intestine was found. On removing the stomach, the liver was found very much engorged and ecchymosed. The liver was removed and its right lobe presented the appearance of a small foot-ball. The bulged portion was cut into and revealed a cavity full of some clotted and semi-clotted blood of rather dark colour. The gall bladder was full and the liver substance looked congested here and there; when the liver was removed, the diaphragm was found quite intact and normal except a small ecchymosed patch corresponding to the right lobe of the liver. That being removed a portion of the 'rib'—the 11th one—was found cracked and the adjoining intercostal space—the 10th one—had an ecchymosed patch just in front of the cracked rib. I then had the skin removed from the right side of the chest, and found that the subcutaneous tissues and muscles throughout the whole of the right chest, were extremely congested, and there was extravasation of blood. The skin of other parts of the body also was then removed, but nothing abnormal was found. The lungs were rather anæmic, the heart was quite empty and flabby, and the spleen and other organs were anæmic. The right kidney was slightly congested. There was no sign of any bruise or contusion on the skin of any part of the body including that of the right side of the chest.

Conclusion:—Though the clinical diagnosis was one of impaction of the rumen and the P.M. appearance of the organ appeared to lend support to this view, the immediate cause of death in my opinion, was internal hæmorrhage in the liver, evidently brought on by external violence.

ASCITES IN A DOG.

BY

A. LATIFF, G.B.V.C.,

Hospital Surgeon, Canine Clinic, Bengal Veterinary College.

Subject:—A long coated cross Tr. dog, aged about 2 years.

History of the Case:—He was picked up from the street by a poor woman a week before we admitted him into our clinic on 22nd August 1929, consequently full history of the case, as to how and when the trouble originated could not be obtained.

Symptoms on Admission:—The abdomen was tremendously enlarged and pendulous so much so that it almost touched the ground while the animal could walk with great difficulty. He mostly remained sitting on his haunches in order to give relief to the abdomen. He could not lie down. Temp. 102.6° F., respiration a bit difficult, but not quite so as is expected in a case like this and the animal was fairly lively and appetite reported to be normal.

The following usual treatment was adopted day by day:—

22-8-29:—Tapped the abdomen and removed 2 pints of clear water-like fluid. About 15 minutes before tapping, the



following medicines were given by hypodermic injection—Digifortis m. 4, adrenaline solution m 2, Pot. Iodide $\frac{1}{2}$ grain and distilled water 2 c.c. The same medicines with 4 drams of infusion buchu was given by mouth also three times a day.

A many-tailed pressure bandage was put round the body taking out all the four legs through four holes cut into the

bandage and another hole made out for urination. The bandage was constantly being tightened while the abdomen was getting relaxed by the exit of the fluid. This bandage was on for 9 days, only the old ones being replaced by fresh ones at times. The amount of tension of the bandage was our guide to ascertain if the fluid was reaccumulating or not.

23rd, 24th, 25th and 26th :—Temperature, stools, feed and urine—normal. No reaccumulation of fluid, removed further two points of the fluid each day. The previous medicines were continued and the bandage further tightened daily.

27-8-1929 :—Temperature, stools, feed and urine—normal. No reaccumulation. Removed the last drop of the fluid measuring $1\frac{3}{4}$ pints. Thus altogether we removed $11\frac{3}{4}$ pints of abdominal fluid from a dog weighing only 14 lbs. after the whole quantity of the fluid was removed (vide the photo taken on 31-8-1929.) The animal was discharged on 4-9-1929 with instruction to bring him down again as soon as there is any tendency for reaccumulation of the fluid or any other abnormality. But no information up to date (21-9-1929). Evidently the animal is fit or he would have come back for inspection and treatment.

Conclusion :—In spite of such a big quantity of fluid in the abdomen the animal was practically normal in other respects and there was no reaccumulation of fluid after tapping and the fluid was quite clear, like filtered water. These facts lead us to believe that the cause of the trouble was due to some sort of external violence to the abdomen which passed off after sometime and possibly it was not of cardiac, hepatic, renal or parasitic origin.

CLINICAL NOTES.

BY

CHANDRA PARMASH, L. V. P. (PUNJAB.)
Reserve Veterinary Assistant Surgeon, Veterinary Hospital,
Rohtak. (Punjab.)

(1)

ACTINOMYCOSIS—TREATMENT BY TINCTURE OF IODINE.

Subject.—A calf, $2\frac{1}{2}$ years old, brought to the hospital for treatment in June, 1929.

History.—The owner stated that the animal has not been ruminating for the past 15 days and its tongue was hard like wood and there was a huge swelling under the lower jaw, which he fired at home.

Symptoms.—Lumpy jaw and wooden tongue characteristic of actinomycosis were present in this case, hence I diagnosed the disease as such. No growth was visible to the naked eye on inspecting the tongue; the swelling under the jaw did not contain any pus since firing has drained off the pus. The animal looked depressed, salivating all the time and poor in condition since off feed for the past two weeks.

Treatment.—The officer in charge of the Hospital was of the opinion that it was only a case of induration of the tongue and advised scarification of the tongue followed by hot water fomentation. This was done and the animal sent home with instructions to give only liquid diet consisting of rice gruel or oatmeal congee or any other nourishing diet and to repeat the fomentation till the swelling subsided. After a week the owner turned up to say that the case was in the same state and no better. So I had to go to the village and watch the progress of the case. This time I was able to see with the naked eye sufficient growth on the ventral surface of the tongue between the gums which looked as minute yellowish granules. The swelling under the jaw was healing due to fomentation and Tincture of Iodine-dressing. I confirmed my diagnosis by pressing the growth between two slides and examining it with a low power lens, when they appeared as mulberry like bodies of Ray fungus. (Streptothrix actinomyces.)

I removed the granules (growth) and applied tincture of Iodine to the spots scraped. Hot water fomentation was given afterwards. Internally Potassium Iodide in two dram doses was prescribed but could not be tried as it was not available in the Hospital and could not be purchased from any of the shops in the district proper. Being faced with such difficulties, Tincture of Iodine two drams diluted with one dram distilled water was injected into the parenchyma of the tongue at three different places as an experiment. The second injection was given after a period of three days with one dram dose. The next day after the injection the tongue became

swollen, but later it assumed its normal size. The owner applied Tincture Iodine also on the jaw at home as instructed.

After ten days the owner reported that the calf had recovered and was ruminating and chewing the cud. I myself went to the village and satisfied myself by seeing that the animal has been completely cured.

Another case of a bull was brought for treatment by a Zamindar with the same kind of symptoms as those of the 1st bull and at first the same treatment of scarification of the tongue and hot water fomentation was tried at the Hospital, but was of no avail. After a couple of days the owner brought the case to me for treatment. Sufficient growth was visible to the naked eye. The Deputy Superintendent C. V. D. Gurgaon also diagnosed the case to be one of actinomycosis. Tincture of Iodine in two dram doses was injected into the tongue and Potassium Iodide 1 dram, Mag. Sulph 4 ounces and water one pint was given as a drench. The owner was instructed to feed the bull on milk and conjee and take the case again for treatment after 4 days. The owner never turned up. Hence I myself went and saw the case completely cured to my utter surprise.

A third similar case was seen in Rewari hospital which was being diagnosed for simple glossitis and treated for the same, but without effect. I happened to see the case and from my experience of the two previous cases, diagnosed the case as one of actinomycosis and requested the Veterinary Surgeon in charge of the hospital to try Tincture Iodine injection. After a month the Officer reported to me that the case has been completely cured.

A fourth case of a bull was treated by me in the Rohtok Hospital, with two injections of Tincture of Iodine at an interval of 4 days and internal administration of potassium Iodide in dram doses for a week, when the case was completely cured.

Differential diagnosis:—

Actinomycosis may be confused with (1) Glossitis (2) Simple induration of the tongue, (3) Tying a thread round the tongue, (4) Foreign body in the tongue, (maliciously inserted,

(5) Tumors of the tongue. Proper history, characteristic symptoms such as lumpy jaw and wooden tongue and microscopic examination of the lesion lead to a definite conclusion and thus to a definite diagnosis.

Conclusion.—Though in professional books, potassium iodide has been mentioned as a specific for actinomycosis by various Veterinarians, yet in the absence of such a costly drug which is to be tried at least for a week, one should resort to the injection of Tincture of Iodine or Lugol solution in 2 to 4 dram doses into the part affected or organs involved. If necessary injection is to be repeated after 4 days interval. Special attention should be attached to diet to keep up the condition of the patient. I contribute this article to the Journal with the hope that my professional brethren will give a fair trial to this treatment in such cases and publish the results of their experience in the columns of this valuable Journal.

(2)

STRINGHALT—TREATMENT BY TINCTURE OF IODINE.

Stringhalt may be defined as a nervous affection characterised by involuntary convulsive motion of the muscles, and by spasmodic jerky motion of the hind legs, the etiology of which is still doubtful.

Subject:—A bull, middle aged, in good condition was sent to the Rothak Veterinary Hospital for treatment. Both the officer in charge and myself diagnosed the case as one of stringhalt and I suggested Peroneal tenotomy but the officer-in-charge suggested injection of Tincture of Iodine as suggested in the *Indian Veterinary Journal*.

After shaving the part and disinfecting the area of operation, lugol solution in 4 dram doses was injected at two places in the grooves above and below the patella. The bullock was housed in the hospital itself for 2 days. The next day after the injection the stifle joint became swollen and the inflammation was combated by the application of Liniment of Ammonia. The next day marked improvement was noticed in the gait but as the joint was still swollen, the owner was very anxious. He was assured that action and reaction are equal and opposite and that the inflammation would subside

in a few days with the disappearance of the defect. Since he was from a village 25 miles away, he had to take the bull away on the third day. After three weeks I received a communication from the owner that the bull was quite alright and completely cured of the disease:—

Precautions.—Injection should be performed with all antiseptic precautions.

2. Nervine tonics should also be prescribed in the course of treatment.

3. Injection should not be performed too deep as to cause septic infection and open joints.

Conclusion:—Injection of Lugol solution was the cause of success in this case. I hope that my professional brethren will throw sufficient light on the subject as to.

1. The exact situation of the seat of injection.

2. Whether peroneal tenotomy will be better than Lugol-solution injection.

3. Whether any other treatment is being tried in the treatment of such cases.

[Ed. Exhaustive information on the subject has already been published in the pages of this Journal, Volume II-page 45 and Volume III-page 208.]

(3)

NECESSITY OF EXAMINING THE BUCCAL CAVITY IN ALL DISEASES OF MOUTH, TEETH, JAW AND CHEEKS.

On 24th May 1929, a bullock was brought to the hospital for treatment of a tumour on the cheek. The owner reported that the bullock developed the tumour four months back, which he fired, but without any use, all the while the animal evincing much difficulty in ruminating. I palpated the tumour which was very hard to touch, and on opening the mouth, to my great surprise I found a piece of the sole of a shoe, sticking up in the space between the cheek and the molars. I took it out, which measured 6 inches by 2 inches and this should have been lodged in that space for full four months. The M. M. of the cheek which was necrosed and putrified was removed with a forceps. The mouth was gargled

with Condyl's fluid and the affected part was painted with Tincture of Iodine and the case made a speedy recovery.

This will prove that in all cases of the disease of the mouth, examination of the buccal cavity is essential, because, if the owner had opened the mouth in the very beginning and examined, he would not have fired the so-called tumour and the animal would not have suffered at all, but it would have made the diagnosis easier and simpler.

(4)

SEARCH FOR A FOREIGN BODY IS ALWAYS NECESSARY WHILE OPENING AN ABSCESS.

Subject:—A bullock, brought to the Rohtak Hospital for the treatment of a wound under the abdomen. Examination of the patient revealed an abscess under the belly. The abscess was opened and lot of pus removed. On pushing the finger in and turning round, to my surprise, I removed a needle five inches long coiled in three rounds. The wound formed communicated higher up with the rumen, indicating that the needle should have been swallowed by the animal with its food, and remained latent for a period in the rumen and then came out through a favourable route by forming an abscess under the abdomen. My object in contributing the article is to impress upon my professional brethren the necessity of thoroughly searching the interior of any abscess, especially on the region of the abdomen or the elbow as these are the favourable routes which the foreign bodies generally take to penetrate the rumen via oesophagus.

MY EXPERIENCES IN TREATING FOLLICULAR MANGE WITH ARICYL AND ODYLEN

BY

M. V. PILLAI, G.B.V.C.

Penang

It is well known to all Veterinarians that Follicular Mange is a very obstinate skin affection commonly seen in dogs of all ages. It is also a disease which causes disappointments both to the owner and the veterinarian who undertakes

to treat it. Parasites responsible to this affection are so deeply situated in the skin, that it is comparatively a difficult task to have a satisfactory cure. The difficulty is still more, when the whole body is involved. The lengthy and tedious procedure of treatment is another great hindrance. Taking all these into consideration, I have, with the consultation of the owner, always adopted a course of destruction rather than treatment during my practice.

During 1927 and 1928, it was recorded in the Veterinary Record and the Veterinary Journal, that certain cases of Follicular Mange have been successfully treated with "Aricyl" and "Odylen." An opportunity presented itself to me, towards the end of 1928, to try these medicines on two fox terrier dogs belonging to two different owners.

The symptoms, characteristic to these animals were loss of hair in patches and an absence of inflammatory changes. Forehead, sides of the chest, neck and legs were the chief places affected. Deep scrapings from the affected parts were taken and examined under microscope and parasites were found in both. Informed the respective owners with regard to the uncertainty of a complete cure.

The owners were unwilling to have the animals destroyed and requested me to try any treatment for a fortnight. Accordingly the dogs were admitted on 2-12-28, clipped the whole body very short and washed with soda solution.

3-12-28. Odylen was thoroughly rubbed all over the body

4-12-28. Odylen applied only to lesions and an injection of 1 c. c. of Aricyl was given subcutaneously.

5-12-28. External application was repeated to lesions to only and injection of Aricyl was given every

14-12-28. other day.

15-12-28. Rewashed with solution and dried well,

On examining the hairless parts, I found a vigorous growth of hairs all over. Microscopic examination proved negative. The same course of treatment continued up to 9-1-29. In the meanwhile, scrapings were carefully taken and examined for parasites every week. Hairs began to grow luxuriantly so much so that the original spots completely dis-

appeared. Monthly examinations of these dogs were specially arranged. Both these dogs are now in Penang in a very good healthy state and no sign of mange is seen.

So far as these two dogs were concerned the treatment was very successful and I am not, at present, in a position to say that these medicines are specifics for this skin disease, simply because of the fact that another dog with a pustular form of Follicular Mange, had undergone the same method of treatment for a longer period and proved a failure. This dog had, eventually, to be destroyed.

[*Ed.* These two drugs have been found of great success in our hands in the treatment of follicular mange. It is better to stop the aricyl injection after a course of 6 injections for a week and then begin it, since otherwise, accumulative effect of arsenic poisoning will be observed in the dog.]

Students' Corner.

T. B. QUESTIONS AND ANSWERS.*

BY

DR. H.A. WILSON, JEFFERSON CITY, MO,

Q.—Define (A) Anemia; (B) Calcification; (C) Necrosis (D) Reaction; (E) Emaciation.

A.—(1) *Anemia*.—Anemia is a condition wherein there is a deficiency either in the quantity or in the quality of the blood. The deficiency may consist either in the diminution of the amount of hemoglobin or in a diminution of the number of red blood corpuscles. Generally speaking, there are two types of anemia—local and systemic. Local anemia is generally due to mechanical interference with the blood supply. Systemic anemia may be due to direct loss of blood following hemorrhages, or to deficiency caused by imperfect nutrition, wasting diseases, defective metabolism of the blood-making organs or the presence of parasitic hemolytic organisms preying upon the red blood corpuscles.

* From *Jen-sal Journal* May 1929.

(2) *Calcification*. Calcification is the process whereby organic tissue becomes hardened by the deposits of calcium salts within its substance.

(3) *Necrosis*—Necrosis is the death of tissue, usually spoken of in connection with a circumscribed area.

(4) *Reaction*—Reaction is the response to stimulation. Reactions connected with biological tests are, in most cases, thought to be of a chemic nature; and the study of the same takes us to the very depths of organic chemistry.

(5) *Emaciation*—Emaciation is a condition wherein there is a wasting of the body tissues.

Q.—Describe the pathological changes which take place in a lymph gland when the tubercle bacilli find lodgement and produce pus.

A.—The description of such pathological changes is of necessity somewhat imaginative. One must largely theorize as well as base his deductions from a general knowledge of pathology.

Ascariasis in pups and even obstinate constipation may have similar results. Fracture or dislocation of the lower jaw may be mistaken for "the dropped lower jaw" of rabies, especially since these cases are usually accompanied by an increased salivation. Any dog brought to a clinic for treatment and showing an indefinite dullness, loss of appetite, stiffness or tenderness along the back or of the hind quarters, twitching or slight apparent paralysis of the hind legs unless definitely diagnosed, should be kept in mind during the next four or five days as a possible case of rabies.

The control or eradication of the disease is its most important phase judging from the amount of space devoted to it by every reference which I have consulted. In England the

On account of contact, we ought to suppose that among the lower animals there would be a greater chance of pyogenic organisms being present in lymph glands infected with tuberculosis. Probably the first step would be Hyperaemia, accompanied by Leucocytosis. This first state is probably the so-called tuberculosis follicle (a giant cell surrounded by a zone of epithelioid and embryonal cells).

Simultaneously there is probably a proliferation of lymphatic tissue, creating of course a notable increase in the size of the gland itself. Within the gland proper the natural trend would be degenerative in nature, accompanied no doubt by necrosis. With the entrance of pyogenic bacteria, the lymph gland would probably lose its typical tuberculous character, and undergo the usual process as found in ordinary suppurative and infective inflammation.

To summarize, it is very likely there would be two distinct pathological processes going on at the same time—the process of degeneration within the gland itself, and the process of regeneration, especially with its subdivision—that of proliferation in the periphery.

Q.—What types of tubercle bacilli produce gross lesions in A: Man; B: Cattle; C: Swine?

- A.—(1) Human, bovine.
(2) Bovine.
(3) Bovine, Avian.

Comment: I am dissatisfied, not only with my own answer but with the opinions as furnished by most writers upon the subject which of course prejudiced me in my answer.

Personally, I am of the opinion that the tubercle bacillus is just a tubercle bacillus, and the different so-called types are nothing more nor less than the products of evolution.

Despite the findings of laboratory experiments, I firmly believe that when man or animal comes in contact with any so-called type of the tubercle bacillus, especially for a long period of time, that the so-called type will eventually adjust itself to the environment under which it is living, and evolve itself into the so-called type of the species which is harboring the bacillus. In other words, let us frame a hypothetical case and suppose that a certain stock pond contains a large number of mud turtles and carp fish, and said fish and said turtles become infected with tuberculosis, with the so-called cold type (reptilian or batrachin) which presumably can only work at a low temperature. If those turtles and fish

throw off sufficiently large numbers of bacilli to constantly pollute and contaminate the water, according to my theory, in the course of time it would be possible for cattle which are constantly drinking the water to eventually develop the so-called bovine type.

No doubt this theory will create mirth on the part of many readers. However, I should like to ask a question. "Is it more far-fetched and more ridiculous than hundreds of other theories seen in veterinary journals and medical publications of to-day?"

Q.—You are called to test nine cows for Farmer Jones who wishes to ship them to an adjacent state, and five of the lot react. What will you do?

A.—Number 4. Paragraph 2, Section I, regulation 7 of B.A.I. Order 309. requires that if twenty-five per cent or more of any load of cattle intended for interstate shipment react to the tuberculin test the remainder of the load shall not be shipped interstate without a proper retest except for immediate slaughter. Nothing is said in the regulations as to the lapse of time before a retest should be made. It is not considered good policy, as a general rule to perform retest upon cattle under sixty or ninety days; therefore, I would refuse a health certificate for Farmer Jones, and inform him that he would have to hold the remainder of the cattle for a sixty day retest or else ship them immediately for slaughtering purposes.

Q.—What must be done before these reactors can be shipped interstate for slaughter?

A.—Number 5. Paragraph 1, Section, 3, regulation, 7, of B.A.I. Order 309 designates that all cattle reacting to the tuberculin test shall be branded with the letter "T" on the left jaw, not less than two nor more than three inches, and attaching to the left ear a metal tag, bearing a serial number and the inscription representing either the D.S. Bureau of Animal Industry or the state in which the animal is located. All

such cattle shall be accompanied to destination by a certificate issued either by a B. A. I. Inspector or a duly authorized State Inspector, showing that the cattle have reacted to the tuberculin test, that they may be moved interstate, and designating the purpose for which they are moved. Such cattle may move interstate only for the purposes of immediate slaughter and shipment to a public stock yard operating under federal supervision, with the exception of pure bred registered cattle, which have been shipped interstate for breeding or feeding purposes and which have reacted to the tuberculin test, may be reshipped interstate for purposes other than slaughter upon compliance with certain conditions, chief of which the cattle shall be consigned only to the original owner and to the same point of origin. They shall not be shipped or transported in compartments on cars or boats containing healthy cattle or hogs. Furthermore, such cattle intended for breeding purposes shall not be shipped to any state or territory which has no provision for the segregation or quarantine of tuberculous cattle until their death by slaughter or from natural causes.

Q.—Differentiate microscopically between a lymph gland affected with tuberculosis and one affected by actinomycosis.

A.—Actinomycosis.—Conformation of glands smooth, capsule very thick and dense. Gland rarely calcified. Upon incision pus is smooth, tenacious, sticky, and rarely has bad odour.

Tuberculosis.—General appearance usually rough, capsule thin, gland less pliable, frequently calcified. In cases where the lesion is long established gland may even be very hard, as a result of calcification. Upon incision if gland is abscessed the pus will be thin, and have very offensive odour. In old lesions which are healed the pus will be caseated and extensive calcification will be in evidence.

Q.—(A.) Give the dose of tuberculin, length of time for reaction, and reaction in subcutaneous tuberculin test.

(B.) Intradermic tuberculin test.

A.—(A.) The dose of subcutaneous tuberculin varies, not only according to the age of the animal, but should also vary

according to the history of the animal. Two cubic centimeters is recommended for calves up to one year of age, and four cubic centimeters for cattle over one year to maturity. Older animals, especially those which have been repeatedly tested, or those clinically suspicious, may receive varying doses, approaching even what would appear to be an unreasonable dose, ten to twenty or more cubic centimeters.

Dosage is not based upon weight alone, but should be guided entirely by the age of the animals, taking into due consideration their history.

The length of time for reaction with the subcutaneous test generally ranges up to and including the eighteenth hour after injection. The first temperature should be taken not later than the eighth hour, and continued every two hours, including the eighteenth or more, if in the judgment of the veterinarian such a procedure is warranted. However, if there is no tendency for the temperature to rise, for all practical purposes the test may be determined at the eighteenth hour after injection.

Animals which show a rise in temperature of two degrees Fahrenheit above that of the preinjection temperature may be considered reactors, especially if the temperature goes about one hundred and three and eight-tenths Fahrenheit, provided of course the temperature reaction shows the characteristic rainbow curves. Even where the temperature goes above one hundred and three and eight-tenths Fahrenheit, the animal should be regarded as tuberculous.

(B) There is no set dose of intradermic tuberculin. Only a small amount (one or two minims) if properly applied is sufficient. The operator should pay no attention to the quantity injected, but be guided entirely by the field at the site of injection, it being desirable to raise a small bump the size of a match-head or slightly larger.

The length of time for reaction is generally conceded to be the seventy-second hour from time of injection; however, it is possible for an animal to react around the forty-eighth hour, or, on the other hand, for the reaction to be delayed as long as the ninety-sixth or even the one hundred and twentieth hour after injection.

The reaction consists of a noticeable enlargement at the site of injection a swelling that may be either hard and circumscribed, or, on the other hand, soft and infiltrated, with no distinct lines of demarcation. There is no definite size to such swellings; they may be very small, or, on the other hand, they may be as large as a man's fist. Circumscribed swellings are generally spoken of in comparison to the pea (3/16 of an inch) and are generally designated as Pea 1, pea 2 and so forth. Diffuse swellings are alluded to as "X" meaning thick, and the natural thickness of the caudal fold is used as a check, such as 2X, 3X, 4X, and so forth, meaning, of course, twice, thrice or four times the normal thickness of the fold.

Q.—In making a professional visit in February, your client calls your attention to his flock of 100 hens. You look the flock over and find five clinical cases of T.B. The flock is of the ordinary barnyard variety. How would you advise him to eradicate the infection?

A.—My advice would be to carefully cull out all chickens which showed clinical symptoms of disease and destroy them. Then, for the protection of the public, to tuberculin test all apparently healthy chickens, removing and destroying all reactors; and market all chickens which according to the test were healthy. Thoroughly disinfect the surroundings, and, if possible, restock and establish the flock and equipment on new clean ground.

However, many farm women who only own ordinary barnyard variety of chickens apparently have a sentiment toward them, and it is an impossibility to get the owner to dispose of such a flock altogether, in which case I would proceed, as I would in a valuable flock, just as described above, except I would recommend future cullings and tuberculin tests at regular intervals until such time as the flock was able to pass two or more clean tests.

Q.—(A.) What is an accredited herd? (B.) What is a modified accredited area? (C.) How may a herd that has never been officially tested become accredited?

A.—(A.) An accredited herd is one which has passed two annual or three semi-annual clean tests, made under supervision of the U.S. B. A. I. cooperating with a State Department.

(B.) A modified accredited area is a geographical territory, generally a county, in which all of the dairy and breeding cattle of the county have been tested and the percentage of infection runs not greater than one-half of one percent. The same rules apply as those of the accredited herd.

(C.) There are three ways in which a herd may become officially accredited, as follows;

1. All of the preliminary testing done either by a B.A.I. employee or a regular employee of a State Department co-operating with the B. A. I.

2. One or more tests conducted at the expense of the owner by an accredited veterinarian, with the consent and approval of the state official and the B. A. I. Inspector in Charge.

3. All tests connected with the accreditation conducted by an accredited veterinarian, at the expense of either the owner or the State Department, by and with the consent of Inspector in Charge and the state official.

Extracts

NEWER STUDIES ON PERNICIOUS ANEMIA.

(From *The Journal of Laboratory And Clinical Medicine.*)
August, 1929.

The announcement by Minot and Murphy—two years ago that the addition of large amounts of liver to the diet was a specific treatment for pernicious anemia revealed a discovery of extraordinary interest and value.

Since their original publication a voluminous literature has accumulated, all corroborating the results first reported, and leading to the assumption that, if the exact cause of pernicious anemia is as yet debatable, at least a specific means of treatment is at last available, and that there is in the liver an antipernicious anemia body which is therapeutically utilizable.

As a result of the studies made of this new and by far the most effective method of treatment yet devised, new interest has awakened in the etiology of pernicious anemia and new theories have been advanced which it is the purpose of this communication to summarize and survey.

The introduction of liver as a dietetic treatment for anemia arose from the experimental observation of Whipple concerning the import-

ance of this organ in the regeneration of blood in experimental chronic anemia, as a result of which he suggested its possible value in the treatment of secondary anemia: adding that "even in the complex anemias human pernicious (anemia, anemia with nephritis, and cancer cachexia) food factors deserve serious consideration in the clinical management of the blood condition."

Modern conceptions have long regarded the essential factor in the production of pernicious anemia as a lack of erythrocyte elements capable of undergoing maturation rather than merely an increased blood destruction.

In view of the newer facts now available it seems quite probable that, as stated by Means and Richardson, "pernicious anemia is in some sense or other a deficiency disease rather than an infectious, toxic or neoplastic one; but it seems doubtful that pernicious anemia bears more than a slight resemblance to any of the other deficiencies with which we are familiar."

That the absence of some specific substance is an essential factor in the production of the disease is no longer to be doubted but nothing is known as yet of its nature.

Synthesis of liver or liver extract so far has revealed nothing and the work of Castle and Locke, indeed, suggests that in the patient with pernicious anemia the lack of specific substance may be due, in part, at least, to a lack of digestive ability which, perhaps, is necessary to supply elements needed in its synthesis.

Despite the remarkable and even dramatic changes produced in the clinical picture of pernicious anemia following the use of liver diet or liver extract, it is as yet too early to say beyond question that the disease is cured. We do not yet know what may happen when the treatment is discontinued. Certainly it appears, however, that with the continuance of treatment the patient remains clinically and hematologically normal indefinitely. There are still, however, problems requiring study.

Koessler and Maurer, for example, are convinced of the necessity for a high fat content in the diet, opposing the contrary recommendation of Minot and Murphy.

This contention is based upon their studies of the relation of vitamin A deficiency to the production of anemia from which they conclude that:

"1. The fat soluble vitamin A is essential to normal blood regeneration.

"2. The addition of vitamin A to the diet of animals long depleted in their vitamin A reserve brings about rapid formation of new blood cells.

"3. A definite relationship exists between a state of chronic vitamin deficiency and certain anemias in man."

The assumptions made by this theory may be thus stated:

"1. The changes in the bone marrow, blood and intestinal tract are probably due to a chronic deficiency or imbalance in fat soluble vitamins.

"2. The lesions and symptoms of the nervous system so similar to those found in pellagra may be related to a chronic deficiency in vitamin B.

"3. The tendency to hæmorrhages, retinal and otherwise, may be due to a long standing deficiency in vitamin C."

They believe, therefore, that the diet should be rich in all vitamins, including liver and kidney as containing the largest amounts of vitamins A and B and also some C, and have proved to their entire satisfaction the efficiency of such a diet in the treatment of pernicious anemia in forty-two cases.

A question of some interest is the relation of liver feeding to the treatment of secondary anemias to which it has naturally been applied.

The original work of Minot and Murphy showed that improvement in secondary anemias treated with liver diet, if it occurred at all, was very slow and very much less marked than that seen in pernicious anemia.

Brill reports a comparative study of ten cases of pernicious anemia and four of severe secondary anemia treated with the Minto-Murphy diet over a period of one year. Two of the latter series were cases of more or less continuous bleeding from benign lesions of the uterus and rectum, one a case of gastric carcinoma, and in one the anemia was apparently due to syphilis.

In these groups there were striking differences in the response to treatment. In the pernicious anemias the rise in hæmoglobin and red cells was uniform, rapid, and steady. In the secondary anemias the rise was but slight in the cases in which operation had removed the cause before the treatment was begun, and in the case of gastric carcinoma no change at all was seen.

His findings are best seen in the table.

BLOOD CHANGES IN TEN CASES OF PERNICIOUS ANEMIA AND
FOUR CASES OF SECONDARY ANEMIA,
TREATED BY THE MINOT-MURPHY DIET.

Case.		Hemoglobin Percentage		Red Blood Cells.	
		Admission	Discharge.	Admission	Discharge.
Pernicious Anemia.	1	26	93	1,280,000	5,000,000
	2	32	95	1,380,000	5,200,000
	3	38	100	1,740,000	5,380,000
	4	30	100	1,360,000	5,120,000
	5	34	100	1,250,000	5,290,000
	6	45	80	1,960,000	3,700,000
	7	81	111	3,710,000	5,010,000
	8	36	85	3,340,000	4,540,000
	9	40	98	1,330,000	4,390,000
	10*	24	65	1,000,000	3,270,000
Secondary Anemia.	1	43	62	3,270,000	3,990,000
	2	48	65	3,000,000	3,700,000
	3	20	33	2,080,000	2,660,000
	4	28	28	2,580,000	2,460,000

* This patient remained in the Hospital only thirteen days.

In view of these results Brill suggests that it is not at all unreasonable to assume an etiologic relationship between the disease and the diet from which it would follow that it would be comparatively useless in the treatment of anemias of secondary origin.

To this assumption added weight is brought by Faher of the usefulness of liver treatment as a means of identifying the nature of anemias in infancy and childhood.

In three cases in infants, the blood picture in all resembling that of primary anemia, striking and rapid improvement followed the administration of liver extract in two, the third showing no response of any sort but responding promptly to transfusion.

The essential difference, as already stated, seems to be that in secondary anemia there is such fatigue of the hematopoietic system that blood regeneration is imperfect and delayed though all the requisites are present, while in pernicious anemia there is a lack of erythrocyte elements capable of undergoing maturation.

At all events, the common assumption of the past half century that pernicious anemia is a process primarily hemolytic in character must be revised, and we now regard the disease as dependent, not upon blood destruction, but upon inadequate blood formation.

The mechanism involved in the response to liver therapy in pernicious anemia has been carefully studied and reported upon by Minot, Murphy and Stetson as follows:

Both the percentage and absolute numbers of reticulocytes in the peripheral blood at the peak of their rise are related to the level of the red blood corpuscles at the time treatment is begun. These relations may be employed to help determine the potency of material fed a patient.

Up to the peak of the reticulocyte rise the increase in the concentration of total red blood corpuscles may be ascribed almost entirely to the production of reticulocytes when the red blood cells are less than 2.8 million per c.mm.

In cases with over 3 million red blood cells per c.mm., or in cases which have received daily maximal amounts of potent extract for over twelve days, the increase in the total concentration of red blood cells is dependent chiefly on the liberation from the bone marrow of mature corpuscles.

In pernicious anemia with less than 3 million red blood cells per c.mm., the absence of a reticulocyte response renders it exceedingly probable that an impotent extract has been employed. On the other hand if the extract given is known to be potent, and no distinct reticulocyte increase follows, it is very improbable that the patient has pernicious anemia, provided his red blood cells are below 3 million per c.m.m.

The number of reticulocytes that appear in the blood at the peak of their rise is roughly proportional to the amount of active principle ingested daily, provided submaximal amounts are fed to patients with less than 2.5 million red blood cells per c.mm. When the large amounts

are given the reticulocytes are apt to appear sooner and vary more in concentration in different cases with the same erythrocyte level.

In some cases there are probably many primitive cells to be transformed within the marrow and in others relatively few, so that in the latter more reticulocytes would not enter the blood stream even if more active principle were given. Standardized extract from 500 or 600 gm., of liver apparently is sufficient to produce a maximum response of young red blood cells in essentially all cases. There is a direct relationship between the rate at which the red blood corpuscles increase and the amount of potent material fed, up to a maximum. On the average when liver extract derived from 500 to 600 gm. of liver has been fed daily to patients with less than 2 million red blood cells per c.mm. of blood, it has increased the concentration of these cells about 2.5 million per c.mm. in thirty days. After two months of adequate therapy with liver extract red blood cell counts in the vicinity of 5 million per c.mm., are to be expected.

The active principle effective in pernicious anemia appears particularly to stimulate the formation of red blood cells. The return to normal of red blood corpuscles usually proceeds more rapidly than that of hemoglobin as the result of treatment with liver, with kidney, or with liver extract.

The hemoglobin increases perhaps more slowly in cases treated with liver extract and a diet poor in sources of iron, and in foods that accelerate hemoglobin regeneration, than when potent extracts are given and the diet is well balanced, and rich in such foods.

It is emphasized that the continued ingestion of some source of the active principle effective in pernicious anemia is necessary to prevent relapse in this disease,

As stated by Means and Richardson, the accumulating facts of the newer studies of pernicious anemia warrant these conclusions:

"1. Pernicious anemia is a chronic disease of unknown etiology, the chief manifestations of which can be held in abeyance as long as adequate amounts of a specific substance contained abundantly in liver and kidney are received.

"2. The supply of this substance can be rendered adequate in persons suffering from the disease by feeding large quantities of natural foods which contain it (Liver or Kidney.), or active fractions thereof, or perhaps also through the provision of the means for natural gastric digestion.

"3. Shortage of the specific substance is clearly responsible for the abnormalities in the liver and blood. The cause of the shortage is not completely known. Castle's work suggests that the gastric defect may play an important role.

"4. Whether the normal human being requires any extraneous supply of the specific substance or can synthesize what he needs is not yet known. The problem of whether the active substance now found is in the state that the body needs or is merely a necessary building stone remains unsolved."

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DEVELOPMENT MINISTER AND THE VETERINARY DEPARTMENT.*

Sir,

It is a curious coincidence that an article under the above title by "Dumb Sufferer" and another article under the title of "Agricultural education in Madras and U. S. A.," by that stout champion of the poor ryots' cause Dr. R. Nagan Gowda, Ph. D. M.L.C., Hospet, have appeared one above the other in the issue of your valuable daily of the 3rd instant. Both the articles relate to the two vital departments, under the Hon'ble Development Minister. Unfortunately matters veterinary are almost a sealed book to most of the laymen and there are not many independent practitioners in Veterinary Science as in the case of medical, with the result that there is no scientifically trained veterinary surgeon who can independently study the veterinary needs of the country and make representations on the matter to the Governments. The Hon'ble Minister has got to depend entirely on the official reports of his veterinary adviser to do anything beneficial to the suffering public. This officer has never been known to have moved among the ryots of the country which alone with a bit of sympathy with their hard lot will enable him to understand their sufferings. We have been reading in the Press about the several meetings attended by the Registrar of Co-operative Societies and the Director of Agriculture explaining to the illiterate ryots and educated men of the country the benefits and the good work of the department under their control and pleading for their sympathy and co-operation to expand the usefulness of their activities. Mr. A. D. Anstead has made it his religious duty as it were to take advantage of the gatherings arranged in honour of the reception of the development Minister and other occasions to enlighten the public on the agricultural requirements of the country. Even at the fag end of his career he has not slackened his efforts in this direction. We see the Surgeon-General Megaw lecturing the other day at Rotary Club and other places. May we appeal to the head of the Veterinary Department to move freely among the people for whose benefit he has been brought in and is being paid heavily.

In the several exhibitions and the shows that are held either in the City of Madras or in the mofussil we see almost all the Development Departments taking an active and enthusiastic part, exhibiting their wares and lecturing to the public with the aid of slides and graphs. But the Veterinary Department is conspicuous by its absence from all such exhibitions and shows. Is it not possible for the Hon'ble Development Minister to request if not to order the head of the Veterinary Department to emulate or to follow the good example of the other departments such as Public Health, Medical, Agricultural, Industrial, etc., in this respect.

Following the example of the supreme head of the department, his deputies seem to think it wise to keep themselves aloof from the ryots

* Extracted from The Hindu 14th August 1929.

but to move only in the towns and cities. Even in the latter places they are not much in evidence on the occasions mentioned in the above para. Probably the whole department requires a new orientation in this respect. The remarks of Dr. Nagan Gowda in his article "Agricultural education in Madras and U. S. A.," regarding the admission and training of the Agricultural Graduates in the Coimbatore Agricultural College, apply equally well to the Madras Veterinary College. But the Agricultural, Veterinary and other Colleges are under the management of the Heaven Born Experts and when they say that they cannot take more students for training every year, their word is final, and no Minister can compel them to increase the number of admissions for training even though these Colleges have been costing the tax-payer lakhs of rupees.

The country is in urgent need of more trained men in veterinary and agricultural professions. Many candidates flock at each centre for selection but only forty students are selected out of three or four hundred applicants. Now that the Minister has thought it necessary to increase the scope for training greater number of agricultural graduates every year, it is hoped that he will turn his attention for a similar step in the Veterinary College also.

Tax-Payer.

DEVELOPMENT MINISTER AND THE VETERINARY DEPARTMENT *

Sir,—In every place that the Hon'ble Development Minister visits, he is telling in reply to the requests made in the addresses presented to him for providing the necessary veterinary help, that for want of trained veterinary graduates he has not been able to provide the requisite number of veterinary doctors. Even in his recent visits to Srivilliputhur and other places he has repeated this slogan of no trained veterinary doctors are available for appointment. In this connection it may be interesting to the suffering public to know that the Madras Veterinary College has been turning out successfully every year on average twenty full blown Veterinary graduates. Even this year at the end of March, 21 students passed out successfully in the final year examination of the above college and became fully fledged Veterinary Surgeons eligible for appointment in the Government service. Out of this, from 1st of April last a number of them have taken service in the neighbouring Indian State of Mysore. The remaining few are daily awaiting orders from the Madras Veterinary Department. Excepting two or three who had been deputed by different Governments all the others out of this twenty-one are bound to serve the Government of Madras according to the agreement.

While Mysore State is taking advantage of these unemployed and passed men and getting work from them to the advantage of both the State and the doctors, it is wondered that Madras is sleeping over the matter even though it is now four months since these men became available for employment in Madras.

Development Minister and the Veterinary Department 149

Evidently the Hon'ble Development Minister is kept in ignorance of the fact of these people being available. Who is responsible for this? It is up to the Hon'ble members of the Council and the Development Minister himself to find out the truth of this affair.

This story of not quickly and fully employing all the available veterinary graduates is being repeated almost every year but allowing the neighbouring Indian and British provinces to employ their services. And every year and at every place Minister after Minister has been replying that the doctors are not available for employment. Either at the fag end of the year or at its middle belated orders are passed appointing a few every year in a half-hearted manner. It is not possible to understand either the mentality or the principles guiding the department in this matter. If we say that this policy is something like Nero fiddling while Rome is burning it will be no exaggeration at all. Rinderpest and other contagious diseases have been playing havoc among the cattle of the Presidency. This is evident even from the meagre reports that appear in the press from such far off places as Vizianagaram, Tinnevely, Tanjore and other places. Sometimes it is the shortage of serum and always it is the shortage of the veterinary doctors which have been responsible for heavy tolls of deaths among cattle from preventable diseases.

Will the Hon'ble Development Minister call for a statement from the Madras Veterinary Department showing the number of veterinary graduates passed out in each of the years 1927, 1928, 1929 and how many of them were bound to serve the Government under the agreement how many were actually employed and the interval between the dates of their passing out and employment in this government, the reasons for delay in employing them earlier and why the others were not employed even though the cattle disease has been prevailing all these years on a large scale throughout the Presidency and as to who is responsible for this inordinate delay if not negligence?

Since it is the rural parts that contribute the large portion of revenue to the Government and it is those rural parts which have been directly suffering from the great loss of cattle due to preventable causes, it is hoped that the Minister and the M. L. Cs. will pay due attention to this desirable cause.

August 1, 1929.

HINDU,
3rd August 1929.

Dumb Sufferer.

THE ART OF MILKING

BY

PROFESSOR A. C. AGGARWALA, B. Sc. HONS., M. R. C. V. S., A. I. R. O.,
Professor of Hygiene & Dietetics. Milk and Meat Inspection.
Punjab Veterinary College Lahore.

(Translated from *Bulletin de L'Academie Veterinaire de France*,
Fevrier, 1929, 'RAPPORT', page 71, Tome II, by
Professor Krishan Datta, B.A. Hons., M.A. (Cantab.)
Bar-at-Law, Haily College of Commerce, Lahore.

The memoir on the 'ART OF MILKING', which Mr. Aggarwala, Professor of Hygiene and Dietetics at the Punjab Veterinary College, Lahore, presents to the Academy, opens with a curious frontispiece, which is both thrilling and striking. It is the reproduction of a frieze which ornaments the Temple of Tell-el-Obeid, built more than 5,400 years ago near the famous metropolis of Ur of the Chaldees, home of Abraham, and the seat of a strange civilisation which was both cruel and refined; where barbaric practices, like human sacrifice in the femoral rites were found along with the most delicate customs, as a proof of which the discovery of the onglie of which all the parts of gold astonishingly remind one of those that are used now-a-days, the ear ornaments, or the chiselled crowns, hair nets of gold, silver combs having coloured flowers painted on them, which can be seen even to-day in their burial, the remains of favourites buried after cremation in the tombs of their King. But amongst those pastoral people of Chaldees, work on land had such an austere dignity that it made them fit objects for artistic representation. And, commonplace agricultural scenes decorate their temple, thus honouring at the same time the vulgar occupations of labourers, the herdsmen and the high majesty of the gods. The frieze of Tell-el-Obed, which represents the milking of cows and a phase of the manufacture of butter, is for us a document of exceptional value on the condition of cattle and on the process of milking 5,400 years ago. With their low long bodies, their massive shoulders, big hind quarters, thick thighs, convex buttocks, the limbs proportionately graceful, cows and calves had such a build that is no longer found in the cattle of the country. If the artist has not much embellished his models, the animals of the Near East, like the civilisation of those ancient countries, have very much degenerated. While milking, the calves are attached to their mothers, as they do even today amongst the Salers, or the Aubracs, and the milk-man seats himself behind the cow, as the goatherds of certain regions and the shepherds of Larzac do to collect the milk of their animals.

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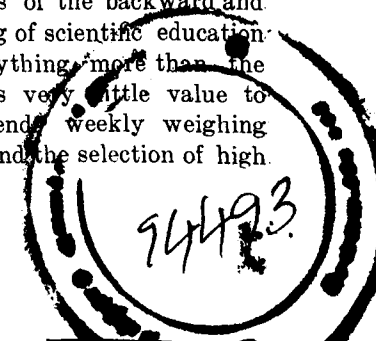
In the preface, the author mentions the evils of irrational and unhygienic milking, and shows that the sole aim of his work is to popularise certain easy rules for getting a clean supply of milk, and eradicate some primitive practices of the Indian milkmen.

And, sometimes the practices are highly repugnant; and, unfortunately they are not confined only to the cows of India. While going through the memoir one meets with much that is familiar almost all over Europe and France. Clad in old, dirty muddy clothes which rub against the unclean flanks of the cow, which introduce thousands of bacteria into the bucket and the milk, the milkers (Ahirs or Gawalas for cows and Gujjars for buffaloes) seat themselves generally to the left of the animal, and not to the right a practice that appears more logical to the author, for the animals are used to be approached on the left, and the milkman also find themselves in a better position to seize with the right hand the hinder teats which are most difficult to reach. In the locality, the underfed animals are housed under notoriously unsanitary conditions, the milkers milk with 'wet hands' by profusely wetting their palm and fingers which dry up during the process of milking. The most refined wash their hands with the first few jets of milk, while others deliberately dip their fingers and hands in the bucket, more or less full, and some of them even spit on their fingers, as our agriculturists do when they are about to lift a heavy weight; and moisten their hands with the abundant supplies of saliva of smokers. Good many blow their noses with their fingers, and during the process of milking, they throw their tobacco or betel leaves chewings, which certainly always do not fall by the side of the bucket. They milk like most of our milkmen, holding the teat between the four fingers, and the thumb doubled up, thus exercising pressure and pull which produce cracks and sores, or inflammation on the teats—and draw out milk "like a thief about to steal the milk of the cow." Like our own, the Indian milkmen have medical pretensions as well. They do not hesitate to introduce thorns, feathers or dirty reeds into the udder to clean the passage in the case of cows hard to milk. In the end, the milk is collected in narrow-mouthed vessels which cannot be cleaned, or in buckets having a wide mouth, which can be easily infected.

Rapidly going over the actual zootechnique, the author describes and explains the principles of rational milking—cleanliness of the place, of the cow, of the milker, and of the receptacles, a rapid, gentle and regular milking with dry and whole hands by a calm and skilled milkman. The system of Hegelund finds in him a well informed, clear headed and enthusiastic apostle who would have the Indian milkers adopt the methods which he extolls.

After a short chapter on milking machines recently introduced in India, the Professor of the Lahore Veterinary College shows the good influence exercised by keeping a record of milk yield and food in the production of dairies and on the improvement of the breed. He does not make mention of the adoption of the measures of the backward and custom ridden natives. Moreover, in the beginning of scientific education of his countrymen, he does not recommend anything more than the weighing of milk. Like the English he attaches very little value to monthly or fortnightly weighings; he recommends weekly weighing which would lead to elimination of poor cattle, and the selection of high.

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yielding cows for exploitation and reproduction. Yet, he is not sure that the quantitative control will lead to the desired results, because the Indian peasant venerates the cow. The peasant's regard for the cow is stronger than his own interest. For a long time yet he will prefer to feed, though incurring a loss, than eliminate, with profit a bad milch cow, and though highly objectionable that generous sentimentality reconciles us a little with the ignorant peasant of the Punjab.

The book ends with a summary of the rules of milking, and an octagonal diagram which reminds us so forcibly of the original notations of Baron showing the various factors in the production of milk.

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Very well served by an elegant, clear and precise translation by M. Beuchet, son of our colleague, and illustrated by well chosen photographs, and finely designed figures, executed by M. Hakim Mohammad Hanif, under the direction of the author, the memoir on the art of milking deserves to be placed before the Commission for Awards for its true worth and for encouraging Mr. Aggarwala for writing to us interesting notes on the pathology and economy of the animal of his distant country, still so little known.

Association News.

BENGAL VETERINARY ASSOCIATION.

We are in receipt of a printed copy of the proceedings of the Fifth Annual General Meeting of the Bengal Veterinary Association, held at the Bengal Veterinary College grounds on the 30th and 31st March 1929.

P. J. Kerr Esq., M.R.C.V.S., I.V.S., Director, Civil Veterinary Department Bengal and Veterinary Adviser to the Government of Bengal presided on the occasion.

There were as many as 38 members present.

The President in his opening remarks regretted the small attendance of the Members, though he had arranged to give every possible facility to the mofussil members to attend, recommending permission to leave their stations for the purpose and at the least possible cost to them. He understood from the Honorary Secretary that arrangements would be made at the Association's cost for boarding and messing of the mofussil members, during the session in Calcutta. And he also regretted the absence of those Members whose Head-quarters station was Calcutta, and even Belgachia College itself. Even on the face of such indifference, he hoped that the Association would do much to benefit Veterinary Graduates and Veterinary profession in Bengal and that in course of

time, the Veterinary graduates as Members would rouse themselves and take sincere sympathy and keen interest in the steady progress of the Association.

Babu Cumud Chandra Sen, Honorary Secretary in presenting the Annual Report said "While it gives me great pleasure to submit this the Fifth Annual Report of the Association, which is the second one from me, I beg to apologise, on behalf of the Executive Committee that this General Meeting could not be held earlier, as laid down in Rule II, but I may take it that the reasons have already been explained to your satisfaction in the proceedings of the Executive Committee Meeting of 8th December 1928, a copy of which was duly supplied to each of you.

I may be permitted here, on behalf of the Association to heartily thank Mr. P. J. Kerr, the Veterinary Adviser to the Government of Bengal, for his kindly consenting to preside over this Meeting, and Mr. A. D. MacGregor, the Principal of the Bengal Veterinary College, for his kind permission to hold the meeting in the college premises and make use of the Shamiana already equipped for the Annual Prize distribution of the College, to our encouragement. With the patronages of our eminent Imperial officers, I have every hope, that our Association will, ere long, manifest activities in all directions.

I am glad to say that the Association during the year under report made steady progress as regards Finance and Membership. The general activities, however, could not be pushed on as desired, due to lack of enthusiasm on the part of the Members. I, too, on my part could not devote the whole of my time for the furtherance of the general activities, as my primary aim was to make—firstly the association financially firm, which defect, in my opinion, was the main cause of the apparent failure of my illustrious predecessor; and secondly, if possible to have all the Veterinary Graduates in Bengal enlisted as Members and make us united.

As regards the first one, I am glad to say that I have been successful in my attempts, though with certain amount of difficulties, (which will be shown by the account to be submitted presently), earning in that for me enviable distinctions of "Shylock" "Kabuliwalla" etc. My felicitations to the gentlemen who have thus honoured me.

But regarding the second point I was less fortunate. I registered 190 names originally including the Private Practitioners, the C.S.P.C.A., and the Private Service Veterinary graduates in Bengal. And as eight of the Private Practitioners did not respond to my repeated calls I had to cut

short the total number in the register to 182. Out of these 182, 12 in Government Service could not be moved at all; and seven declined to subscribe on some personal grounds; one of them went so far as to find fault with the present constitution of the Association, hinting to destructive ideas, but he did not come forward with any constructive scheme.

As a result of the above deficit we are to-day 160 strong in the regular Members list. I hope the strength will not only be steady but incorporate and embrace all those who have kept away so far.

During the year under report there were 4 Executive Committee Meetings, and the members were duly supplied with the copies of the Proceedings, in print.

The Rules and Bye-laws were revised and amended, the draft being distributed amongst the Members, in print for their opinions, but as there was no response from any of the Members, even in course of the succeeding two months, they were finally adopted in the Executive Committee Meeting of 8th September 1928. And a copy of the same, in print was supplied to each of the members. In this connection we are grateful to Mr. A. D. MacGregor and Mr. R. T. Davis, who lent their valuable assistance and advice in the final adoption of the Rules.

A regular Register of Members was opened and a regular and systematic account book was, also opened, of which I had none from my predecessor when the charge of the Honorary Secretaryship was made over to me almost by compulsion in December, 1927.

The accounts were always audited and after due scrutiny passed at each Executive Committee Meeting. The sum total of which I put up before you, in absence of the Honorary Treasurer, who is unfortunately not present here to-day owing to his being absent from his headquarters station at Calcutta.

The following resolutions were passed :—

1. That the Association be a service Association, embracing all classes of service (Provincial and Subordinate), and that the Government be approached through the Veterinary Adviser to the Government of Bengal, to accord recognition to such an Association, as in the case of Agriculture Department, Bengal.

2. That the Government be approached, through the Veterinary Adviser to the Government of Bengal to accord special permission to render Veterinary Surgeons of Bengal, other than the service men eligible to be co-opted Members of the Association.

3. That the Government be approached, through the Veterinary Adviser to the Government of Bengal, for permission to continue the affiliation of the Association with the All-India Veterinary Association, citing in this connection the precedent of Behar and Orissa Service Association.

4. That the Association will put up a fresh case, for better pay and prospects of the Veterinary Assistant Surgeons, to the Government, through the Veterinary Adviser to the Government of Bengal, mentioning in this connection, the memorials submitted and replies received thereto from the Department and Government.

5. That the intention of holding the Annual General Meeting of the Association at different centres outside Calcutta, should be intimated to the Secretary from a common Veterinary Body of the District, where the meeting is to be held, at least three months prior to its holding and that the expenditure for such meeting should be met from the Association fund, the amount of which should not exceed Rs. 100 (One Hundred).

6. That the resolution regarding the starting of Benefit Fund be dropped till the Association is more advanced corporately and financially.

The following interesting discussion took place over the resolution of converting the Association into a Service one.

In moving the resolution Babu G. K. Roy Choudhury said that it should be a Service Association for the interest of the Veterinary Graduates. This was seconded by Babu K. P. Neogi, and in supporting this, Babu G. N. Mitra pointed out with the permission of the President, that it was to be a Service Association in order that it might be recognised by Government and so be of more use.

The President explained the object of its being made into a Service Association :—That Government would not recognise the Association as it stands now, and without Government recognition the Association cannot be of much use nor help the Members and the Veterinary Graduates to any appreciable extent. To obtain Government recognition it is essential that it should be made into a Service Association. And though according to Rule each class of officers (e.g. Provincial, subordinate etc.) is required to form separate Association, this difficulty may well be waived as there has been a precedent in the Agriculture Department, where all grades of officers have been allowed by Government to form into one united Association. Government may be approached to sanction this in our case also. About the non-service Graduates—Private Practitioners, noth-

ing can perhaps be done at present. There are only two names of this class in the Member's list, but none the less the loss of one of them Babu G. N. Roy Chowdhury a devoted worker of the Association since its inception, will be keenly felt, but it cannot be helped for the benefit of the greatest number. But regarding the Corporation and C. S. P. C. A. Veterinary Officers, Government may digress from the General Rule, as those bodies are more or less Semi-Government ones.

Babu G. N. Roy Chowdhury contended that the Association started originally with all Veterinary Graduates irrespective of cadre or service in Bengal and it would not be wise to split up the Association at this stage. With the heterogeneous class of Veterinary men in the Province, we should be united and that will be more effective; and in concluding exhorted to continue it as a General Association instead of its conversion into a Service one.

Babu M. R. Ghosh V. S., C. S. P. C. A. spoke not to make this into a Service Association as it would hamper the numerical strength and Finance and that recognition of the Association by Government would not help much towards progress, as the members of Service Association will be handicapped by their inability to speak freely, as the Rule of the Service Association will be obstructive to their free speech, whereas the outsiders have this privilege without infringing the rule or incurring the displeasure of any superior authority in Service. And so the General Association will be stronger and more useful and helpful than a service one.

Babu H. K. Dey Biswas did not like to lose the co-operation of the Imperial Officers. He was afraid that by making this a Service Association, the Imperial Officers would be debarred from co-operating with the Association. But when explained that such would not be the case he gave his views in support of a "Service Association."

Babus J. K. Bose, S. C. Roy and G. K. Roy Chowdhury said, that for the benefit of the Members, and as Government won't heed any resolution passed by the Association however good it may be for the Veterinarians of the Province, unless and until it be recognised by being made into a Service Association, it should be made into a Service one.

Babu R. N. Bose in arguing against Babu G. N. Roy Chowdhury's views said "Greatest good to the Greatest number" and as by changing this into a Service Association the greatest number will be benefited, he was for the majority views.

Babu H. C. Das Gupta queried as to when the recommendations of the Agriculture Commission may probably be

given effect to. The President informed that there was no knowing when these will be given effect to. The schemes have been approved but they were not being given effect to, as funds were not forthcoming.

Rai Sahib P. N. Das, the President of Behar and Orissa Veterinary Association who was present as a visitor in the Meeting, being requested to give his views on the point advised not to turn the Association into a Service one.

When the resolution was about to be put to vote, Moulvi M. S. Chowdhury argued to refer the subject to all Members and to postpone the voting till their views were obtained. Babu K. C. Sen pointed out that it was not necessary as each and every member throughout the Province was intimated of such a resolution to be moved in this Meeting and invited for their views more than once since December last, and as practically none responded, it would be only a waste of money, time and energy.

The amendment of Moulvi M. S. Chowdhury was however, put to vote and negatived.

The original resolution was then put to vote and carried by majority:—15 voting for and 13 against and 10 remaining neutral.

Mr. S. S. Ahmed in moving the resolution on the prospects of the profession spoke as follows:—

I respectfully draw the attention of Government to the absolutely inadequate pay of the Veterinary Assistant Surgeons; also of the very meagre travelling allowance of the touring Veterinary men.

In this connection I beg to point out that 25 years back the pay of the Veterinary Assistant Surgeons was only Rs. 30 a month, but then the conditions of life were very different. The necessities of life were cheap, there was no motor car, at any rate in Mofussil Districts—consequently there was a good private practice for the Veterinary Assistants.

His Majesty's Secretary of State for India in August 1907, sanctioned the pay of the Veterinary Subordinates on a time scale basis similar to those of the medical Sub-Assistant Surgeons (The Veterinary Inspectors were separately dealt with.) The pay of the Medical Subordinates was Rs. 25—10/5—70 time scale, which was raised from Rs. 30 to Rs. 100 in April 1910. Eight years later it was again revised as Rs. 50 to Rs. 120, then again in 1921 (3 years later) it was further raised to Rs. 60—5—175 with a selection grade of Rs. 200.

The Veterinary Assistant Surgeons' academic qualifications are in no way inferior to those of the Medical Sub-Assistant Surgeons. What I want to make plain is that we do not at the least grudge the Sub-Assistant Surgeon's salaries, plus the private practice. My reasons for showing this is only to compare the fate of our Veterinary Assistant Surgeons.

Shall we call it 'Kismet' that a Veterinary man in the District has all the troubles of life brought him—forcibly—he has to make both ends meet somehow, he sees his wife and children half-starved, and improperly clad and shod, that he cannot well afford to educate his children in the desired way and worse of all he has to spend part of his salary for his tours in his jurisdiction as the paltry sum of consolidated travelling allowance is absolutely insufficient to meet it. It is his hard lot.

Though it may be contended that the Veterinary Assistant Surgeons had their pay revised from Rs. 30 to Rs. 50, to Rs. 50—10/5—100, this is even quite inadequate as may be evident from the report of the Shirras Committee, which showed the Rupee value to be only annas five and perhaps even less now.

The usefulness of Veterinary men cannot be disputed. In this country the utility of the cattle is proverbial in food production—either in the plough or in milk supply and for the welfare of the species the Veterinary Assistant Surgeons are the backbone. (This was corroborated by the President himself.)

With their academic qualifications, hard and long course of scientific training, the Veterinary Assistant Surgeons are the worst of the sufferers when their hard lot is compared with those of the illiterate cooks and Khitmatgars. (The President pointed out that they get Rs. 40 to Rs. 75 a month even.)

Memorials after Memorials to Government on the subject, without any real issue, deferred hopes and unfulfilled promises have sorely tried the patience of this the country's and Government's useful and helping staff. They are apt to lose faith when they are always informed "It is under Government's best consideration." Government should do something tangible to redress the legitimate grievances of their loyal servants—the Veterinary Assistant Surgeons.

The President speaking on the subject said "the Dual control is a hindrance, that the D. Bs. are the stumbling blocks with their limited budgets. The Boards are not willing to spend any extra sum towards the increase of their share of contribution with the increase of the Veterinary Assistant

Surgeon's pay. They may change their minds if they are given free serum."

To this I would say that in giving immediate effect to the modest revision scheme, which I understand is with Government now, though too much below the legitimate requests and claim of the Veterinary Assistant Surgeons, Government can surely find a few thousand Rupees, say Rs. 20,000 at the most, to help the tenders of God's dumb creatures and the loyal servants of Government, and without going to the District Board's help, if that body is so apathetic, and I would like that the Association approach Government as such.

Babu B. B. Charkrabarty in supporting the resolution said that Representations, Deputations and Memorials can achieve success only when they have a solid body at their back and requested the house to enlist the sympathy of the Departmental heads. They are in close touch with the authorities and if any redress is to come, it must come through them, who are at the helm.

The Veterinary Adviser to the Government of Bengal as President of the Meeting spoke sympathetically and promised that he would strongly move Government on the subject.

The following professional papers were read :—

1. Improvement of Breeding operation amongst cattle.
2. Prevention of cattle poisoning by Babu S. C. Roy, Veterinary Assistant Surgeon, Serajganj.

The following Office-Bearers were elected for the year 1929 :—

President—Rai Shahib S. C. Paul, G.B.V.C. Assistant Director, Civil Veterinary Department, Bengal.

Vice-President—Mr. M. S. Chowdhury, G. B. V. C. Inspector Civil Veterinary Department, Bengal.

Secretary—Mr. K. C. Sen, G. B. V. C. Offg. Lecturer B. V. College, Belgachia.

Treasurer—Mr. D. K. Sen, G. B. V. C. Lecturer B. V. College, Belgachia.

Auditor—The Executive Committee in quorum

Members—Khan Shahib S. S. Ahmed G.B.V.C. Vice-Principal B. V. College, Belgachia.

" Mr. G. N. Chatterjee, G. B. V. C. Lecturer B. V. College, Belgachia.

- Members*— Mr. J. N. Mitra G.B.V.C. Chief Glanders Inspector, Belgachia.
- „ Mr. R. N. Bose, G.B.V.C. Inspector, Civil Veterinary Department, Bengal,
- „ Mr. P. C. Mukherjee, G.B.V.C. Inspector, Civil Veterinary Department, Bengal.
- „ Mr. H. K. Dey Biswas, G.B.V.C. Veterinary Assistant Surgeon, Alipur.
- „ Mr. B. B. Chakrabarthy G.B.V.C. Veterinary Assistant Surgeon, Basirhat.

With the usual vote of thanks the meeting terminated.

THE BOMBAY VETERINARY GRADUATES' ASSOCIATION.

ANNUAL GENERAL MEETING.

The Annual General Meeting of the Bombay Veterinary Graduates was held at the Gokhale Education Society's Hall, Parel, on Sunday the 30th March 1929, when Khan Saheb N. D. Dhakmarwalla, G.B.V.C. President of the Association took the Chair.

Veterinary Graduates from all parts of the Presidency were present. The annual report of the Managing Committee was read by the President. It stated that there were 153 members remaining on the roll and that the balance on hand was Rs. 635/11/-. As the report of the Royal Commission of Agriculture was published during the year and Veterinary problems have been dealt with exhaustively and a vast scheme for the development of Veterinary Service in India has been recommended by the Commission, the Chairman expressed a hope that Government will move in the matter of giving effect to them. Besides this the Chairman exhorted all those who had not joined as members to do so and to send short petty papers on Veterinary subjects. After the election of new Office-bearers for the current year, some interesting and instructive papers were read by the members, viz,

1. by Professor V. R. Phadke, on
 - (a) A new fluke found in the Indian Crow,
 - (b) Diseases of wild animals communicable to men,

2. by Mr. Iyer, Lecturer, Bombay Veterinary College,
 - (a) Some diseases of meat and their relation to public health,
 - (b) Beyer 205 in treatment of 'Surra,' intrathecal and intravenous.

and
3. by Mr. Laud. Superintendent, Victoria Gardens, on Chyle ascites in African leopard.

The following Resolutions were Passed.

1. Resolved that the list of the Bombay Veterinary graduates should be revised and printed every five years.
2. Resolved that a deputation consisting of Khan Saheb N. D. Dhakmarwalla, Professor V. R. Phadke, Messrs. Marathe, Laud, Date & Akula should wait on the Hon'ble Minister of the Local Self Government to request the Government to form a Committee consisting of Officials and non-Officials to enquire into Veterinary needs of this Presidency in connection with the Veterinary Education, working of the Civil Veterinary Graduates and recommendations of the Royal Agricultural Commission,
3. Resolved that the graduates other than the Graduates of the Bombay Veterinary College should be enlisted as Associated Members on payment of the usual fees and they shall have the same rights and privileges of an Ordinary Member,
4. Resolved that the following members should be the office-bearers for the year 1929 :—
 Khan Saheb N. D. Dhakmarwalla (President)
 Messrs : P. G. Date & T. R. Khaladker (Jt. Hon. Secretaries)
 Mr. Y. N. Marathe (Hon. Treasurer), Messrs. V. R. Phadke
 M. G. Kulkarni, D. S. Laud, A. B. Agate, & A. A. Dave (Members of the Managing Committee).
5. Resolved that Messrs. M. G. Kulkarni & J. G. Kulkarni should be appointed as Hon. Auditors for the year 1929.
6. Resolved that the next Conference should be held in Bombay during the Easter of 1930.

After partaking of light refreshments the meeting terminated with a vote of thanks to the President and the retiring Committee.

BOMBAY VETERINARY GRADUATES ASSOCIATION.

As resolved in the conference of the Bombay Veterinary Graduates' Association in March 29, in Bombay, the Hon. Minister in charge of the Veterinary port-folio was requested

to receive a deputation of the Association. A copy of the Memorandum prepared by the deputation was sent to the Honourable Minister in advance. The much sought for interview was granted on 26th August 1929. The Minister heard the Deputation very patiently and was found very sympathetic towards the profession. On account of financial difficulties he did not find it possible to increase the salaries of the Veterinary Assistant Surgeons or to create higher posts. He however was found favourably inclined to increase the number of Veterinary Assistant Surgeons and the Veterinary dispensaries. As regards fresh avenues of service pointed out in the Memorandum he informed that Government were considering in the matter. His views towards Veterinary Education seem to devote some favourable prospects in future.

MEMORIAL BY BOMBAY VETERINARY GRADUATES' ASSOCIATION

22nd August, 1929.

To,
THE HON. DIWAN BAHADUR HARILAL D. DESAI,
MINISTER-IN-CHARGE

Local Self-Government (Transferred Subjects).

Bombay.

Respected Sir,

We are very grateful to you for having given us permission to wait upon you Sir, to represent the grievances and needs of the profession to which we have the honour to belong. Our Association is an Association of the Graduates of the Bombay Veterinary College, in service, Government or otherwise. A majority of the Members are members of the Civil Veterinary Department in the Presidency proper, and others are in the employment of Local Bodies and allied Societies or private practitioners. The last class of people is fast disappearing on account of the increase in mechanical transport and consequent gradual extinction of the paying patients viz., horses. The Veterinary graduates have therefore no other field open to them except Service, either Government, State, Municipal or private. The private service consists of employment as Veterinary Surgeons in charge of some Pinjrapoles and Goshalas. A few are employed in Municipalities. A few more are employed in Societies for the Prevention of Cruelty to Animals and Native States. There are about 150 employed in the Civil Veterinary

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Department in the Presidency proper and Sind. The States are absorbing a few graduates but the progress is slow. The Bombay Municipality employs good many but with the development of mechanical transport it is doubtful whether that field will remain open to the profession hereafter, unless other avenues of Service for Veterinary Graduates are tapped and kept open.

The Bombay Veterinary College was the first College of its kind to be established in Bombay by the Bombay Government. It has supplied other Provinces and Colleges and also to territories outside India, with qualified men to look after the health of Agricultural Stock of the country. With the establishment of other colleges in India viz., at Lahore, Calcutta, Madras and Patna—the services of the Alumni of this College are not so much in demand as they were in years gone by. Since Bombay Government is spending large sums of money for giving Veterinary Education in the Presidency every year and if unfortunately fresh avenues of Service for Veterinary graduates are not found out, a time is not far distant when unemployment for these professional men will be the order of the day. As technically trained men they have not got any other line open to them but the profession. Arts graduates who are being turned out in hundreds every year (though unemployment is rife in that class) have got several departments or lines open to them. They can get employment in any department except the technical. Railway service is open to them, their general knowledge will be useful to them to earn their livelihood in any walk of life but such is not the case with the graduates of the Bombay Veterinary College. They must get into service where their profession will be of some use or leave the profession and go begging. Such being the state of affairs in this province we respectfully approach your Honour and take the liberty of showing new avenues of service and to place the grievances of the men already in employment under your control, with a fervent hope that they will receive kind and sympathetic consideration at your hands.

To begin with, we lay before your Honour the case of the graduates employed in the Civil Veterinary Department. Prior to the provincialization of the Civil Veterinary Department in 1909, Veterinary Graduates were employed by Local Boards in charge of Veterinary Dispensaries on different scales. Their minimum pay to start with was Rs. 50-0 per mensem and the maximum Rs. 100-0-0 or more. The Department was provincialized in 1909, and the service was made pensionable. Almost all the graduates in service of the Local Boards were offered pay less than what they were drawing in consideration of the pensionable service and pros-

pects of higher posts such as District Veterinary Inspectors and Divisional Deputy Superintendents. The scale of pay at the time of introduction of this scheme was Rs. 30-45-60-75 grade promotion every 5 years and a selection grade of Rs. 100-0-0 with a certain percentage. As this scale did not attract men it was revised in 1914 and the last grade of Rs. 30/- was done away with, and the scale was revised.

The scale of Inspector's pay was Rs. 100-10-150 and that of the Deputy Superintendents was Rs. 200-275-350 and 400. Owing to the world wide war and other factors which caused increase in cost of life from year to year, this scale for Veterinary Assistant Surgeons was changed from time to time until 1924, when it was fixed at Rs. 60-4-100, efficiency bar, 100-4-140. The scale of pay of Inspectors was raised from Rs. 150-5-200 and on a representation being made to your Honour's predecessor,—the Hon'ble Sir G. H. Hidayatulla he was pleased to increase the scale of Inspector's pay to Rs. 175-10-225. The pay of the Deputy Superintendent was revised and a time scale of Rs. 250-25-750 was introduced in 1919. It is now twenty years and the Department consists of only one Deputy Superintendent who is a personal assistant since 1912. In 1910 there were three Inspectors in charge of three Revenue Divisions and to-day, that is, after

the cadre sanctioned by the Government for one Veterinary Assistant Surgeon for each Taluka and one Veterinary Inspector for each District and one Deputy Superintendent for one Division. The scheme so far has remained only on paper and though the number of Veterinary Assistant Surgeons has increased and is increasing every year, not only the Inspector's posts are not being created in proportion to this increase in the number of Veterinary Assistant Surgeons, but they are made to work in three and four districts on pay which was originally meant for an Inspector for one district. Owing to financial stringency of Government all schemes of expansion submitted from 1914 up to date have not received any consideration from Government. District Local Boards have been clamouring for Grants-in-aid to open more dispensaries but Government is unable to provide funds for the purpose. Also contagious diseases demand the services of more Veterinary Assistant Surgeons. With advanced age, increased cost of living, increased family responsibilities and at the fag end of their service, the recommendations of the Linlithgow Commission have come as a bolt from the blue over the heads of the men serving faithfully since 1909. The Linlithgow Commission recommends the employment of a Divisional Deputy Director on a superior provincial scale and one District Officer of the Lower Provincial Scale for each

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District. The Commission also recommends that men passed out of an Indian College with a five years' course and a post graduate training shall be eligible for such District posts. For Deputy Directors' post on a Superior Provincial Scale, men with M. R. C. V. S. degree are recommended. The Commission has also recommended the abolition of Veterinary Inspectors' posts. The really hard worked class of Veterinary Assistant Surgeons in charge of Dispensaries has found no room in their recommendations except increase in their numerical strength.

For those men in the Civil Veterinary Department in 1909, there were some distant hopes of getting the District Inspectors' posts and Divisional Deputy Superintendents' posts. Of course so far realities go they were only hopes and upon those hopes they have lived so long. Those men in service in 1909 and who are still serving as Veterinary Assistant Surgeons or Veterinary Inspectors, have in no small degree contributed towards the usefulness of the profession and built up the Department to its present stage, and it is these men that are suffering most and that have got this death blow to their prospects by the recommendations of the Royal Commission. The report of the Royal Commission has not only set the Civil Veterinary Department scheme of 1909, in the back ground but has shown the inadaptability of its recommendations so far it relates to the Bombay Presidency on account of its financial condition. Thus the Senior Veterinary Assistant Surgeons and the Veterinary Inspectors have neither to hope for any increase in their pay on account of the Royal Commission's recommendations nor those hopes which they had under the 1909 scheme, are likely to be materialised. There is thus a great discontent prevailing amongst them. We understand that a modified scheme on a cheaper scale has been submitted by the Superintendent Civil Veterinary Department for your Honour's consideration costing more than Rs. 50,000 but since we see from the Bombay Provincial Service Rules introduced from 1st June 1929 that Government do not contemplate to create a Director of Civil Veterinary Department, we are led to presume that Government also do not wish to create the Divisional Deputy Directors and since these higher posts which the Royal Commission had recommended are not likely to be created, the District Officers' posts also will be out of consideration. All the men required to fill up such posts are to be graduates of a College which has a five years' course, but there is no such College in existence in India to day. All these mean that there are no prospects for the Veterinary Inspectors and the Senior Veterinary Assistant Surgeons in the Department. If unfortunately the modified scheme as

suggested by the Superintendent is not likely to be favourably considered and immediately given effect to, we beg to submit for your Honour's consideration another alternative scheme which will be financially possible at a small extra cost, which will meet the demands of the Superintendent's scheme half way, which will be in a line with the recommendations of the Royal Commission and which will give relief to the Veterinary Inspectors and Senior Veterinary Assistant Surgeons to a certain extent. The cost of scheme proposed is appended for your Honour's perusal and kind consideration. We beg here to point out that though the scale of pay proposed in our scheme for Deputy Superintendents is Rs. 250-25-750, none of the present men who have put in more than 20 years service and whose age is bordering upon 50, are likely to draw even the mean of that scale at the time of their retirement. Thus no fear be entertained that it will prove an expensive one. The scheme will only give relief to those Veterinary Inspectors and Veterinary Assistant Surgeons who have been serving since 1909 with the hope of getting better prospects of higher posts and to whose labours the Department owes its present existence. The scheme we suggest consists of six new Deputy Superintendents and a selection grade for Veterinary Assistant Surgeons at 150-10-200 (5%) of the total. By creating six Deputy Superintendents' posts, the Presidency can be divided in six Circles and the Superintendent Civil Veterinary Departments' work can be decentralised so as to enable him to look after the professional side of his work. The present Deputy Superintendent will continue as his personal assistant in the administration of this Department. The cost of 5 Veterinary Inspectors @ Rs. 225 and their Offices on 1st April 1930 will be Rs. 28,008 and the cost of 6 Deputy Superintendents and their Offices will come to Rs. 34,428, an increase of only Rs. 6,420. We think, Sir, the increase is not certainly prohibitive for a rising Department, dealing with cattle which are the mainstay of agriculture. As Bombay Presidency's financial position will allow, the scheme as contemplated by the Royal Commission, may be given effect to, and men with the five years' training would by that time be also possibly available. But till then we implore you, Sir, to give the Veterinary Inspectors and the Senior Veterinary Assistant Surgeons some pecuniary relief in their advanced age and increased responsibilities at the end of their service. So much for the Veterinary graduates in the Government service.

For employment of Veterinary graduates in Local Bodies we respectfully point out that in the Municipalities and Local Boards under your kind control, if the Municipal and District Local Board Acts will provide the entertainment of Veteri-

nary graduates with sanitary qualifications to fill up posts of Sanitary Inspectors in their Health Department, the Veterinary graduate will in addition to this sanitary work be able to look after milch-cattle, stables, dairy animals, slaughter houses and meat and milk inspection, control of rabies and other diseases, which an ordinary man with only sanitary Inspector's qualification will not be able to do. This source of employment is the one which we request your Honour to reserve for the employment of veterinary graduates.

Pinjrapoles and Goshalas offer another field if Government will render help to these institutions by giving them grants for employing Veterinary graduates to look after the inmates of such institutions.

The work of passing animals of public conveyance which is at present done by Police Officers could be more appropriately performed by Veterinary graduates and one such post for each District in the Police Department would appear useful.

Unless such new avenues of Service are opened we are afraid that with further mechanisation the profession will be dead and there will be no necessity of maintaining a separate Veterinary College for Bombay Province.

With regard to Veterinary education, we beg to suggest that students should be taken on excursions to the actual seats of outbreaks in the province, to enable them to learn the practical methods employed in the suppression of Epizootic diseases. Also we suggest that facilities be provided at the Bombay Veterinary College for imparting training in Poultry farming and animal husbandry. Also the students should be made to attend horse, dog and cattle shows and be conversant with the methods of handling raw Australian horses. In fact we suggest that the present curriculum be revised to include the subjects mentioned above. A special course should also be given in the serum simultaneous method of inoculation in rinderpest. This will go a long way in pushing on this method of prevention of rinderpest in the Province. Also we consider it necessary that a Post Graduate's course be re-introduced at the Bombay Veterinary College. With a view to bring this into force, we are of opinion that immediate steps be taken to provide a well equipped proposed Laboratory.

In conclusion we offer our grateful thanks once more for allowing us to lay before you our grievances and we pray

the Almighty God that He may guide you to grant the request of Doctors of dumb animals.

We beg to remain,
Respected Sir,
Your most humble & obedient servants,

N. D. DHAKMARVALA,
President, Bombay Veterinary Graduates' Association,

Y. N. MARATHE
D. S. LAUD,
V. G. AKULA,
P. G. DATE,
C. N. DESAI,

Members of the Deputation.

**Statement Showing Extra Cost on Account of the
Proposed Scheme.**

PROPOSED EXPENDITURE.

6 Deputy Superintendents @ Rs. 250-p. m. each.	Rs.	18,000
6 Clerks. 30-5/2-60	...	3,240
6 Peons	...	1,116
Office Rent	...	780
House rent to clerk at Poona @ Rs. 5/- p. m.	...	60
Compensatory allowances to Deputy Superinten-		
dent at Poona	...	420
—do— —do— Peon at Ahmedabad	...	12
6 Veterinary Assistant Surgeons. 15--10-200	...	10,800
	Total Rs.	34,428

PRESENT EXPENDITURE.

5 Veterinary Inspectors @ 225 p. m. each	...	Rs. 13,500
5 Clerks	...	2,760
5 Peons	...	936
Office Rent	...	660
House rent to clerk at Poona	...	60
Compensatory allowance to peon at Ahmedabad	...	12
6 Veterinary Assistant Surgeons @ Rs. 140/-		
p. m. each	...	10,080
	Total Rs.	28,008
NET EXTRA COST	...	Rs. 6420

**THE MYSORE VETERINARY MEDICAL ASSOCIATION,
BANGALORE.**

*Proceedings of the 1st Anniversary Meeting of the Association
held on 22-6-1929*

The 1st Anniversary Meeting of the Association was held in the tastefully decorated Hall of "Mashee Lodge" 10, Lal Bhag Road, Bangalore City, at 8 A. M. on 22-6-1929 with Dr. L. C. Coleman, Director of Agriculture in Mysore in the chair. 57 Members were present on the occasion. M. R. Ry. Srinivasa Iyengar, Member, Bangalore District Board, attended the meeting as a visitor. Mr. M. S. Sastry, G. B. V. C. Secretary, All India Veterinary Association, Madras branch, and Member of the Managing Committee of the All India Veterinary Association attended the meeting as a fraternal delegate from British India and conveyed the warm greetings to the Members in Mysore from their confereres in British India.

The morning Sessions began at 8 A. M., with the taking of a group photo of the gathering with Dr. Coleman in the centre, and then the gathering adjourned to the central Hall of the building.

In opening the Meeting, Mr. K. Krishna Iyengar, G. B. V. C., officiating Superintendent, C. V. D. Mysore and Ex-Officio President of the Association made the following speech and requested Dr. Coleman to take the chair and conduct the deliberations.

Members of the Association and Gentlemen,

It gives me very great pleasure to welcome you to the First Annual Meeting of the Mysore Veterinary Medical Association. On this auspicious occasion we miss Major. Simpson, who is primarily responsible for the inauguration of this Association with a view to provide an efficient Veterinary service for Mysore.

In consequence of the development of this Department and the increased activities of the Members of the profession in the control and the treatment of animal diseases, a desire to form an association was expressed to discuss matters of Veterinary interest among the several veterinarians in order to keep themselves posted with the up-to-date information on the recent advances in Veterinary science. The Association was formed last year. The first inaugural meeting of the association having been held on 23rd May, 1928, under the presidency of Dr. Coleman in this Office when the association practically came into existence. The association, I may say, owes much for the wise guidance and kind patronage of Dr. Coleman who assisted in the formation and recognition of

the Association by Government as a scientific Association. The work of the association will be known from the Secretary's report. Though the amount of work done during the year is not quite as much as any one of you might expect, I may say that a fair beginning has been made during the year.

I need not say how important the Veterinary profession is, in an agricultural country like Mysore where live-stock forms the important factor. We have all met to-day to confer on matters of professional interest to compare notes and further the progress of our activities in conserving the animal wealth of the country.

Incidentally I may say that Mysore is the premier State to start the S.S. method of inoculation against rinderpest, the important scourge of cattle in India. Since 1925, when this method was started, we have protected 3,17,674 head of cattle against rinderpest. This pioneer work on a large scale was appreciated by the Royal Commission on Agriculture who have suggested on the example set by Mysore, that the S.S. method should be the exclusive method of protecting cattle against rinderpest in India.

Gentlemen, there is another important matter I wish to refer to here, namely the importance of the Veterinary profession to the State from a sanitary point of view, I mean the meat and milk inspection. Much of this kind of work is at present being entrusted to men of this profession who are well aware of the seriousness of the animal diseases and their communicability to human beings, and it is high time that the profession asserts its rights in this direction.

Gentlemen, I am glad to announce on this occasion that all the four of our scholars who were in the final year course have qualified themselves from the Punjab Veterinary College, and I am proud to say that the Mysore students have acquitted themselves creditably both in sports and professional examinations.

I am grateful to Dr. Coleman for having kindly consented to preside on this occasion and to guide us in our deliberations to-day, and I request him to take the chair.

Dr. Coleman then took the chair amidst loud applause and thanked the Members for the honour done to him and for the opportunity given to him, to meet so many of the Members of the Veterinary profession in a body and to know their needs and wants. He then called upon the Secretary of the Association to read the report on the working of the Association during the past year.

Mr. K. Ranganatha Rao, G.M.V.C., Assistant Superintendent, C.V.D., and Secretary of the Association then read

the following report of the Managing Committee, for the year 1928-1929.

As the Secretary of the Managing Committee I have great pleasure to put before you the report on the working of the Committee during the year. There are 57 members on the roll of whom 54 are ordinary members, 2 honorary members—Messrs. K. Ramakrishna Bhat and K. Srinivasa Bhatt, Land Lords of Tirthahalli and one Life-Member Capt. G.H.B. Mortin of the Royal Army Veterinary Corps.

Three committee meetings were held with an average attendance of 7 members. The committee discussed on these occasions the financial position, organisation of the Association with special regard to the contribution of scientific papers both in the local and in the British Indian Journals. The committee during the year approached the Government with a request for its recognition as a scientific association and by the good offices of Dr. Coleman, Government were pleased to accord sanction for the same.

During the year a vacancy having occurred in the Committee owing to Major. Simpson's going home on long leave, Mr. K. Krishna Iyengar was elected as Ex-officio President and Mr. M. R. Chengeri Superintendent, Tasker Veterinary Hospital C & M, Station, as Vice President. Much of the time of the committee was spent in organising the Association such as increasing the membership, educating the stock breeders and agriculturists to become members of the Association and arranging to contribute articles of general interest to the Indian Veterinary Journal.

1. I herewith submit a statement of the receipts and expenditures of the Association during the year.

I beg to submit for the kind consideration of the General Body the following programme of work for the coming year.

Contribution of articles of Veterinary interest to the Agriculturist in the Journal of the Mysore Agricultural and Experimental Union.

2. Publications of popular bulletin on some of the important diseases of the live-stock in Kannada.

3. Revision of the book on Veterinary Science in Kannada Pashuvaidya Sngraha in the light of the recent advances on the prevention and cure of the various diseases of domesticated animals.

The report along with the statement of receipts and expenditure was duly adopted. The Secretary then read letters and telegrams from members and others, regretting their inability to attend but wishing the function every

Statement showing the Receipt and Expenditure of the Mysore Veterinary Medical Association, Bangalore for the year 1928-29.

S. No.	Receipts.	Rs.	As.	Ps.	S. No.	Expenditures.	Rs.	As.	Ps.
1	Subscription realised	...	0	0	1	Expenses for the Annual Meeting held on 23rd May 1928. Photo and tiffin etc.	170	10	0
2	Donation from Capt. G. H. B. Mortin for Life Membership	50	0	0	2	Printing and Stationary	50	7	0
3	Donation from K. Ramakrishna Bhatt for the Honorary Membership	25	0	0	3	Cost of Despatch Box	8	0	0
4	Donation from Mr. Srinivasa Bhatt for the Honorary Membership	25	0	0	4	Postage and Telegraphic Charges...	6	8	0
					5	Fixed deposit in Government Savings Bank	300	0	0
					6	Advanced to the Secretary towards the First Annual Meeting of the Association	50	0	0
						Total	585	9	0
					7	Balance on Hand	73	7	0
	Grand Total...	659	0	0		Grand Total	659	0	0

S. D. ACHAR,
Treasurer,

K. RANGANATHA RAO,
Secretary.

success. Among the telegrams, there was one from Mr. P. Srinivasa Rao, G.M.V.C., Editor, The Indian Veterinary Journal, Madras, who could not attend the function owing to some unavoidable circumstances.

As Dr. Coleman had to go away to preside over the Agricultural Conference in the Daly Memorial Hall at 11 A.M., the members desired that the resolutions should be taken up first with Dr. Coleman in the chair and the reading of the professional papers and the discussions thereon might be postponed to the afternoon sessions. This was unanimously agreed, and the following resolutions were duly proposed, seconded and passed unanimously.

Resolutions.

1. "That the Association urges the Government to depute annually not less than three members of the Department for Post Graduate Course and other higher Veterinary Training either in India or in foreign countries".

Dr. Coleman speaking about the resolution said that he appreciated the idea of foreign training but with the present financial conditions of the State, he pointed out it may not be quite possible to depute people for foreign training with Government scholarships when the general idea of the Representative Assembly was to reduce the expenditure on services. He said that this question of deputation for foreign training from the Veterinary Department was not brought up before him so long and suggested that if the Superintendent of the Department brought up definite proposals before him, he would certainly give them his most sympathetic consideration.

2. "That since the two recent reorganisations have practically deprived most of the men from getting their due increments proportionate to their service, Government may be moved to sanction as many increments as the number of years a Veterinary Inspector has put in service according to the new scheme sanctioned taking the starting pay at Rs. 60."

Regarding the reorganisations, Dr. Coleman remarked that the first so-called reorganisation took place a few months before the Veterinary Department was transferred to the control of the Director of Agriculture and so he had nothing to do with that reorganisation. The second reorganisation he believed took place about six months before he returned from leave and therefore he had absolutely nothing to do with the reorganisation. A thing which was done, was very much more difficult to get undone than a thing properly done in the first instance. He further said that he could not go to Government immediately after the orders had been passed

by Government and get them changed. He then continued to say how he could not interfere in the matter of individual cases of hardship immediately. It required time for him to consider the recommendations made by Major. Simpson or Mr. Krishna Iyengar, because questions of precedents and seniority had to be considered personally. If he found any doubt regarding particular cases, he would call for them.

3. *"That as Veterinary Journals during circulation reach the Veterinary Inspectors, very late owing to the smaller number of copies supplied, it is requested that more copies of Journals be got one at least for each of the Divisions, and one extra number for the Central Library."*

One of the members said, that under the present system of circulation of Journals, the last person would receive the Journal only after 5 years, by which time, the Journal would be in an unserviceable condition. So he suggested that one Journal for each of the 4 Divisions be supplied and one copy to the Central Library.

Dr. Coleman remarked that since the budget had already been passed the cost involved on these extra copies be met by reappropriation.

He then urged the necessity, for the regular circulation of these Journals among the Veterinary Inspectors.

4. *"That each of the Veterinary Institutions in the State be supplied with recent editions of the following books for ready reference:—"*

1. Wallis Hoare's System of Veterinary Medicine, 2 Volumes.
2. Dollars—Regional Surgery and Operative technique.
3. Wallis Hoare's—Veterinary Materia Medica and Therapeutics.
4. Anatomy. Sisson's.

Dr. Coleman suggested that one book per year for each institution could be got, since it was difficult to meet the cost of all the books at the outset.

When Dr. Coleman raised the point as to how to meet this cost for the new institutions which are being increased every year, Mr. Srinivasa Iyengar, Member of the District Board, suggested that the local bodies might be moved to meet this expenditure.

5. *"That all Municipalities in the State be requested to start dairies in their towns and cities for a pure and hygienic supply of milk under the technical supervision of the Department of Agriculture."*

The mover Mr. Patankar narrated the work of the model dairy farm at Mysore started with the donation, by the late Sir M. Kantaraj Urs, and suggested the starting of model dairy farms.

Mr. K. Ranganatha Rao, in supporting the resolution said that the distribution of hygienically pure milk was urgently needed in view of the fact that high rate of child mortality was due to the present distribution of adulterated and unhygienic milk.

Another member suggested that the Municipal authorities may construct a shed and ask the milk sellers to bring their cows and milk them there, just as it is the case in the Kolar Gold Fields. By doing so, the member said the quality of the milk would be guaranteed.

Mr. Narasinga Raju, Officer, 1/c. livestock section, in explaining the economic side of the question said that no dairy was running on profitable lines under the existing circumstances because most of the cows did not come up to the standard of heavy yield and so he suggested that a Co-operative society or a Co-operative Dairy concern might be started in the Cities of Bangalore and Mysore as an experimental measure instead of asking the Municipalities to start the Dairy Farm.

Dr. Coleman said that it was not possible to improve the milk supply unless the Municipality was prepared to lose something for the benefit of the people.

Finally, Dr. Coleman proposed an amendment to the resolution regarding the advisability of investigating the possibility of Co-operative distribution of milk,

The resolution so amended was put to vote and was passed.

After the resolutions were passed, Dr. Coleman once again thanked the members for the honour and opportunity given to him and concluded his speech as follows:—
Gentlemen,

I do not intend to make a speech to you this morning, I appreciate very much the honour you have done me in asking me to preside. I have listened with a great deal of interest and I appreciate the aims and objects of this Association. I feel sure that you will do useful work in drawing together and use your influence from the standpoint of your profession. I have already referred to certain subjects that have been brought up but I want to refer to one more. As you know the Government of Mysore have recently displayed very much interest in the improvement of live-stock in the State and have established a serum Institution and a fairly large breeding institution for the benefit of the people of this State. In addition to that the Government, during the last

year, sanctioned the appointment of a Committee to go into the question as to how best to control the cattle diseases. That Committee had about six or seven sittings and have drafted certain resolutions with regard to the cattle diseases and control of movement of cattle from affected villages. These resolutions if carried into effect will place a very heavy responsibility upon the veterinary Officers of this State—incidentally a heavy responsibility from the stand point of honour. Because, if these resolutions are accepted by Government, it will place in your hands, gentlemen, I tell you frankly, an opportunity for extortion which will undoubtedly be extremely tempting to a man in poor financial condition. I have heard that in certain cases, that power is used to the advantage of the individual. I do not know what action can be given. Now, it will place upon you as members of this profession, a very very heavy responsibility. What I want to lay open to you to-day is a matter which you will have to consider in the next year, possibly as to whether you are going to stand that temptation under which undoubtedly some men in the service of the State have fallen.

You are going to be asked to report and certify as to whether animals from a village are a potential danger. You will be put in a very difficult position and I cannot ask Government to increase your pay on that account. Now my own feeling is that until you get some means of control in the movement of cattle, it is going to be impossible to control the cattle diseases. We have increased our output of serum by about 300%. We have inoculated three times as much and yet as far as we can see, we are in the worst condition. Now I estimate the rise and fall in the outbreaks. The figure given here indicates however, what I suspect the rise and fall. In 1921—22 the reports of outbreaks were very poor. Anyway, during this year 1928—29, you had 1700 outbreaks in the State. The biggest figure was in 1925—26 viz., 16046. The number of men that were required then were 50 to 60,

Gentlemen, all I can say is I appreciate your difficulties and ask you as members of a very important profession to do your duty for the State of Mysore.

Before Dr. Coleman left the meeting for Daly Memorial Hall, he was garlanded by the President of the Association and a hearty vote of thanks to him was proposed and passed unanimously for the keen interest he takes in the welfare of the members of the profession and the advancement of the C. V. D.

After this Dr. Coleman acknowledged the thanks and left the meeting.

Then with Mr. K. Krishna Iyengar the Ex-Officio President of the Association in the chair, the following office bearers were elected for the current year.

President.—The Superintendent C. V. D., Mysore.

Vice-President.—Mr. M. R. Chengeri, G. B. V. C., Superintendent, Tasker Veterinary Hospital, C. & M. Station, Bangalore,

Honourary Secretary.—Mr. K. Ranganatha Rao, G. M. V. C. Assistant Superintendent, C. V. D., Mysore.

Honourary Treasurer.—Mr. P. U. Nair, G. B. V. C. Assistant Superintendent C.V.D. Mysore.

Members.—Messrs. (1) K. N. Srinivasan, G.M.V.C.

(1) B. V. Venkatachar, G.M.V.C.

(3) C. K. Srinivasa Iyengar, G.B.V.C.

(4) Subadar, Manikya Raj, G.B.V.C.

(5) K. R. Ramachandra Rao, G.B.V.C.

After the election of the Office bearers, the gathering adjourned to meet again at 2 p. m., to read and discuss the professional papers.

At 2 p.m., the meeting began with light refreshments served to the members.

The following professional papers were read with the President of the Association in the chair:—

- | | |
|---|------------------------|
| 1. Parasitism | Dr. P. Parathasarathy. |
| 2. Rabies | Dr. M. R. Chengeri. |
| 3. Properties of rinderpest virus and some clinical observations. | Dr. P. U. Nair. |
| 4. Actinomycosis. | Dr. K. N. Kailasam, |
| 5. My experience of S. S. inoculation in Mysore. | Dr. K. G. Sathe. |

At the conclusion of each paper the authors were heartily thanked for the trouble they took in preparing these papers for the meeting. A keen discussion ensued on each paper which was much appreciated by all present.

The President wound up the proceedings, thanking the members for having read these interesting and instructive papers for the benefit of the meeting and requested all the

members to evince a similar interest in professional matters, noting down the various points of interest in course of their daily practice and observations as that is the only way to improve the knowledge of the members from the professional point of view.

With a vote of thanks to the President and three hearty cheers to His highness the Maharaja, the sessions closed at 5-30 p. m.

THE ANNUAL MEETING OF THE MADRAS VETERINARY COLLEGE MEDICAL ASSOCIATION

This function was held on the evening of the 20th September, 1929, in the College buildings, when Rao Bahadur. Dr. A. Lakshmanasami Mudaliar, M. D., delivered an interesting and instructive address on "Medicine in its relation to Veterinary Science". The Hon'ble Mr. M. R. Seturatnam Iyer Minister for Development, occupied the chair. The Secretary of the Association read the Annual Report which was a record of much useful work done the previous year.

Dr. A. Lakshmanasami Mudaliar in the course of his speech said, that the Medical and Veterinary Science were very closely related to each other and it was difficult for any one to distinguish where the one ended and the other began. Progress of Medical Science greatly depended upon the progress of Veterinary Science. A large number of discoveries were made by treating certain diseases in the animal kingdom as for instance, those of the three great scientists, Jenner, Pasteur and Lister. The first gentleman discovered that Vaccine was the remedy for the ravages of small-pox, the second how to combat rabies and anthrax and the third discovered the antiseptics. The recent investigations particularly in tropical Parasitology and Pathology were more and more conclusively proving that diseases of the animal kingdom were to be looked upon as precursors of diseases in the human kingdom. Whatever work was done to rid the animal kingdom of more diseases that work would always be helpful to the human kingdom. There should be co-operation, therefore, between the two sciences. In this connection the speaker paid a warm tribute to Mr. V. Krishnamoorthy Iyer, the Principal of the College for his splendid research work on Tuberculosis, Nasal Granuloma, Bovine Lymphangitis, Anthrax, etc. Dr. Lakshmanasami Mudaliar thought that it was time that a few members of both the Medical and Veterinary profession should come to some understanding to carry on co-ordinated Scientific Researches, which would be more profi-

table both in the domain of human medicine as well as Veterinary Science and not to regard Veterinary Science as an entity by itself.

The Principal then thanked the Minister and the lecturer for their kindness in responding to their invitation. Mr. V. Krishnamoorthy Iyer then explained a film on the breeding of horses in India after giving a succinct account of the several researches that were being made in the College Laboratory. In the course of his speech, he referred to the importance attached to livestock in the early ages by rulers in ancient India and owing to the advent of automobiles and other swift vehicles the horse was being fast displaced and the breeding of horses was now being scientifically undertaken only by the A. V. D. Several branches detailing the activities of the A. V. D. in connection with the rearing of horses at Montgomery, Mona and other places were clearly shown on the screen.

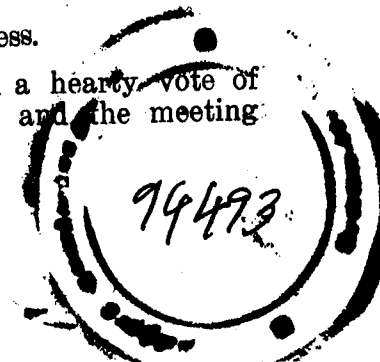
Charts illustrating the steady increase of the livestock in this presidency between 1908 to 1925 and a corresponding decrease in mortality from Rinderpest, owing to the introduction of the S.S. method of inoculation were also explained.

The Minister in bringing the proceedings to a close observed among other things that the activities of the Veterinary Department during the last few years were before the public eye and were discussed in the Legislative Council time and again. The Government were alive to the usefulness of the Department and were trying to improve the Department, not only re-organising it but also by revising the curriculum of the College and improving the prospects of the Department. They were also contemplating the opening of a Serum Institute. He would like to appeal to the students of the College to bear in mind that, when they passed out of the College, they should not all of them try to get into Government service. They could embark upon private enterprises in the Veterinary field and thus be of use to the agriculturist. He impressed upon the students the necessity of contributing articles to professional Journals and keep themselves in touch with the up-to-date knowledge of the various diseases.

He wished the Association every success.

Professor, Kailasam Ayyar proposed a hearty vote of thanks to the Minister and the Lecturer and the meeting terminated.

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THE MADRAS VETERINARY COLLEGE MEDICAL ASSOCIATION.

A business meeting of the above association was held on the 4th July, 1929, in the College Hall when Dr. Kylasam Iyer, G. B. V. C. presided.

The following office-bearers for the year 1929-30 were elected:—

<i>Secretary.</i> —Mr. K. S. Krishnappa	Class C.
<i>Treasurer.</i> —Mr. G. S. Kalyanasundaram	" "
<i>Committee members:</i> —	
1. Mr. Balakrishnan	Class A.
2. Mr. Sivaramakrishnan	" "
1. Mr. Bashyam Iyengar	Class B.
2. Mr. Madhava Menon	" "
1. Mr. N. Rajagopalan	Class C.
2. Mr. Cheat Phee Phay	" "

The meeting terminated with a vote of thanks to the Chair.

To following are the prize winners of the above Association Essay Competition, for the year, 1928-29.

1st Prize Silver Medal—Mr. S. Vancheeswara Iyer, for his essay on "Rinderpest"

2nd Prize Bronze Medal—Mr. B. Kapinappa, for essay on "Soundness of horses,"

(Sd.) K. S. KRISHNAPPA,
Secretary.

ANNUAL REPORT OF THE MADRAS VETERINARY COLLEGE MEDICAL ASSOCIATION FOR THE YEAR 1928-29.

I have great pleasure to present you with the report of the activities of the Association during the year 1928-29.

The last inaugural address was delivered by Lt. Col. Malcomson, M. D., M. R. C. P. S., I. M. S., on the 15th August, 1928, the subject of the lecture being "Diseases and their origin". The meeting was very well attended.

Fifteen ordinary meetings were held during the year and essays on Rinderpest, Hemorrhagic Septicæmia, Black Quarter, Surra, Canine Distemper, Anthrax, Tuberculin Test in Cattle, Rabies in domestic animals and man, the Clinical

physiology and pathology of Cardiac affection. John's disease, Soundness of horses, Foot and Mouth disease, etc., were read. The attendance of students at the meetings was quite satisfactory and most of the members took part in the discussions which followed the reading of the essays.

Two prize medals, one silver and the other bronze, are awarded annually to the two best essays of the year. In accordance with the usual practice the silver medal this year is awarded to Mr. Vancheeswara Ayyar for his essay on "Rinderpest" and the bronze medal to Mr. Kapinappa for his essay on "Soundness of Horses".

The essays as adjudged by the Committee were of a high order and it is hoped that the present members of the Association will emulate the good example of their predecessors and enter the essay competition in large numbers.

In conclusion, I wish to convey the thanks of the Association to the gentlemen who very kindly presided over its meetings.

Reviews.

The Transactions of the Seventh Congress of the Far Eastern Association of Tropical Medicine 1929.

The 2nd Volume of the Transactions has just been published.

In this Volume, the papers on Malaria, its control and treatment occupy a good portion. This disease is of great importance to the people in the East, as it is one of the chief scourges sap the vitality of the nations. It has, therefore, been rightly dealt with in extenso and we are sure that persons engaged in Malarial Operations will find these pages very useful and instructive.

Plague and Cholera also have been extensively treated and discussed. Dr. F. d'Herelle's paper on Bacteriophagy and bacteriophage promises to revolutionize the Bacterial diseases in the near future.

There are also other papers which are of great importance.

The get up and the printing continue to be of the same high order as in the first volume.

A Laboratory Manual of Milk Inspection. By A. C. Aggarwala, B. Sc. Hons. (Punjab), M.R.C.V.S. (Ed), A.I.R.C., Professor of Veterinary Hygiene and Dises, Milk and Meat Inspection, Punjab Veterinary College, Lahore.
Double crown 8 Vo. 8 1/2" x 7 1/2"—
Pages 180 + 12. h Bound

We have before us an interesting book—'A Laboratory Manual of Milk Inspection' by Mr. A. C. Aggarwala.

This manual, as stated, by the title is intended for milk inspectors, Analysts, public health officials and students in dairying, Agriculture and