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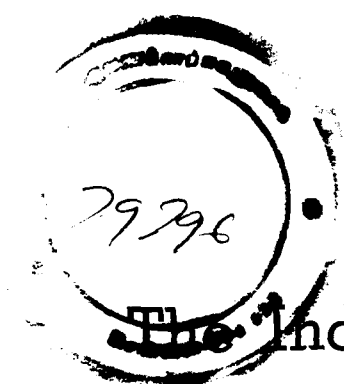
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NOTICE

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Devoted to the cause of the Veterinary Profession

PUBLISHED FOR THE ALL-INDIA VETERINARY ASSOCIATION.

EDITOR:

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FOR

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FOR

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THE Indian Veterinary Journal

(The Journal of the All-India Veterinary Association.)

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THE Indian Veterinary Journal

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General Articles

VETERINARY SCIENCE IN CEYLON

BY

HECTOR. C. PERERA, G. V. SC.,
Frankfort Place, Bambalapitiya, Colombo.

Ceylon is an island 25,000 square miles in extent, and stands on the main trade artery of the East. Its capital, Colombo, is a seaport town, one of the busiest of ports in the world. A land of extreme tropical beauty where a lingering sense of the Orient still pervades in spite of its position and the onslaughts of modern civilization. The six million inhabitants of the island live mainly by agriculture.

Whilst a thousand doctors look after the health of the human inhabitants of Ceylon, only forty veterinary surgeons exist to tend to every other living species. This total of forty veterinarians includes Government and Municipal servants and those in private practice. Putting the population of the Island at six millions, there is one doctor for every 6000 persons, and one veterinary surgeon for every 150,000 live-stock owners. Assuming that each individual kept on an average five animals which may mean anything from a horse and dog to the common fowl, there is only one veterinary surgeon for every 750,000 animal lives. That is not all. More amazing is the way this handful of veterinarians is distributed throughout the land. Of the total, more than half the number are in Colombo; Kandy and Peradeniya claim five and the rest occupy 'strategic points' throughout the Island.

A peep into the past history of the Government Veterinary Department till it was absorbed into the Agricultural Department in 1936 reveals some interesting facts. Mr. M. Crawford the last head of the Veterinary Department, and now Deputy Director of Agriculture (Animal Husbandry) writing

to the London Sphere traced its history. According to him the Veterinary Department had its origin forty-five years ago with the appointment of a veterinary surgeon to the Department of Public Instruction. In 1900 a separate Department was formed which continued to exist till 1936, the year it was absorbed into the agricultural Department. Prior to 1931 two officers were recruited from England. But from 1931 to the end of its existence as a separate Department, it consisted of one officer recruited from England and nineteen assistant veterinary surgeons trained and qualified in the Veterinary Colleges of Bombay and Calcutta, and five locally trained Stock Inspectors. To-day the Veterinary branch of the Agricultural Department consists of one officer recruited from England, a Research Officer trained in England, twenty two assistant veterinary surgeons and Stock Inspectors.

One of the outstanding achievements of the old veterinary department, an achievement of no mean significance, was the stamping out of rinderpest. This is a fact which the people of Ceylon in general and cattle owners in particular have not sufficiently appreciated. A disease of ancient lineage, rinderpest or the cattle plague as it is sometimes called, once carried off in a single year in Germany alone twenty million head of cattle. Whilst it has been stamped out in some European countries it is still a major problem in the tropics. Even today in India many hundreds of thousands of cattle die annually. Ceylon has been free from this disease since 1934.

The Colombo Municipal Veterinary Department began as a part of the Health Department. In 1906 it was converted into a separate department with Mr. W. A. de Silva, now Minister of Health, as its first Veterinary Surgeon. Today the staff consists of one officer recruited in England (Mr. R. J. Little) and seven assistant veterinary surgeons. The Kandy Municipality has no separate Veterinary Department like Colombo but has a veterinary surgeon attached to the Health Department to look after the veterinary work of the town. The Galle Municipality has never in its long existence had a veterinarian in its service.

Ceylon is far behind most countries in very many veterinary matters. Take the question of meat and milk inspection. It is undoubtedly true that certain animal diseases are transmitted to man by the eating of diseased meat. It is therefore of the utmost importance that the animals meant for slaughter should pass a rigid ante-mortem and post-mortem examination before the flesh is passed as fit for human consumption. Except in Colombo, Kandy and one or two other places, no where is meat passed by veterinary surgeons. Milk inspection fares no better. In no town in the Island, not even in Colombo, is the milk supply entirely controlled by veterinarians. Though veterinarians are the proper men for this work, having had special training in these two vital subjects in the course of their studies,

it is surprising to find that meat and milk inspection in most towns is done by over-worked medical officers and sanitary inspectors who have neither the time nor the special training necessary for their work. Most countries attach the utmost importance to these two public health problems. In America where fifty million pounds of meat and as many million pints of milk are consumed daily not a fibre of meat or a drop of milk is passed before it has been subjected to a severe veterinary examination. And for this colossal work many thousands of Veterinarians are employed. It is surprising that even a progressive Municipality like Galle responsible for the health of nearly 40,000 people has no veterinary surgeon in its service.

Then there is that other great public health problem — food inspection. Food inspection, as it is known in other countries, is absolutely unheard of here. In most progressive countries this duty too is in the hands of veterinarians. "We have been trying to fall in line with other advanced countries in the matter of food inspection, and as a first measure we have appointed a number of veterinary surgeons to do this work" said Dr. D. S. Laud, Superintendent of the famous Crawford Market, Bombay, in the course of an interview with the writer recently. "Feeding daily the inhabitants of a great city is a tremendous job, and it is absolutely essential that the food inspection of the city should be efficiently carried out if the health of its inhabitants is to be safeguarded. From our experience we do not think there is a person more eminently suited for this work than a Veterinary Surgeon" said Dr. Laud. It will come as a surprise to many to learn that for the whole city of Colombo there is only one Food Inspector. It is true the Health Department with the aid of its sanitary inspectors keeps a vigilant eye but a more rigid and systematic food inspection is imperative.

Besides these pressing problems there are several live-stock diseases that are still prevalent in the country. Foot and mouth disease, to cite an example, is one which breaks out periodically doing immense harm to cattle. Owners of cattle, particularly dairymen, know what an outbreak of this disease means to them. It is the greatest obstacle to dairying in Ceylon. The Island can be rid of this disease and several others as some countries have done if those in authority are given the necessary material to work with. "Being an Island, Ceylon has the great advantage of the sea," said an eminent foreign veterinarian to the writer recently, "to act as a natural barrier to invading diseases. With its aid and proper vigilance on all imported animals you ought to throw these diseases into the sea. Of course you cannot make bricks without straw and your Veterinary Department will not therefore be able to achieve anything without the necessary staff and a well equipped laboratory." It was only a couple of years ago that a long felt want was satisfied by the appointment of a Veterinary Research Officer to the Agricul-

tural Department. The country has already begun to benefit by this wise move on the part of the Department.

One of the most serious obstacles, veterinarians and live-stock owners are always confronted with is the use of foreign drugs in the course of treatment of live stock diseases. As is known cattle need large quantities and big doses of drugs and when foreign drugs have to be used the cost becomes prohibitive. For instance, for a single purgative at times for cattle a single animal needs as much as thirty two ounces of salts. One can imagine what the cost of it would mean to a carter who owns a single bullock that earns for him fifty cents a day or to a poor villager who has a pair of bullocks to plough his fields.

As is well known, there are a number of indigenous drugs, oils, decoctions and poultices that have been used from time immemorial and have been proved to be very effective. But unfortunately they have to be used empirically and indiscriminately as their actions and other properties have not been studied in a scientific manner.

It is of interest to know that in India where similar conditions prevailed the Government has stepped in to help the Agriculturists. As a co-ordinating body, the Imperial Council of Agricultural Research, has sanctioned three Schemes for research in Indian drugs to be used in the treatment of cattle. The schemes will cover investigations into the cultivation of medicinal plants, the efficacy of indigenous drugs and the indigenous treatment of cattle. The researches under the first scheme cover the survey of medicinal plants which can be grown in India, chemical analysis of their pharmacological and therapeutic actions and an investigation of food poisons particularly in cereals. The second Scheme will be a study of poisonous plants and their doses required in veterinary practice. The object is to examine how far indigenous drugs can replace the imported ones. The third scheme is for collection of literature about cattle treatment by indigenous drugs the information to be collected from manuscripts and other sources. A special Veterinary Officer has been deputed under the last scheme and is now making extensive tours throughout the country collecting the information. Why cannot something be done in Ceylon on these lines?

Another distressing feature about Veterinary Science in Ceylon is the absence of Veterinary hospitals. It will come as a surprise to many to learn that there is not a single such hospital worth the name in the whole Island. This is indeed unfortunate when we learn that in ancient Ceylon there were well equipped and efficiently staffed animal hospitals. In the model State of Mysore, which is only a little bigger than Ceylon, there are seventy five veterinary hospitals and dispensaries and the State alone employs over a

hundred Veterinary Surgeons. The late Sir Frederick Hobday, Principal of the London Veterinary College and Honorary Veterinary Surgeon to His Majesty the King, wrote thus of the Mysore Veterinary Hospital: "I have seen a considerable number of Veterinary Hospitals in India and in Europe, but none has given me a better impression than this one."

It is time something were done in Ceylon in this direction. To begin with, there should be in every province small veterinary hospitals with wards for different animals where in-patients would be admitted for treatment. Each Hospital should be in charge of two Officers — one a resident surgeon and the other a field Officer. Whilst the resident officer would be available for duty at anytime during the day or night the field Officer could tour different villages and attend to the needs of villagers who live too far to come to the hospital with their animals. The charges at these institutes should be nominal and deserving cases should be attended to free as is the case in India. A very striking fact about the animal hospitals of India is that most of them are gifts of philanthropists. It is sad to think that in a great Buddhist country like Ceylon there are no such philanthropists.

The opening of Veterinary Hospitals will not only satisfy a serious and long felt want but will go a long way to educate public opinion in veterinary matters. They can also be used as propaganda stations, anti-rabic centres and places where stud animals could be kept for the improvement of live-stock. Today, for want of adequate veterinary facilities, most owners are at the mercy of quacks who abound the country and who not only hinder the progress of this science but also cause untold suffering to dumb animals. The writer was once called upon to treat the eye of a cow into which a quack had introduced powdered chilly in the course of his treatment. Gross cruelties like these are practised daily, of course in good faith, and will continue to be practised till more Veterinary facilities are provided.

There seems to be a school of thought — fortunately a very small school, which believes that as live-stock diseases are stamped out veterinarians may be dispensed with — a horrid thought to any man of medicine. Stamping out a disease is not so difficult a matter as preventing it from being re-introduced. Once a disease has been stamped out and kept in check for a number of years the animals of the country lose the resistance they had for the disease. This is more so with the new generations that spring up. It is a simple law of immunity. If after some years, due to want of proper vigilance the disease is re-introduced, (this is not impossible, as we have the case of England where rabies reappeared after an absence of several years due to the smuggling of an infected animal,) the chances are that the disease will spread rapidly causing great mortality.

Ceylon is far behind the times where veterinary science is concerned. The provision of veterinary aid in the Island is totally inadequate. Apart from a few in Colombo, there is not a single private practitioner in any other part of the Island. These figures sufficiently show the inadequacy of the existing arrangements for controlling contagious diseases and attending to animals suffering from ordinary ailments and from injuries. "The cow and the working bullock" said Lord Linlithgow, Viceroy of India, "have on their patient back the whole structure of Indian Agriculture." In the report of the Royal Commission on Agriculture in India, the Chairman Lord Linlithgow dealt with veterinary problems at length. After making important observations he recommended that India should have at least eight thousand veterinarians. An efficient and up-to-date veterinary service is absolutely necessary for any scheme of live-stock improvement.

India, which also had neglected this science, is now making rapid strides. Vast research institutes are being opened throughout the country and extensive work is being done in the prevention and control of animal diseases. The modern veterinarian is a scientist who has to undergo an intensive course of training. The course of studies at the Madras Veterinary College now extends over a period of five years, entry being limited to those who have passed the intermediate examination in science — thus bringing the course of studies to the same period as that for a course in human medicine.

Animal life is intimately connected with human life and as such animals need more consideration than we have given them in the past. I cannot here do better than quote Dr. William H. Hagan, Dean of the New York State Veterinary College: "Throughout the entire period of recorded history domesticated animals have greatly influenced and advanced the life and fortunes of man. They have borne his burdens, furnished his food and provided his clothing. They have helped him to sow and harvest his crops, to flee from his enemies, and make explorations and settlements in new places. In periods of prosperity and adversity alike they have been man's closest and staunchest friends."

GHEE (BUTTER FAT) IN NATION'S DIET

BY

CHANDRA BHAN B.SC. (Ag.),

Dairy Post-Graduate Student, Bangalore

Most of the Indians being vegetarians, Ghee (Butter fat) occupies a very important position in their daily diet. According to an ancient text — "Ghee is equivalent to life itself" is enough to stress its significance. It is biologically, a stored product, and owing to its high percentage of carbon, has the highest calorific value, *i. e.* 3300 calories per lb; while meat has only 1000 calories. India is a tropical country and use of butter as such is negligible in comparison to ghee, because it is easily decomposable and in much less shorter time than ghee which is essentially a clarified butter fat. It has a unique composition consisting of fatty acids all of which contain carbon, Hydrogen, and Oxygen, and are for the most part composed of compounds of glycerine and lower and water soluble fatty acids in considerable quantities. Butter fat, in addition, has a "something" that other fats cannot claim — a "something" which produces better growth and better health than other fats. Thus Nature has devised this product, *viz*; butter fat, which is made of "secret" ingredients combined by a "Secret" formula; but no one has been able to put his finger on the exact ingredient which produces these marvellous effects. Butter for the home may be regarded conservatively as a good health investment. The returns may be figured in terms of economy — rich returns from money expended; vitamin contents — reliable and stable; food fat — satisfying, yet easy to digest; flavour — rich and unimitable.

New Zealand where the butter consumption is highest in the world, maintains a splendid physical standard, accompanied by the lowest death-rate and with longest expectation of life. Butter, because of its digestibility, energy and vitamin content, is protective and growth promoting, particularly in the case of children, sick persons and those suffering from indifferent appetite since its palatability makes it poles apart from any other form of fat; and is acceptable even to the most delicate human digestion in relatively large quantities. It must be known that one lb. of butter contains the cream of twenty pints of fresh milk, and they should cease to regard it as an unimportant supplement to the daily fare, but recognize it is an indispensable food to be taken in definite and regular quantities, the average requirement being 74 grams (*i. e.*; 2½ ozs) = about 515 calories of heat per

day, provided the diet is well balanced so far as other constituents are concerned. Total energy, in terms of calories, required for an average adult is 2600 calories, of which $\frac{1}{8}$ must be supplemented by fats.

Importance of Ghee (Butter fat) is emphasised not only because of its highest calorific value, but also because of the presence of a variety of fat soluble material, more or less in traces — The yellow colouring material of Ghee is Carotene; whilst traces of sterols common to all animal fats, namely, Cholesterol (0.3 %) are also present. Lecithin (0.05 %) and Cephalin representing the Phospholipoids are present in small amount. All these constituents along with fatty acids in Ghee are of the greatest importance, particularly because they carry fat-soluble Vitamins, A, D and E which are so highly thought of as something which have a tremendous effect on human body as to jeopardise the very life, in case of deficiency.

Vitamin A deficiency is common in India and therefore care must be taken that diet contains a sufficiency of this vitamin, easiest source for a vegetarian being Ghee. It is the only food fat in which the important vitamin A occurs naturally in significant quantity. Scientists agree that vitamin A is needed at all stages. It is associated with stunted growth, Ophthalmia and night blindness for many centuries. This may lead to respiratory troubles and possible changes in kidneys. A certain apathy, a lack of 'pep' or enthusiasm for work and play is characteristic of the mal-nourished. The state of skin or a skin covered with a popular eruption suggests faulty feeding in vitamin A deficiency. The frequency of minor ailments can be reduced by improving the diet.

Vitamin D is associated with vitamin A in the unsaponifiable portion of fats, and is present mainly in butterfat. Its deficiency in human beings causes poor calcification of the bones, the disease is known as 'Rickets'. Vitamin D along with Calcium and Phosphorus supply prevents the disease. The requirement for human being is 300 — 500 International Units per day.

Vitamin E is associated with the faulty reproduction, and it is noticed that there is a strong tendency for the reproductive organs to degenerate in the absence of Vitamin E. Its deficiency also affects the normal body functions, and produces a condition known as "Dystrophy". The function of Vitamin E may have more direct application in human nutrition than its function in reproduction.

Metabolic Changes. Fat splitting occurs best at neutrality or at alkaline P. H. Indeed fat being in its finely divided form, some portion of it is digested in the stomach. Reaching small intestines, it meets with Bile juice which increases the solubility of the fatty acids, while at the same time, it diminishes the surface tension between watery and oily fluids, thus

breaking up the oily droplets and permitting the lipase of the digestive juice to come into more effective contact with the fat. The ferment (Lipase) thus has the advantage of having to deal with small molecules in part, the larger molecules being in part excreted in the faeces as Ca: soaps thus tending to bring the Ca: P ratio to an economic level. The precipitation of Casein in the young stomach through the agency of Renin also brings down the fat. There is thus no tendency of the fat to coalesce into drops of macro-size through churning or partial peptisation of Casein; it is made available to tryptic digestion in its original form, and there is thus no danger of large drops of fat causing intestinal troubles such as 'Diarrhoea'.

Role of fat in our body. In digestion the fats are split into fatty acids and glycerol, which however, upon absorption are recombined into neutral fat. The fat thus absorbed is taken up by the lymph vessels rather than the capillary blood vessels which renders the plasma turbid at the height of absorption and which will usually have passed from the blood into each cell of the body after a few hours. The fat thus leaving the blood may be burned as the fuel, or stored as reserve fuel for future. The fat burnt as fuel serves as a source of energy for muscular work and other bodily activities. In the net result the potential energy of the fat seems to be used almost. The large deposits of body fat are chiefly significant, but it should not be forgotten that even this "depot fat" may function as a protection to the body from mechanical injury and too rapid a loss of heat when exposed to cold; and as a packing and support to visceral organs, particularly kidneys. Modified fats, and fat like substances (Lipoids) are essential constituents of body tissues. Thus cell membranes are not simply wall of protein matter but are composed of both proteins and lipoids of different kinds; and protoplasm is to be thought of as an emulsion of proteins and lipoids, rather than as a jelly of proteins alone.

It must not be beyond our knowledge that out of the total milk production of 700 million maunds in India, 364 million maunds of fluid milk are used for Ghee-making. This yields an annual output of 23 million maunds of Ghee (of which 6950 Mds. is exported to Malaya and satisfies 97% requirement of the Island). Its value is about 100 crores of rupees which is about $\frac{1}{3}$ of the total value of milk and milk products produced in India; or put in another way about 15 crores of rupees more than the values of liquid milk and its diverse products manufactured in this country. Further in Ghee making the most bulky and valuable part of the milk — the Lassi (Butter milk) is left behind, which is of great value to the use of poor cultivator and his family. Thus to achieve the twofold advantages of the manufacture of Ghee and also in order to get pure milk and its other products, for personal and commercial use it becomes essential for each cultivator to take up Dairying as a side industry.

Undoubtedly a commercial manufacturer of genuine Ghee has to face a great draw back of fetching low price in the market due to the cheap sale of artificially manufactured Ghee—(Banapati Ghee) in the name of genuine Ghee. Official figures lend support to the view that it is practically impossible to purchase, unadulterated Ghee in the market; and unfortunately, due to the wide range of variation in the chemical and physical constituents of Ghee, no procedure has yet been found out to detect adulteration of less than 5% even with the most efficient methods in a laboratory. The amount of adulterants chiefly Banapati Ghee, and charbini have been estimated as 1,400, 000 Mds. annually which is 6% of the total output of Ghee, valued over 3 crores of rupees. If adulteration could be checked this additional income could be added to the wealth of the country side. Not only that, but the adulterated Ghee has a noticeable bad effect on the health of the consumer. One investigator reports that he fed a few of the infants on adulterated Ghee from bazar; while the same number of infants were fed on genuine Ghee, with all other similar conditions of the diet. He concluded that the adulterated Ghee much affected the health of the infants; while marked improvement was noticed with genuine Ghee. So feeding of adulterated Ghee is not only a waste of money but also a loss of health.

Thus, in our country, the problem of getting genuine Ghee is as essential as the Ghee (fat) in the diet itself. And this can be best solved by the development of Dairy Industry, *i. e.*, chemical side on the one hand (Detection of adulteration), and increase in production (to reduce the cost price) on the other. This will enable us to see the ancient days of Krishna, with butter as the chief article of daily diet resulting into ideal health of the people followed by National advancement in every aspect of life.

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DAIRY MILK

BY

G. N. SRIVASTAVA, G.B.V.C. (Pat.)

Cow's milk is a valuable food for all ages, invalids and convalescents. Its chief constituents are proteins, carbohydrates, fats in addition to a considerable percentage of mineral matters, and vitamins.

Proteins are complex nitrogenous substances essential for the formation of muscles. Three kinds of proteins are present in milk (*a*) casein, (*b*) lacto-albumne, (*c*) lactoglobuline. Casein is the principal protein of milk belonging to the class of phospho-proteins. It contains carbon, hydrogen, oxygen, nitrogen, sulphur and phosphorus. In milk it exists as a salt of lime and soda combined with calcium phosphate. After removal of cream, the separated milk contains about 3% by weight of casein.

Milk sugar and fat comprise carbohydrates. They are heat and energy producing substances. Milk sugar is found in solution whereas fat exists in suspension, in the form of small globules ranging in size from 0.0016 m.m. in diameter to 0.01 m.m.

Salts of calcium and phosphorus form to a large extent the mineral constituent of milk. These are essential for the formation and growth of bones.

Average Composition of Milk (Cow).

Fat	...	3.73	{ Total Solids ... 12.92 Specific gravity varies between 1.028 and 1.031 according to the fat per- centage of milk sample.
Casein	...	3.04	
Albumen	...	0.54	
Milk Sugar	...	4.90	
Ash	...	0.71	
Water	...	87.08	
		100.00	

Milk does not keep for long unless produced and stored under best hygienic conditions. It has to undergo certain heat treatment to improve its keeping property. Keeping property is defined as the number of hours which elapse between the time of milking and the time when milk is declared as unfit for human consumption. The common defects produced in milk are sourness, curdling, ropiness and off flavourness. The sources of all these changes are micro-organisms which float about in the air and seek entrance into open pails containing milk and thrive there, milk being a very suitable culture media for their growth and multiplication.

Milk Production — Inspection of Milch Cows :

The Veterinary Surgeon should inspect each and every individual cow before milking. This inspection is essential in order to detect cattle suffering from any ailment or pyrexia and if found, should immediately be isolated for thorough inspection and treatment. The milk of such cows should be disposed off as per instructions of the Veterinary Surgeon.

Some of the disease producing germs affect the general condition of the cow, thereby infect its udder and finally find their way into the milk. The more important of these disease germs are those of tuberculosis, mastitis, contagious abortion, anthrax, foot and mouth disease and cow-pox. Of these, tuberculosis, anthrax, foot and mouth disease, cow-pox and germ of abortion, can be conveyed to man by drinking infected milk. Actinomycosis, a frequent disease of the udder sometimes appears as miliary actinomycosis with a number of quite small lesions distributed on the gland. Man may be infected by drinking such milk.

Germs of tuberculosis, contagious abortion, and anthrax infect milk inside the udder. The virus of cow-pox and foot and mouth disease are added to milk during the operation of milking as a result of rupture of vesicles on the teats.

Newly purchased herd should be put in quarantine for at least 2 weeks, and tuberculin tested before being mixed with the general herd of cattle. This precaution safeguards against so many diseases.

Place of milking :— The milking byre, stand or shed should be nicely cleaned and washed before milking, its atmosphere dust free and the close surroundings clean and sanitary. In short, the place should be healthy, well ventilated, airy, free from flies and unodorous. The dung, urine and dirty dressing swabs are to be disposed off far away from the place. The feeding trough ought not to contain any food stuff of the nature of hay or silage as they are likely to impart their odour to the milk. Milk is easily affected by odours of any sort and this is one reason why odorous substances like onions or cabbage are not fed to cattle just before or during milking hours.

The animals are nicely groomed and cleaned before milking, special attention being paid to the cleanliness of hind quarters, flank and the udder. These parts are washed with pinky solution, and dried with a clean duster.

Not infrequently milker himself is a source of contamination. Infection of milk with germs of typhoid, dysentery, diphtheria, scarlet fever, septic sore throat, and sometimes tuberculosis is brought about by handling of milk by infected persons or the carriers of these germs *e.g.*, milkers,

attendants, dairy men and dealers. Therefore the persons connected with the handling of milk should be medically fit, healthy, clean in habits and dress.

Systematic cleanliness is the golden rule in dairying. The dairy utensils should be simple in construction and capable of being easily cleaned. They should also be strong enough to withstand the general ware and tare. Cleaning of utensils :— They are first washed with water at 100°F. This removes to a greater extent the film of milk sticking inside the vessels. Hot water is not advisable to be used at this stage of washing or else proteins of milk may coagulate on the inside and be difficult to clean. The vessels are next washed with hot water containing soda solution ; soon after, soda is removed by rinsing in water. Lastly the utensils are exposed to lively steam for a period of not less than 20 minutes and kept in the steaming-chest till required for use.

Periodical examination of dairy water is essential. Infantile diarrhoea or “summer complaint” is the disease caused by drinking highly contaminated milk with manure. In certain cases water may be responsible for this disease.

Having in view all these considerations the milker dressed in a clean overall is allowed to approach the animal for milking. The first few streams of milk drawn from the udder are, in general, heavily infected with bacteria and should therefore be rejected. To minimise bacterial contamination of milk from the animal's surrounding and its body coat, half covered milking pails are used. At the close of milking, teats should be nicely stripped off to the last drop. The milk is then weighed, strained in big sterilized cans, sealed and transferred to the pasteurisation section. The object of pasteurising milk is to destroy most of the micro-organisms specially those of pathogenic nature. The mesophiles and the psychrophiles are immediately destroyed by heat treatment. The thermophiles and spore forming organisms which withstand pasteurisation temperature are inactivated, that is their growth and multiplication checked by cooling milk to 45°F and storing milk at this temperature. This explains how pasteurisation improves the keeping quality of milk. It should be remembered that time and temperature of heating play a very important part in pasteurisation.

Methods of pasteurisation

Holder System :— Milk is heated for not less than 30 minutes at the temperature of 145°F and then cooled. Thermographs are prepared to record time and temperature.

Flash System :— In this process milk is quickly brought to the desired temperature of 75°C (165°F), maintained at this temperature for 30 seconds and then quickly cooled.

"High temperature short time process" is a modification over flash method where milk is heated to 165°F in thin films by circulating hot water in gloria plate heat exchangers, containing water and milk alternately. The time taken is nearly 15 seconds. The milk after attaining the required temperature falls over a cooler surface inside which cold water and brine solution circulate. Brine circulates in the lower half of the cooler at a temperature of 40° to 42°F. The milk therefore leaving the cooler attains the maximum temperature of 45°F. The milk is then immediately bottled and kept in cold Store till sold out.

Food value:—Infants can satisfy all their requirements on diet of adequate amount of pasteurised milk provided Vitamin D and Vitamin C are added to their diet. Vitamin C is destroyed by pasteurisation, but it can be supplimented by orange juice in the diet of children to overcome the difficiency disease.

Conclusion:—Pasteurisation is never to be considered as a substitute for care and cleanliness in handing milk by dairymen, but rather an additional means for protecting consumers against disease producing germs." Strict cleanliness of the plant should be carried out both before and after use. Great care and skill are required for efficient pasteurisation. Pasteurised milk should daily be submitted to Bacteriological and Chemical tests.

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A COLLECTION OF THE ECTO-AND ENDO-PARASITES ASSOCIATED WITH DOMESTIC ANIMALS IN KEDAH DURING THE PAST FEW YEARS

BY

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CLASS INSECTA.

ORDER ANAPLOURA.

Sub-order Mallophaga.

Genus:—

			Host.
1. Menopon	...	M. gallinæ	...
		Heterodoxus longitarsus.	Dog.
2. Lipeurus	...	L. caponis	...
3. Goniocotes	...	G. gigas	...
4. Goniodes	...	G. dissimilis	...
5. Trichodectes	...	T. climax	...

Sub-order Siphunculata

Genus:—

1. Hæmatopinus	...	H. eurysternus	...
2. Linognathus	...	L. stenopsis	...

ORDER SIPHONAPTERA

Genus:—

Ctenocephalus	...	C. canis	...
		C. felis	...

The above parasites were collected during the ordinary routine examination of animals at infirmaries, etc. It seems therefore that they are common parasites.

CLASS ARACHNIDA

A.—Family Ixodidae. ("Hard" ticks.)

Genus:—

			Host.
1. Boophilus	...	B. australis	...
2. Rhipicephalus	...	R. hæmaphysaloides	...
		R. sanguineus	...

- | | | | | |
|-----------------|-----|----------------|-----|---------------------------------|
| 3. Hæmaphysalis | ... | H. bispinosa | ... | Ox, buffalo, goat
and sheep. |
| | | H. wellingtoni | ... | Fowl. |
| 4. Amblyomma | ... | A. integrum | ... | Ox and buffalo. |

With the possible exception of Amblyomma, all the rest are commonly met with.

Specimens collected from a garden tortoise and a pangolin have been provisionally identified as Amblyomma clypeolatum and Amblyomma sub-læve respectively. A member of the genus Aponemma was recovered from a python. Two specimens of ticks that had attached themselves to persons during a walk through jungle were identified as Hæmaphysalis flava and Dermacentor auratus.

B.—Family Sarcoptidæ

Genus :—

- | | | | |
|---------------|-----|-----------------------|-----------|
| | | | Host. |
| 1. Sarcoptes | ... | S. scabiei var. capræ | ... Goat. |
| 2. Notœdres | ... | N. cati | ... Cat. |
| 3. Chorioptes | ... | C. communis capræ | ... Goat. |

C.—Family Demodicidæ

Genus :—

- | | | | | |
|------------|-----|----------|-----|----------|
| 1. Demodex | ... | D. canis | ... | Dog. |
| | | D. bovis | ... | Buffalo. |

HELMINTHS

The following helminths are those collected in Kedah during the past few years :—

NEMATHELMINTHES

CLASS NEMATODA

Family Ascaridæ

Genus :—

- | | | | |
|---------------|-----|--------------|---------------------|
| | | | Host. |
| 1. Ascaris | ... | A. equorum | ... Horse. |
| | | A. vitulorum | ... Cattle (Calves) |
| | | A. suis | ... Pig. |
| 2. Toxascaris | ... | T. leonina | ... Cat and dog. |
| 3. Toxocara | ... | T. canis | ... Dog. |

Family Heterakidæ

Genus :—

- | | | | |
|--------------|-----|---------------|-----------|
| | | | Host |
| 1. Heterakis | ... | H. gallinæ | ... Fowl. |
| | | H. beramporia | ... „ |
| 2. Ascaridia | ... | A. lineata | ... „ |

Family Oxyuridæ

Genus :—

- | | | | | |
|---------|-----|---------|-----|--------|
| Oxyuris | ... | O. equi | ... | Horse. |
|---------|-----|---------|-----|--------|

Family Trichinellidæ

Genus :—

- | | | | | |
|-----------|-----|---------|-----|-------|
| Trichuris | ... | T. ovis | ... | Goat. |
|-----------|-----|---------|-----|-------|

Family Strongylidæ

Genus :—

- | | | | | |
|--------------------|-----|------------------|-----|--------|
| 1. Strongylus | ... | S. equinus | ... | Horse. |
| | | S. vulgaris | ... | „ |
| | | S. edentatus | ... | „ |
| 2. Triodontophorus | ... | T. serratus | ... | „ |
| 3. Trichonema | ... | T. Longibursatum | ... | „ |
| | | T. nasatum | ... | „ |
| 4. Cylicocerus | ... | C. pateratum | ... | „ |
| 5. Oesophagostomum | ... | O. columbianum | ... | Goat. |
| | | O. dentatum | ... | Pig. |
| | | O. radiatum | ... | Ox. |
| 6. Stephanurus | ... | S. dentatus | ... | Pig. |

Family Ancylostomidæ

Genus :—

- | | | | | |
|------------------|-----|-----------------|-----|-------|
| 1. Ancylostoma | ... | A. caninum | ... | Dog. |
| | | A. braziliense | ... | „ |
| 2. Uncinaria | ... | U. stenocephala | ... | „ |
| 3. Necator | ... | N. americanus | ... | „ |
| 4. Gaigeria | ... | G. pachyscelis | ... | Goat. |
| 5. Globocephalus | ... | G. urosulatus | ... | Pig. |

Family Trichostrongylidæ

Genus :—

- | | | | | |
|---------------------|-----|-------------------|-----|-------------------|
| 1. Trichostrongylus | ... | T. axei | ... | Goat, |
| | | T. columbriformis | ... | „ |
| 2. Cooperia | ... | C. punctata | ... | „ |
| 3. Ostertagia | ... | O. ostertagia | ... | „ |
| 4. Haemonchus | ... | H. contortus | ... | Cattle and goats. |

Family Metastrongylidæ

Genus :—

- | | | | | |
|-------------------|-----|---------|-----|------|
| 1. Metastrongylus | ... | M. apri | ... | Pig. |
|-------------------|-----|---------|-----|------|

Family Spiruridae			
Genus :—			
1. Habronema	...	H. megastoma	... Horse.
		H. muscae	... „
2. Spirocerca	...	S. felis	... Cat.
(Cylicospirura)		(C. subaequalis)	
Family Arduennidae			
Genus :—			
1. Gongylonema	...	G. ingluvicola	... Fowl.
2. Arduenna	...	A. strongylina	... Pig.
3. Physocephalus	...	P. sexalatus	... „
Family Acuariidae			
Genus :—			
1. Acuarina	...	A. hamulosa	... Fowl.
2. Tetrameres	...	T. fissipina	... „
Family Physalopteridae			
Genus :—			
1. Physaloptera	...	P. praeputialis	... Cat.
Family Thelaziidae			
Genus :—			
1. Thelazia	...	T. rhodesii	... Cattle
2. Oxyspirura	...	O. mansonii	... Fowl.
Family Gnathostomidae			
Genus :—			
1. Gnathostoma	...	G. hispidum	... Pig.
		G. spinigerum	... Cat.
Family Filariidae			
Genus :—			
1. Dirofilaria	...	D. immitis	... Dog.
2. Onchocerca	...	O. gibsoni	... Cattle
3. Elaeophora	...	E. pæli	... Buffaloes and cattle
4. Setaria	...	S. labiato-papillosa	... „
Family Gigantorhynchidae			
Genus :—			
1. Macracanthorhynchus		M. gigas	... Pig.

PLATHELMINTHES

CLASS TREMATODA

Family Dicrocoeliidae

Genus :—				Host.
1. Platynosomum	...	P. concinnum	...	Cat.
2. Eurytrema	...	E. pancreaticum	...	Ox.

Family Fasciolidae

Genus :—				
1. Fasciola	...	F. hepatica	...	Ox, buffalo.

Family Paramphistomidae

Genus :—				
1. Paramphistomum	...	P. explanatum	...	Ox, buffalo.
		P. cervi	...	Ox, buffalo and Goat.

Family Psilostomidae

Genus :—				
1. Testifrondosa	...	T. cristata	...	Pig.

CLASS CESTODA

Genus :—				
1. Diphylobothrium		D. (latum ?)	...	Dog.
2. Moniezia		M. expansa	...	Ox, buffalo, goat.
3. Raillietina		R. echinobothridia	...	Fowl.
4. Dipylidium		D. caninum	...	Dog.
5. Taenia		T. taeniaeformis	...	Cat.
6. Dipylidium		D. Sexocoronatus	...	Cat (S. Intestine).

Observations in Microfilariasis in Animals and Birds in Kedah.

In Bovines

Microfilaria of Onchocerca gibsoni :— Nuclear column extend from the posterior end of the tail up to the head portion. Anterior end is slightly swollen and the tail gradually tapers to a point as in microfilaria of *Elaeophora pæli*. The embryos measure, on an average, 310 microns long and 3 to 4 microns broad. These are frequently seen in the blood smears received from dead oxen.

Measurements of fixed points, in microns —

Total length	...	310 × 3-4 microns
Mouth body	...	6 „
Nerve ring	...	78 „

Excretory pore	... 88	microns
Excretory cell	... 124	"
1st genital cell	... 220	"
Anal pore	... 250	"
Last nucleus	... 300	"

Measurements, in order, from head backwards.

Microfilaria of elæphora pæli :— Tail finished abruptly. Large and wider than the microfilaria of *Onchocerca*. The embryos measure, on an average, 340 microns by 6 microns. The adult worm is more or less constantly present in the common aorta of water buffaloes in this country but the embryos have not yet been observed in the blood smears from the buffaloes.

Microfilaria of Setaria labiato-papillosa :— Sheathed microfilaria. The embryos on an average measure 350×6 microns. Occasionally seen in the blood smears received from dead oxen. The adult worm is a common parasite found in the peritoneal cavity of buffaloes and oxen.

Microfilariasis is more common in oxen than in water buffaloes.

In Canines

In the dog *Microfilaria immitis* are met with in the blood. These are larger than those found in bovines and their tail ends taper like whiplashes. Arrangement of the body cells are distinct. The embryos on an average measure 245×6.5 microns. The identification of this microfilaria was possible due to the presence of the adult worm, *Dirofilaria immitis*, in the right side of the heart of the dog which died while under observation. The dog died after showing rabiform symptoms but the brain was reported definitely negative for rabies after examination.

In Fowl

Microfilaria seguini (?) :— Sheathed microfilaria. Usually found in the peripheral circulation. The embryos measure 80.92×5.5 — 6.4 microns. Microfilariasis in fowls was first noticed by the writer in the blood stream of hen showing leucocytozoa, some 5 years ago (1934). The microfilaria encountered appeared to be *Microfilaria seguini* (Mathis and Leger, 1909) which was first discovered by the authors at Hanoi (Tonking). Mathis and Leger believed that this microfilaria has something to do with *Oxyspirura mansonii* as the adult stage, but had not found the latter in the eyes of a number of affected birds examined.

In the course of an investigation of ophthalmia among a flock of fowls due to the infestation by *Oxyspirura* two of the affected birds were found to be harbouring microfilaria in the blood stream. On post-mortem examina-

tion no other nematodes were discovered in these birds. Whether or not the presence of these filarial larvæ and *Oxyspirura* in the same bird is significant or merely a coincidence cannot be decided in the absence of conclusive evidence, but the observation is an interesting one in view of the suspected connection between them.

Severe outbreaks of verminous ophthalmia have been observed in fowls in this country due to the infestation by *O. mansonii*.

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INDIGENOUS HORSE MASALAH (CONDITION POWDER)

BY

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There are very few scientific veterinary practitioners who prescribe indigenous drugs and whose practice mainly depends on the indigenous systems of treatment. The use of these drugs almost entirely rests with Salutries, Sarbans, Mahouts, Ghosies, Gawalas, Tongawalas and other owners of animals, especially in the rural areas. Indeed there are very few people among these who cannot prescribe some drugs in one form or other for the treatment of the ailments of animals. It appears that in all these the employment of these drugs has been purely on empirical evidence, generation after generation from the ancient times.

Indigenous drugs in Veterinary Medicine of the Present Time.

There is no doubt that in the ancient times veterinary profession was not lacking in skill, although the systems and methods of application were somewhat different from the modern scientific methods. Salihotra after

whose name the Veterinary practitioners have been designated as Salutries for centuries past, was a celebrated veterinary physician of the time. In the Mahabharat era Nakula and Sahadeva had good reputation in the treatment of horses and cattle respectively. From the time of decay and recompilation of the ancient medicine many useful drugs have become obscure and have been replaced by others of uncertain therapeutic value, with the result, great confusion has arisen in the selection and use of these drugs. Although there are some drugs that deserve the credit they have won as cures and are equal, if not better, substitutes of the more costly imported medicines, there are many others of little medicinal virtue and are used only because they were used by their ancestors or predecessors and no one has cared to investigate them on scientific lines. There are many useful indigenous drugs that are known to the modern medicine and whose properties and actions are also not unknown but they require a fair trial by the scientific veterinary practitioners.

Necessity for Research in Indigenous Drugs.

In the past some investigation on indigenous drugs has been done, the medicinal properties of some plants have been unravelled and works published by some western as well as Indian workers of medical profession. Although veterinary profession has made marvellous progress in many respects during the last two decades, very little work, if any, has been done in this line. The time is overdue for the veterinarians to take up this arduous work in hand and investigate into the resources of medicine from the big mine of our crude indigenous drugs.

The prevailing economic condition of the people makes it not only desirable but necessary to utilise the local resources and substitute the indigenous products for the more expensive imported remedies for the treatment of our animals. It will thus help not only in furthering the cause of indigenous medicine but also in making it more useful for the mass animal population of this country. These drugs are within easy reach of the masses being available in every bazar at comparatively low prices and in animals they can be employed in their natural or crude form.

Indigenous Horse Masalah : Its Ingredients.

It is not possible in this limited space to discuss the subject of indigenous drugs in any detail. I will deal, for the purpose of this article, with an indigenous prescription, which is very commonly used as a condition powder in horses and ponies in Northern India.

There are many combinations of drugs used for this purpose and in almost all such prescriptions all or many of the following ingredients are freely used. This masalah is very commonly given to tonga ponies and other such animals in the preliminary stages of almost every internal

ailments when the animal goes off food or eats only capriciously. Some people have made it a habit to give such masalah daily or every other day even though the animal is apparently quite healthy. To meet the increasing demand some indigenous drug dealers and grocers (Pansaries, sell ready-made masalah which contains most of these ingredients.

There is no doubt that almost all of these drugs are stomachic and tonic, improve digestion and are good appetizers, and if used in suitable combinations at proper places they are really useful. But they are generally used by quacks where their use is undesirable or unnecessary. It is true that most of the tonga-ponies very commonly suffer from bad digestion on account of irregular feeding and watering and the nature of their work, but in such cases regulation of diet, proper time of watering and a certain limited amount of work are much more beneficial than giving all sorts of stomachics and tonics.

The following drugs are commonly combined for this purpose :—

Kutki (Katuki)	2	tolas
Pipal	2	„
Noshadar	2	„
Madar (flowers)	2	„
Kakrasringi	3	„
Saunf	3	„
Chiratta	4	„
Saunth	4	„
Kalkaranj	5	„
Katal	5	„
Gilo	7	„
Kala Namak	8	„
Namak	10	„

Each of these drugs is powdered separately and then all are thoroughly mixed. About 10 tolas or 1/6th of this powder is given once or twice a day or mixed with food.

1 Tola = 3 drachms approximately.

Some of these drugs like Chiratta, Saunth (ginger), Noshader (ammonium chloride), Saunf (aniseed) etc., are commonly used in our daily practice and require no description. I will mention briefly the chief actions and uses of others which have not yet received sufficient recognition by the scientific practitioners.

Kutki (Katuki) — Picrorhiza Kurroa (N. O. Scrophularinæ)

Roots are used in medicine. It is a powerful bitter tonic, stomachic and laxative. Due to the absence of tannin it is used in many stomachic and tonic prescriptions in medical and veterinary practice.

Kakrasringi — *Rhus Succedanea* (N. O. Anacardiaceae)

It acts as tonic and expectorant. The galls in the form of powder combined with other tonics and stomachics are used as appetizer, gastric sedative, in cough and fever.

Gilo Gulancha — *Tinospora Cordifolia* (N. O. Menispermaceae)

Stem, leaves and roots are used in medicine. The wood and root bark are bitter tonic, antipyretic and diaphoretic. With other bitters and aromatics they are used in atony of stomach, fever and biliousness of liver. In human practice it is also used as an antiperiodic.

Pipal — *Piper Longum* (N. O. Piperaceae)

The fruit (pipal) and the root (Pipla mul) are used in medicine. They are stomachics, tonic, carminative and alterative; in suitable combination with other drugs they are used to promote digestion, as alterative and tonic, in chronic cough and fever.

Kal Karanjai — *Caesalpinia Binducella* (N. O. Leguminaceae)

It is also called Bonduc nut and the seeds are used in medicine. It is a powerful tonic and valuable febrifuge. Mixed with other drugs it is used in fevers, colic and other digestive disorders. In medical practice it is also used as an antiperiodic.

Madar — *Calotropis Gigantea* (N.O. Asclepiadeae)

Root bark, flowers and leaves are used internally. The juice is very irritant and is used externally as counter-irritant.

All parts of the plant in small doses act as alterative. The root-bark and flowers are stomachic and tonic and enter into many prescriptions for dyspepsia, inappetence, cough and catarrh.

Katal — *Solanum Xanthocarpum* (N.O. Solanaceae)

The whole plant is used in medicine. It acts as bitter tonic, stomachic, laxative, diuretic and alterative and in combination with other drugs it is used in cough, catarrhal fever, flatulence and constipation.

Before accepting or discarding these drugs they may be given a trial to verify the properties attributed to them. Instances are not rare where some drugs are highly spoken of at one time, discarded as ineffective after a short period, only to be resuscitated later as fresh remedies.

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NOTE ON JUDGING COWS FOR DAIRY PURPOSE

BY

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A cow, as to its utility for dairy purposes, should always be judged by her production—yield of milk per lactation and the butter fat percentage. But authentic records pertaining to the production of milk are usually not available. In the absence of such data, we can however, to an appreciable extent, judge the cow from her conformation and features. It is often noticed that certain characteristics are compatible with high milking qualities and it is the possession of such of those characteristics common to high class dairy cows that we have to look for. It should be borne in mind, however, that it is not often that a cow will possess all the ideal qualities and we have therefore to base our judgment on some of the features presented by an individual cow.

The conformation of the cow should be such that it must tend to produce the maximum development of the organs concerned with milk production. This naturally means that the breadth between the hips should be such as to provide the maximum amount of development of the udder. The general shape of such a cow is often described as "wedge shaped", for, the cow when viewed will have maximum width between the hips, with narrow withers that form the apex of the wedge. Her general appearance is one of leanness compatible with health, thus giving the observer the idea that she can convert the concentrates to milk and not to flesh. Her body is covered with soft and silky hairs. Her disposition is gentle and sensitive, but not given to irritability. The face should be clean, well cut, and free from excess flesh, with a broad forehead.

The neck should be slender with scanty muscles and must slope towards the shoulder. The width between the shoulders should be enough to provide sufficient room for the vital organs inside. The shoulder should narrow upwards to form a sharp withers. The body should be fairly roomy with the ribs wide and well apart. The loins should always be wide and strong, since successful calving depends much on this. To a considerable extent, the size of the udder depends upon the length and breadth of the rump, and as such this feature should receive adequate attention at the time of judging. Thickness of the thigh is a quality that goes more with beef animals than with dairy cows, for, this entails wastage of space that would otherwise be occupied with advantage by the udder.

By far the most important organ that one must pay attention to, in judging a dairy cow, is the udder. Its length, width, depth and volume must be noted. It should be free from excess fat and flesh to provide enough room for glandular tissue. The skin over the udder is often covered with fine, silky hair. Just above the place of attachment of the udder posteriorly, there is an area that is covered with fine hairs which point upwards, unlike the other parts of the body; this area is called "escutcheon". It is nourished by the blood that flows in the udder and hence its size and development is looked upon as an indication of the volume of blood available for milk production. However, a more reliable indication of milk production is furnished by the milk veins that are situated just in front of the udder. They are usually two in number but occasionally more, in high milking cows. They should be large, branched and tortuous, signifying thereby that a large volume of blood is made available for milk formation.

In conclusion, it must be said that the art of judging cows, as in every art, can only be learned by practice. Above all, the judge must be a keen observer of animal form and nature and last, but not least, should possess an unbiassed mind.

The Madras Agricultural Journal

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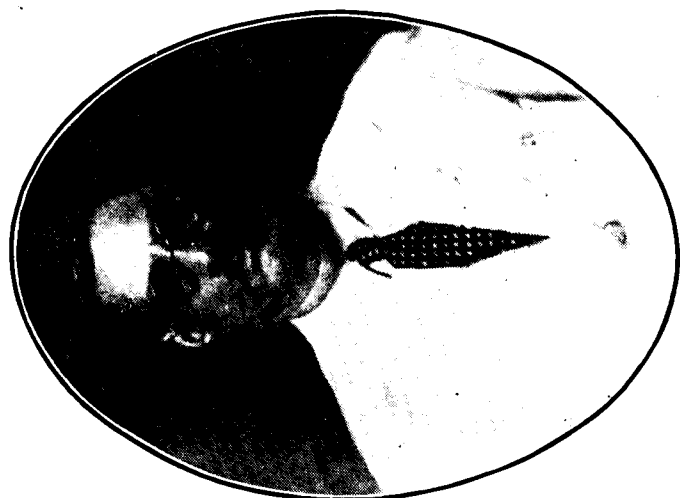
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on whom the Birthday Honour of Rao Sahib
was conferred in June 1940.

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Editorial

REFORM OF THE VETERINARY EDUCATION

We are informed — and we are glad to learn it — that following the example of Madras, one or two of the other Veterinary Colleges in India are earnestly taking steps to revise and enlarge the curricula of studies so as to secure affiliation to their respective Universities. This is a welcome sign of progress for the profession to keep itself abreast with the rapid advances of Science. We hope that in the near future all the Veterinary Colleges in India will have attained University Status.

But, lest in the anxiety to reform the education, the reformist may not be carried away by his enthusiasm, we would like to emphasise certain basic fundamentals which must be carefully and clearly borne in mind.

The first and foremost point to remember is that the reform in Veterinary Education has been necessitated by the rapid advances made, during recent times, in all branches of Veterinary Science. These advances have made it impossible to coach up a student satisfactorily in a short period of three years to enable him to qualify himself as a Veterinary Surgeon. And, therefore, the object of the reform must be to introduce a minimum standard of education which will equip a student efficiently and well to enable him to discharge his professional responsibilities satisfactorily. In our opinion this aspect of the

question does not appear to have been correctly appreciated in the past and therefore we will illustrate it by what has happened in the Madras Veterinary College.

• In this College, which is the only institution in India affiliated to an University, there are two courses of studies *viz.* a Diploma course and a Degree course. The minimum initial qualification for admission to either of the courses is the same *viz.* Intermediate in Arts with natural science as optional subject. The Diploma course extending over a period of four years, is independent of the Degree course and constitutes a separate unit by itself; while, the Degree course is linked with the Diploma course. A candidate cannot sit for the Final Degree Examination unless he has already taken the Diploma and put in a further term of studies in Laboratory work, Preventive medicine, Meat and Milk Inspection and Animal Husbandry. According to this arrangement, only certain subjects are included in the syllabus of studies for the Degree. Important subjects like Anatomy, Surgery and Therapeutics are omitted from it, while they find a place in the curriculum of studies for the Diploma course. Students, admitted for the Degree or Diploma course, are not being taught separately for the first four years of study. All of them are taught practically together. Again, the Diploma course is under the control of the Director of Veterinary Services, while the Degree is under the University. Thus there is a form of Diarchy in the administration which, as is well known, is not conducive to efficiency. It has also resulted in the creation of distinctions without much of a difference. The new course of studies for the Degree of B.V. Sc., is an admittedly improved course over the previously existing Diploma course. Why then retain Diploma course? Why not scrap it and have only the improved course? A reform in Education, especially technical education, should aim at obliterating differences and not introduce them where there is none at present. Only quite recently, the Madras Government made away with the differences in the Medical Profession, converted the Medical Schools into Colleges and enabled them to coach up to only one standard. And that step was hailed by one and

all as a wise reform that was long overdue. This is therefore an aspect of the question which should be gone through closely by those advocating a reform in Veterinary Education.

• A second point which we want to stress is that, in any attempt at reform of Veterinary Education, provision must be made for the existing Veterinary Graduates to avail themselves of the improved education. These officers had taken the highest course of study then available in their collegiate days. When subsequently, an improved course is instituted, it is but fair that ample facilities are afforded for these officers to equip themselves in a better way. A compulsory attendance at Colleges should not be insisted upon. The experience, which these officers have gained in the practice of the profession should be taken into consideration and such of those ambitious officers who want to advance themselves must be helped and encouraged to do so. The knowledge thus acquired with a background of practical experience would be assimilated with a truer insight and will be reflected in a clearer and better appreciation of the problems of the profession.

A third point to which we would draw attention is that in our anxiety at improving the Education we should not be guilty of the charge that is often made, and at times with some truth in it, that the men passing out of scientific institutions are all 'overworked' and 'under-educated'. It is easy to cram and crowd the course of studies with all the latest advances in Science and make the student 'overwork' to post himself with all of them. But it is a matter for very serious consideration whether such 'overworking' is really 'educating' him in the sense that overworking would enable him to make a success of his life. A successful professional career, as we see it every day in every walk of life, is not always associated with a high academic distinction. There is 'something' beyond mere academic distinction which contributes to the success in life. It is the lack of that 'something' that makes a man 'under-educated', in spite of his high academic education. The consensus of opinion is that the men passing out of

the professional colleges are not equipped with the capacity to deal with the public in the way the latter can understand and that it is in that respect that the education is defective. In contradistinction to the medical profession, those who practise Veterinary Science have to learn, or educate themselves with, the ways and modes of not only the animals they are called upon to treat but also of the owners of those animals. A correct *approach* to these men and animals is a *sine qua non* for success in the practice of the profession and this must be inculcated early in the start for life. As one author aptly put it, the education of the Veterinary student starts from the moment he enters the college and goes on throughout his life. It never ends. As such, the foundation must be well and truly laid, a point which should not be lost sight of in any attempt at reform.

Lastly, there is a feature of Veterinary Education which is peculiar to this country. In the present state of Animal Husbandry in India, the chances of an Independent Veterinary profession developing in this country are far too remote. The low value of the livestock of the average ryot and his extraordinary limited sources of income are too well known to need any elaborate exposition. Overburdened and indebted as he already is, he simply cannot afford to pay for the treatment of his sick animals. And, therefore, the scope for general private practice is practically non-existent. For years to come, the Government will be the only agency to engage the services of a Veterinary Surgeon for the treatment of the livestock of the ryot. The Graduates that pass out of the Veterinary Colleges have thus got to be absorbed by the Government itself, firstly for the organisation of Veterinary aid and Veterinary Research and secondly for the replacement of the casualties in that organisation.

These and other aspects of the question should be thoroughly gone into before a decision is arrived at for a reform of Veterinary Education. And the best way of having this done is by discussing the question in a Veterinary Conference. The Provincial Veterinary Organisations in each of the Provinces

should, therefore, wake up before it is too late. The Senior members of the profession, whether on active service or in the retired list, have a special responsibility in this matter and we earnestly appeal to them to take up the question and give a definite lead. We also feel that we would be failing in our duty if we do not call attention to the totally inadequate pay and prospects now obtaining in the Veterinary profession. Surely the labourer is worthy of his hire.

A NEW VETERINARY ORGANISATION

We are gratified to learn of the formation of a Veterinary Association in Ceylon. The inaugural meeting was presided over by Mr. W. A. De Silva, Minister of Health, who himself is a Veterinary Surgeon and there was a good gathering of Veterinary Officers from the different parts of the Island. As the 'Ceylon Observer' says, the decision to form the Association has been taken not a day too soon and the members of the profession need to organise not only in their own interest but in order to make their due contribution to the development of Animal Husbandry in this country.

We publish the proceedings elsewhere in this issue, and we wish the new organisation a long period of active usefulness to the country.

BIRTH DAY HONOUR

We have much pleasure in congratulating Sri H. N. Chelva Iyengar, G.M.V.C., Lecturer in Anatomy, Madras Veterinary College on whom the Birth Day honour of Rao Sahib was conferred in July last. He has been Lecturer in Anatomy from 1922. During that period he has developed an anatomical museum in the College, which is second to none in India containing as it does dry and painted models of various structures, moist specimens of structures of various types of animals, plaster of paris mounts of various organs and natural and artificial skeletons of different types of domesticated animals.

Lecturers from different Colleges in India are being deputed periodically to go and study some new and interesting things in the Madras Veterinary College and it will not be an exaggeration to say that the Anatomical museum is the pride of the Madras Veterinary College.

Dr. B. K. BADAMI

We heartily congratulate Dr. B. K. Badami, Director Civil Veterinary Department, H. E. H. The Nizam's Government, Hyderabad, on the extension of his service. In recognition of his able administration and ripe experience, the Government of His Exalted Highness has graciously extended the period of his service by two years. We feel confident that he will develop the department still further and, what is more, invite the All India Veterinary Association to hold its Conference within his jurisdiction at the earliest opportunity. We wish Dr. Badami all success.

Clinical Cases

AN INTERESTING CASE OF RINDERPEST IMMUNISATION AND ITS SEQUELAE *

BY

P. VEDA BHAT, G.M.V.C., P.G.,
Bangalore Cantt.

Subject. A half bred heifer calf.

History. During February 1938, all the cattle belonging to the owner of this animal were protected against Rinderpest with goat Virus and Anti-rinderpest serum got from the Serum Institute, Hebbal. During the last week of March 1939, one of the inoculated half-bred heifer showed symptoms of a mild type of rinderpest—high temperature, lachrymation, mouth lesions and diarrhoea. About 200 c.c. of Anti-rinderpest serum of the Serum Institute, Hebbal, which was in hand was given to this heifer subcutaneously and ordinary astringents such as Bismuth, Creta Preparata and Potash Permanganate were given internally. The animal got over this attack. Rest of the cattle were once again protected with goat virus and anti-rinderpest serum.

* Paper read at the Mysore Veterinary Medical Association, annual meeting, April, 1940.

After recovery the animal was very weak and debilitated. About a fortnight later, it was reported by the owner that his heifer was getting now and then a sort of rigor and shivering with high fever. It was also rubbing its body on the nearest wall, and constantly licking its own body. As a result, the skin was being peeled off in most of the soft parts, especially inside and backside of the thighs, under the abdominal region and in many other places.

Symptoms. On examination the animal showed high rise of temperature 105° F, mucous membrane icteric, in fact, the whole body was yellowish, oedema of the legs, brisket and dewlap, difficulty in walking and disinclination to lie down. Big patches of urticaria-like rashes over the body with severe licking were also noticed and urine high coloured. Her appetite and thirst was poor.

Diagnosis and treatment. A diagnosis of hypo-calcemia and jaundice of toxic origin was made and the heifer was put on the following treatment:—

1st day:—Temperature 105° F. Prescribed Carbolyzed zinc ointment for the wounds over the body. Internally gave Mag. Sulph and Sodi Sulph each two ounces, Ammonium chloride one dram in water. 15 per cent. solution of Calcium Gluconate 90 c.c. was given intravenously.

2nd day:—Temperature 105.8° F. The animal was feeding as before, oedema still the same, but the animal was not rubbing and licking its body as much as before. The above powder was repeated.

3rd day:—Temperature 105° F. Took blood smears. On examination it was positive for *Babesia bigeminum*. On the same day evening gave 5 cc. of Akiron R. (Acaprin with rephrine) subcutaneously. 30 to 40 minutes after the injection, the animal was slightly shivering and there was salivation and foaming at the mouth for sometime. Except this there was no other reaction after the injection of Akiron R.

4th day:—Temperature 103.4° F. Advised to give plenty of barley water and congee, etc.

5th day:—Temperature 103° F. 15 per cent. solution of Calcium Gluconate 90 cc. was given intravenously.

6th day:—Temperature 103° F. The animal looked much better. The wounds over the body were healing with zinc ointment, oedema was slightly disappearing, pruritis much improved and the animal was able to lie down,

8th day:—Temperature 103° F. Repeated 5 c.c. Akiron R.

10th day:—Temperature 101.4° F. Pruritis had not completely disappeared.

11th day:—Temperature 100.8° F. Gave 15 per cent. solution of Calcium Gluconate 120 c.c. intravenously.

12th day :— Temperature 101.4°F. Heifer much better, all wounds healed, oedema disappeared and the animal did not show any signs of itching.

16th day :— Temperature 100.8°F. 15 per cent. solution of Calcium Gluconate 120 c.c. intravenously.

20th day :— Repeated 15 per cent. solution of Calcium Gluconate 180 c.c. intravenously. She was eating grass and feeding fairly well; wounds all completely dried up, no signs of itching and she appeared lively and cheerful.

As the owner of the calf was on transfer from here to Madras, the same day the animal was removed from Bangalore to Madras by train. Later the heifer improved much in condition and showed no other troubles.

Now the owner of the heifer has come back to Bangalore and with him the animal also. She has taken the bull since and she is in calf.

Discussion :— During sickness there is a heavy depletion of calcium from the system through faeces and urine nearly 4 to 5 times greater than in health. In ruminants greater excretion of calcium is in the dung. If the animal is strong and has a good condition during health, it makes up with the loss of calcium during sickness and maintains the normal calcium level of the blood. The reserve of calcium is in the bone and it is from here the blood meets with its demands.

One of the important functions of calcium in blood stream is to neutralise the end products of protein metabolism such as guanine, adenine, xanthin and hypoxanthin. These end products of protein metabolism could be compared to the smoke that comes from the flame. If these end products are not neutralised in the blood stream by sufficient calcium in the blood, they become toxic substances to the system, bring on irritation, increase the permeability of the endothelial system and cause oedema; this means retention of still more other toxic products, which in their turn cause disturbance to the other organs of the body, thus starting a vicious circle.

A CASE OF CYSTIC CALCULUS IN A MARE

BY

SHAFI BAHADUR KHAN, G.V.Sc.,
Hyderabad-Dn.

History :— Mare No. 6, five years old of H.E.H. the Nizam's Regular Forces, Hyderabad-Dn. was suffering from recurrent attacks of *Haematuria* for the last 3 years. She was admitted four times suffering from the disease and each time it subsided by the administration of suitable remedies. During the last attack, however, on 1st July 1939, there was an involuntary thick whitish discharge which contaminated the hocks and thighs. On manipulation of the bladder a calculus of enormous size was detected.

Treatment :— As it was difficult to remove the stone only by manipulation the mare was given a dose of chloral Hydras 1½ ounces then cast and chloroformed. The calculus was held in one hand by an assistant and was crushed by an ordinary tooth chisel, as that was the only instrument available. The pieces of calculus were removed carefully. The calculus which was oval in shape and rough due to sandy deposits weighed exactly 1 lb.

There was a little bleeding during the operation which was checked by Pot. Permanganas solution both morning and evening. Also yaten vaccine (Bayers) was injected subcutaneously in 5 c.c. doses on every alternate day. The total number of injections was four. In addition a ball containing Hexamine 1 oz. Pot. citras 1 oz. and Sodi Bicarb 2 oz. was given.

In the first week there was small quantity of pus discharge from the bladder which subsided later on.

On July 22 the animal was discharged as fit for duty.

Precautions :— During operation the chisel may slip and injure the bladder, therefore it should firmly be fixed to the calculus and carefully hammered.

I am highly indebted to Capt. M. Karamullah Khan, M.R.C.V.S., Principal Veterinary Officer, H.E.H. the Nizam's Regular Forces, for the personal guidance in the operation.

AN OBSCURE DISEASE

BY

V. M. DAKSHINAMURTHY,
Veterinary Surgeon, Kanker State.

In the month of April, 1940, I got a report from the interior of the State, about 40 miles off, that 63 animals had died in 6 days and that the owners were suspecting that the animals were being poisoned by the local Chamars (Cobblers) — a practice said to be common here.

The symptoms were the same as those reported by Mr. Kulkarni, in his article on "An unusual outbreak of Oedematous form of Haemorrhagic Septicæmia in cattle and buffaloes", published in Vol. XVII, No. 1 of this Journal, except that the animals in this case showed no signs of enteritis. The Swellings were found all over the body, in some cases on the cheeks, upper lip and even on the nose.

When I visited the village 3 more animals had died and there were 27 animals more suffering from this malady. The post-mortem conducted on these dead animals and the symptoms seen on the other animals could give no positive diagnosis of the disease.

In the absence of any material to aid diagnosis, I started symptomatic treatment by incising the swellings and dressing them with corrosive sublimate. After 4 days all animals were alright except 4 cows which first aborted and later died.

Microscopical examination of the smears taken over to the head quarters showed nothing.

The noteworthy feature of this disease is that the animals affected are only cattle (cows and bullocks) and all of them are adults.

The disease was of course controlled by methods of isolation and disinfection of the affected sheds, etc., but what the actual disease was, remained obscure till July.

My thanks are due to Mr. H. V. Kulkarni, Veterinary Investigation Officer, Baroda, for bringing this obscure disease into light as an unusual outbreak of H. S., from the investigation he carried out in his State of a similar disease and also to the Editor of this *Journal* for publishing that article.

UREA-SULPHAZIDE IN CANINE PRACTICE

BY

K. S. SHETTY, G.M.V.C.,

Veterinary Dispensary, Narayanaguda, Hyderabad, Deccan.

Urea-sulphazide is a soluble Azo-compound of the sulphanilamide group elaborated in the research laboratories of Messrs. Union Drug Co. Ltd., Calcutta, indicated in cases of Streptococcal infections.

I had been using Bayer's Prontosil Soluble extensively in my practice for all Streptococcal infections, but on the out-break of war I had to abandon this valuable preparation in view of its cost. I then gave a fair trial to Urea-Sulphazide which is a comparatively cheap and easily available Indian product. The favourable results obtained by this drug both in puerperal sepsis as well as in septic wounds are illustrated by the following few typical cases.

Case No. 1:—An Alsatian bitch aged two years had normal delivery. But on the third day she developed high temperature 105°F with dark coloured discharge from the vagina and was very dull and off feed. 5 c.c. of Urea-Sulphazide was injected intramuscularly. She was fed forcibly with milk and glucose D with two teasspoonfuls of brandy every two hours. The next day the temperature came down to 103.4°F. The injection was repeated. On the third day even though the temperature was normal, one more injection was given with the result that she fully recovered.

Case No. 2:—A Pomeranian bitch aged one year—Prima para, had dystokia. Showed temperature 104.2°F. First removed an obstructing

dead pup. Three more dead ones were removed one after another. The uterus was painted with glycerine and acriflavine. A dose of stimulant mixture was administered and 2 c.c. of Urea-Sulphazide was injected. By evening the patient became very dull with temperature 105°F rapid pulse and respiration, refused even forcible feeding. Injected again 2 c.c. of Urea-Sulphazide. 20 c.c. of glucose solution 12½% was also given intravenously; 10 drops of Coramine was given every third hour to keep up the heart. Improvement was noticed the next day when the temperature was 103.8°F. Repeated the injections of Urea-Sulphazide and glucose, milk and brandy were given forcibly by mouth. On the third day the temperature came down to normal. One more injection of Urea Sulphazide was given and the patient became normal.

Case No. 3:—A Pekingese bitch aged five years had dystokia. One dead pup was removed by embryotomy. Afterwards three more were removed. They were all alive. The next day she developed temperature 104°F. With the injections of Urea-Sulphazide 2 c.c. daily for three days she recovered.

Case No. 4:—A bull dog aged five years had a tumour as big as a fist at the parotid region. It was operated under local anaesthesia with all aseptic precautions. Unfortunately he removed the bandage and sutures by his paw and rubbed the part on the ground, thus making the wound septic. On the third day the temperature rose up to 105°F with profuse discharge from the wound. 5 c.c. of Urea-Sulphazide was injected daily for two days; the temperature came down and the wound healed up rapidly.

Case No. 5:—A Cocker Spaniel aged three years was operated upon for Ano-rectal fistulae. The dog rubbed the part on the ground and the wound became septic, resulting in pus formation and rise of temperature. 5 c.c. of Urea-Sulphazide was injected daily for two days. The temperature came down and the wound healed up gradually.

In all the cases that were treated by this drug particular care was taken during the course of treatment, to avoid saline purgatives and all sulphates and sulphur preparations.

A SUSPECTED CASE OF H. S.

BY

RAGHUNATH SINGH L. V. P.,

A. H. Surgeon, Punjab Veterinary College, Lahore.

In the field, whenever we see a case (cattle and buffaloes) with high rise of temperature and sudden development of oedematous swelling in the throat region, we generally take it for granted to be a case of H. S. and no attempt is made to confirm the diagnosis by the use of a microscope and by

trying any treatment by so doing, full justice is not done to the dumb animals, because a case may present typical clinical symptoms of oedematous form of H. S. and still it may not be a case of H. S. I shall cite here a case which in the beginning was taken to be one of H. S. but on microscopic examination of oedematous fluid smears etc., was found negative and which with proper treatment was eventually completely cured.

A grey cow, aged about 7 years, was brought to the hospital in ambulance car on July 24, 1939. There was a history of sudden onset of the disease. Also there was high rise of temperature (105°F), an acute oedematous swelling of the throat region, difficult breathing and so on (characteristic symptoms of oedematous form of H. S.). The case was forwarded to Contagious Ward as a suspected case of H. S. where 100 c. c. of anti H. S. serum was injected at once. Photo of the case was taken. Microscopic examination of blood and oedematous fluid smears on 24th and 25th were negative for H. S. organism. As the oedematous swelling had increased and there was difficulty in breathing, tracheotomy tube was applied, also photograph (front view) taken. The animal felt some relief and took water and a little green fodder.



26-7-39. Swelling extended to muffle and there was more difficulty in feeding. Dung and urine passed.

Swelling fomented.

27-7-39. Better, took rice gruel and green fodder offered.

THREE FILARID WORMS IN AN EQUINE

101

Fomentation repeated.

Swelling reduced. Feeding better.

Oedematous swelling practically disappeared. Feeding well.

After this the cow gradually recovered and on 4-8-39 she was transferred to the Surgical Ward where the tracheotomy tube was removed and the wound dressed daily. On 21-8-39 the animal was discharged quite cured.

While in the field I come across several cases similar to the one above described in which oedematous swelling of the throat and under the lower jaw was the chief feature. Such cases generally get well spontaneously and do not call for any special treatment. In Harania tract the disease is known as "Bilai" (literally meaning the cat) in popular language. In such a case the animal refuses the food for a day or two and oedematous swelling develops under the jaw and over the throat. It is somewhat strange that the animal gets well automatically in a day or two and one who has not come across such cases is sure to mistake this condition for H.S.

Conclusions: 1. Every case which suddenly develops an inflammatory oedematous swelling over throat and high rise of temperature is not necessarily a case of H. S.

2. Microscopical examination of blood and especially oedematous fluid is necessary to confirm the diagnosis of H. S.

3. It is worthwhile treating, especially performing tracheotomy operation, in case of swelling over the throat other than those of H. S.

4. Further research is needed to find out the exact nature of such a disease which is so very analogous to H. S., but is a comparatively very benign one.

Thanks are due to K. S. Khawaja Karam Elahi who had very kindly permitted me to publish the case and has handed over the photographs also which make the case all the more interesting.

THREE FILARID WORMS IN AN EQUINE

BY

V. SEETHARAMA RAO, G.M.V.C.,

Touring, Assistant Veterinary Surgeon, Patancheru,
H. E. H. The Nizam's Dominions.

History:—A horse from Narsapur, 18 miles away from Warangal, was brought to the Civil Veterinary Dispensary, Warangal, on the 14th December, 1937 with the history that there was a continuous flow of lachrymation from the off eye for nearly a month and that the vision had become impaired.

On examination, there was a complete opacity of cornea of the off eye. The owner informed me that the near eye was operated for "Filaria Oculi"

sometime back with the result that the eye had become hollow, *i.e.* blind. In view of this history the opacity was suspected to be due to "Filaria Oculi" and the horse was admitted as inpatient (P. T. No. 377) for observation.

On the morning of 15th December, 1937 a filarial worm was found riggling faintly behind the dense opacity and it was decided to operate at once in the standing position.

Control:—The animal was put in the trevis and twitch was applied to the ear. The eye was washed with 1% boric lotion and a 2% solution of cocaine was instilled into the eye. After 5 minutes the eye was under anaesthesia.

Technique:—With the help of the fore-finger and thumb of left hand the eye was kept open firmly and with the point of eye lancet (previously sterilised) a puncture was made at the infero-external border of the sclero-corneal junction, a little towards the cornea. At once the "Aqueous Humour" gushed out forcibly bringing with the gravity of the fluid the parasite outside.

After-treatment:—The eye was washed with normal saline solution and bandaged with cotton pad dipped in the same solution to prevent glaring of light. The Normal Saline solution wash was repeated daily. On the 18th instant 5 c.c. of Normal Saline solution (Welcome Burrough's soloid brand) was injected sub-conjunctivally. The puncture healed up rapidly by this treatment.

It was about to be discharged when to my surprise on the 22nd instant another worm was observed moving about clearly in the same eye. I was at a fix as to operate again at the same puncture or at a different place. I decided for the former and with the same control and technique the lancet was pushed at the previous puncture and with the least pressure on the lancet the "Aqueous Humour" spurt out bringing with the flow of fluid the filarid worm. The two worms are collected and preserved in the dispensary. The after-treatment was the same as before. On the 27th instant another injection of 10 c. c. Normal Saline solution was given sub-conjunctivally and the horse was discharged on 1st. January, 1938 A. D. as completely cured.

I have operated in the said manner on 6 equines during my service at different places and found the saline wash and injection better than zinc, boric, acriflavin lotions or boro-calomel dusts.

CONCLUSION

1. The operation at the infero-external border of sclero-corneal junction is preferable to that of supero-external border, for this advantage that it can be done in the standing position under the said control

and local anaesthesia and the risk of accidents in casting and preparation of the animal for the same are avoided. In very restive horses an enema of Chloral hydras 2 ozs dissolved in a pint of water with mucilage, half an hour before operation is advisable.

2. The moment the filarid worm is riggling in the eye the operation can be done.

3. The local anaesthesia will control the movement of the eye-ball, thus facilitating the Surgeon for operation.

4. The Normal Saline solution wash and injection of the same 5 to 10 c.c. sub-conjunctivally facilitates rapid healing of the puncture and quick clearing up of the opacity.

5. In cases where two filarid worms appear in the same eye the puncture can be made at the previous seat of operation if it is not healed up completely and there is no fear of retardation of healing of the puncture or escaping of the fluid from the Aqueous chamber constantly after operation.

6. Care should be taken to make a small puncture of 4-5 m.m. in length as a wide one would allow the Aqueous Humour to escape in large quantities resulting in the hollowness of the eye.

7. The lancet should be held tight in the right hand in such a way that the forefinger might fall on the lower side with the forefinger extended on the lower blade of the lancet and the thumb on the upper side. The sharp, blade a little below the point of insertion may be covered with a layer of cotton wool dipped in sterile water, to protect the operator's finger from injury, if necessary. A sharp pointed scalpel too may be used in place of lancet if the latter is not available.

8. The lancet should be thrust obliquely towards the centre of the Aqueous chamber and not vertical or at right angles to the cornea.

It is interesting to find 3 filarid worms in a patient, appearing at an interval of 6 months between 1st and the 2nd and a week from 2nd to 3rd parasite, the latter two occurring in one and the same-eye. The opacity cleared after the removal of the first one in spite of the presence of the other worm hidden inside the eye. Can any professional brother throw light on the etiology and life history of "Filaria Oculi"?

A CLINICAL CASE OF PULMONARY TUBERCULOSIS

BY

KARNAIL SINGH L.V.P., (FINAL YEAR STUDENT)

Punjab Veterinary College, Lahore.

A bullock, 12 years old, was brought to the outdoor Clinics, Medicine Section, Punjab Veterinary College, Lahore, on the 12th January, 1940.

History.—The owner complained that the animal had been coughing for the last four months and was losing condition gradually inspite of good

feeding. The animal had been passing loose dung for about a month and is partially off food.

Examination.—The bullock on examination was found dull, depressed, weak and emaciated. The eyes were somewhat sunken. There was bilateral mucous nasal discharge. The animal coughed occasionally which was moist in character. Pre-scapular and prefemoral lymph glands were enlarged. Conjunctiva was pale and dirty looking. Temperature was 101.0°F; respiration 40 per minute and were mainly abdominal.

On auscultation of the lungs the presence of moist rales in the middle third and crepitant rales in the lower third in both the lungs were heard. Tinkling sounds were also audible in the lower third on both sides, synchronous with respiration which revealed the presence of some fluid in the thoracic cavity. There was absence of vesicular murmurs at some areas which showed consolidated patches in the lungs.

Differential Diagnosis.—The following diseases may be suspected.

1. Chronic interstitial pneumonia.
2. Foreign body pneumonia.
3. Abscess in the lung.
4. Pulmonary tuberculosis.

1. *Chronic interstitial pneumonia.*—There is no enlargement of the superficial lymph glands and this can be excluded by putting the animal to Tuberculin Test.

2. *Foreign-body pneumonia.*—In this there is often the history of animal having suffered from traumatic indigestion and chronic tympanitis. The portions of the lungs close to the diaphragm are affected. In this case there was no such history and both the lungs were considerably affected so foreign-body pneumonia was excluded.

3. *Abscess in the lungs.*—During the formation of an abscess in the lung, there is rise of temperature. There may be a primary focus of infection and metastatic abscess may develop in the lungs. It may be a sequelae of pneumonia. There was no history of a previous attack of pneumonia or of primary focus of suppuration. So abscess in the lung could be excluded.

4. *Pulmonary Tuberculosis.*—The symptoms which helped in the diagnosis of pulmonary tuberculosis are :—

- (i) Gradual emaciation.
- (ii) Chronic persistent cough.
- (iii) Enlargement of the pre-scapular and pre-femoral lymph glands.
- (iv) Consolidated patches in the lungs on auscultation.

This case was diagnosed to be a clinical case of pulmonary tuberculosis.

A CLINICAL CASE OF PULMONARY TUBERCULOSIS 105

The animal was forwarded to the pathological section for D.I.D. tuberculin test, to which it gave a positive reaction.

The punctures from pre-scapular and pre-femoral lymph glands were examined but no acid fast bacteria were detected.

The consistency of the dung was returning to normal and on 15th January, 1940, it came almost to normal.

The blood films were prepared daily from the ear to get the differential leucocytic count of the case which may be of some help in prognosis.

The following table shows the percentage of different kinds of leucocytes on the dates given below :—

Date.	Monocytes	Polymorphs.	Lymphocytes.	Basiphils.	Eosinophils.
12th Jan.,	41 %	53 %	3 %	2 %	1 %
13th Jan.,	56 %	32 %	10 %	2 %	—
14th Jan.,	64 %	24 %	12 %	—	—
15th Jan.,	68 %	28 %	4 %	—	—
16th Jan.,	49 %	48 %	3 %	—	—
17th Jan.,	44 %	51 %	5 %	—	—
12th Jan.,	39 %	50 %	11 %	—	—

According to Gaiger (1938) differential leucocytic count in a healthy ox is as follows :—

Monocytes.	Polymorphs.	Lymphocytes	Bashiphils	Eosinophils.
5.5 %	29.0 %	54.5 %	0.25 %	11.0 %

From the comparison of the above two tables it is observed that there is marked difference in the differential leucocytic count of a healthy and a tuberculous ox. In this case the monocytes are much increased while on the other hand the number of lymphocytes has gone considerably low and the eosinophils are practically absent. The number of polymorphs has also gone high.

Thus we conclude :—

(i) That the development of lymphocytopenia during the course of persistent infection is always of bad significance.

(ii) A fall in the number of lymphocytes associated with progressive neutrophilia indicates an extension of inflammatory process. It appears that pneumonia has developed from the tuberculous lesions.

- (iii) The absence of eosinophils is an unfavourable sign.
- (iv) The marked increase in monocytes shows some chronic infection.
- (v) Increase in monocytes and polymorphs and decrease in lymphocytes and absence of eosinophils indicate the presence of an infection that has overpowered the defensive mechanism of the body.

On 18th January, 1940, the animal did not take anything and looked more dull and depressed and could not get up. The animal died on the morning of the 19th January, 1940.

On post mortem examination some quantity of viscous fluid was found in the thorax on both the sides. The lungs were adherent to each other mediastinally and to the diaphragm. Mediastinal lymph glands were enlarged calcified and caseated. Both the lungs showed innumerable tubercle nodules. The smears prepared from the nodules and stained by Zeil-Nelson's method showed acid-fast organisms.

Pre-scapular and pre-femoral lymph glands were enlarged and oedematous and did not show any nodules in them.

The post mortem findings conformed the clinical diagnosis of the case.

Acknowledgment.

My thanks are due to Mr. G. K. Sharma, P. V. S., officiating Assistant to the Professor of Medicine, under whose kind supervision I had the privilege of diagnosing the case in the practical medicine class.

Reference.

Gaiger, S. H. and Davies, G. O. (1938), Veterinary Pathology and Bacteriology 2nd Edition, paged 506.

A CASE OF TORSION OF THE UTERUS — (Contorsio-Uteri)

BY

J. D. DAVID, G.M.V.C., P.G. (EDIN.),
Lecturer in Animal Hygiene,

AND

K. VENKATARAMAN, G.M.V.C.,
Assistant Lecturer in Animal Hygiene, Agricultural College, Coimbatore.

Subject:—An Ayrshire-Scindhe-Montgomery cow, aged, weighing about 1265 lb. belonging to the Agricultural College Dairy, Coimbatore, was 292 days in calf on 18-8-1939. Her previous calving was normal.

Symptoms:—The cow showed labour pains at about 3 A.M., on 18-8-1939 which lasted for about 10 minutes and then stopped. Two hours later, she showed labour pains again and this also stopped. On examination, the os was found completely closed. During the day the cow showed labour pains only at long intervals and every time, it was of short duration. On Examination again, it was seen that the os had not dilated. Next

day morning when the hand was introduced again into the vagina for the purpose of examining the uterus, the fingers encountered towards the termination of the vagina, a kind of culde sac showing no passage. The os felt cord-like and only with great difficulty a finger could penetrate the os. Taking into consideration the long duration of labour and the absence of expulsive efforts and the cord-like feeling of the os uteri, the condition was diagnosed for torsion of the uterus.

Treatment:—Rotation of the cow's body was adopted and the cow was rolled in such a manner, that the twist might be effaced and the os might



Photo of the Uterus with emphysematous foetus, with development in only one horn marked X; empty horn marked O

be opened for the passage of the foetus. But this attempt failed. It was therefore decided to conduct an operation and deliver the calf by caesarean section. The right flank was shaved and under chloroform anaesthesia an incision was made from a point equidistant from the external angle of the ilium and the last rib, and carried downwards and forwards for a length of 16 inches. The muscles were cut, and the peritoneum punctured. When the hand was pushed in, to find out the uterus, it was found on the left flank, with the cervix uteri completely twisted. The foetus was dead and emphysematous and it was found impossible to bring the uterus forward to the site of laparotomy. Moreover, the uterus also was in a partially gangrenous condition. The destruction of the cow was therefore decided upon and it was carried out immediately.

Post-mortem findings:—Uterus was found lying on the left of the flank with the foetus in one horn and the other horn retaining its normal size; and the whole organ in a partially gangrenous condition. The torsion of the uterus was found to be complete; the organ had made one complete turn. The foetus which weighed 65 lbs. was found dead and emphysematous.

As this case is one of rare occurrence it is thought desirable to publish it.

MY OBSERVATIONS ON AN OUT-BREAK OF EPHEMERAL FEVER IN CATTLE

BY

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

Johore.

During my 17 years service in this country, I have not heard, neither have I seen an out-break of the above type and hence I think, it will be of interest to publish my observations through the medium of this valuable Journal. Before doing so it would not be out-of-place to give a brief description of the disease itself.

Ephemeral fever is defined in text books, as an acute, infective febrile disease usually occurring in cattle in South Africa and India during rains, characterised by stiffness of the extremities and lameness and accompanied by severe pain and twitching of the affected muscles. Mention was made of this disease in a recent report of Rhodesia in Africa. Reports from 4 Indian Veterinary Graduates have also been published from time to time in the "Indian Veterinary Journal" (volumes 1, 2, 12, and 15). Sudden development and sudden disappearance after 3 or 4 days is very characteristic of this disease.

In Johore Bahru, Capital town of Johore State, 16 miles off Singapore city, there are 2 well maintained Cattle Sheds situated 5 miles from the town belonging to His Highness the Sultan. One of them is used for Dairy animals in milk and the other for keeping working bullocks, dry cows and weaned calves. The animals in these two sheds are very efficient in health and general conditions because of the great care taken with regard to their feeding and general management. The animals are let loose for 2 hours in the morning and two hours in the evening in specially constructed paddocks by rotation and at other times they are stabled. There are no other cattle sheds near about within a radius of 3 miles. It is part of my official duties to make regular inspection of the sheds.

History of the out-break:—Early part of January this year I was rung up one morning to immediately attend to a cow that had suddenly gone lame without any previous history. Reaching the place I found one heifer standing still on the centre of the road leading to the shed. The animal, being unable to move from the place, I stopped my car and managed with

the help of some assistants, to remove the beast to the shed. There, on a close examination, I found the temperature 103°F., severe lameness, loss of appetite and stoppage of rumination, dull, staring coat, and twitching of the muscles of thigh and shoulder region. These symptoms, in the absence of any previous history and external injury, led me to suspect it as a case of acute rheumatism. A mild saline purgative followed by an anti-Rheumatic drench was prescribed and fomentation recommended. Visiting the next day I found the animal was lying down with the same temperature and to my great surprise another 4 animals were affected showing more or less the above symptoms. My anxiety increased on account of the new attack. Reported the matter to the State Veterinary Surgeon who instructed me to keep a watch on the progress of the out-break. My third visit saw 2 more attacks. This went on increasing up to the end of the month, when 27 animals were found victims. All the affected ones were isolated in a separate place. In the meanwhile, I found some of the early attacked animals coming round. This sudden appearance and disappearance and rapid spread without a single mortality, confirmed my diagnosis as "Ephemeral fever", other wise called Stiff sickness or Three days fever. Examination of blood revealed negative results. Injection of citrated blood into a rabbit produced no reaction.

Since it is not possible to describe the symptoms shewn by each of these 27 animals, I summarise them as below:—

1st day:—Dullness, loss of appetite, staring coat, cessation of rumination, disinclination to move about, rise of temperature ranging from 103-105°F, lying down with the head towards the flank. Recumbency depends upon the severity of the attack and pain.

2nd day: Reduction of temperature, **standing up, still unable to move**, discharge from the mouth, not keen on food or drink.

3rd day:—Reduction in pain, lameness and temperature, inclination to take food and drink congee, more lively in appearance.

4th day:—All affected ones showed complete recovery, Each animal was tested by walking and no lameness found, general health returned to normal, except reduction of milk in two affected cows.

All animals, irrespective of age, breed, sex, and general health were found susceptible. In some bad cases stiffness of the neck was also observed which may account for their being off-feed. It is said that so far definite proofs are not available as to the actual cause of the out-break, though some claim that pasture or mosquitoes may sometimes be responsible for this. As regards treatment, nothing was done except to keep the affected ones separate in a comfortable place with plenty of bedding, taking care not to expose them to the extremes of heat and cold. I have found in this particular out-break repeated drenching only worries the animal, that

it does more harm than good, on account of the difficulty in swallowing, in case the stiffness extends to the muscles of the neck and pharynx. If necessary salines in drinking water may be of great use to reduce fever and prevent constipation.

STERODIN AND UREA SULPHAZIDE IN THE TREATMENT OF CANINE DISEASES

BY

G. N. ROY CHAUDHURY, G.B.V.C.,

Ex-Professor of Surgery & Obstetrics, Bihar Veterinary College.

During the last few years a great deal of interest has been shown in the treatment of animal diseases by non-specific immunotherapy and chemotherapy. Recently I have had the occasion to use Sterodin, a non-specific immunotherapeutic and Urea Sulphazide a Sulphonamide compound in a few cases. I will narrate in the following lines my experiences on the two preparations.

STERODIN

I gave a fair trial with this in cases where a non-specific immunotherapy is indicated. I found the preparation very effective in reducing temperature and improving the resistance of the sick dog.

1. *Great Dane Dog*:—Admitted with a temperature of 104°8 F. blood examination proved negative, general condition very depressed, appetite irregular, slight discharge from both eyes.

STERODIN in 2 C.C. dose was injected on every alternate day. Four injections brought the temperature to normal.

2. *Daschund Dog*:—Definite case of distemper. Continuous fever, bronchitis, eruption on the abdomen, loss of appetite, temperature 102°F.

Four injections of Sterodin at 2 C.C. doses on every alternate day brought down the temperature to normal, lungs cleared up and the dog made an uneventful recovery.

UREA SULPHAZIDE

Two cases of puerperal fever were treated with this preparation as per description below:—

1. *Bull bitch*:—Age 3 years, second para. There were 8 pups. Three were born alive by forceps, 5 were dead. She was in labour pain for 3 days when I was called. First one born was a dead pup. Second, third and fourth pups were born alive, the discharge was greenish and offensive smelling, temperature was 106°F. She was not retaining any liquid when forced down. After the first pup was taken out, 2 c.c. injection intramuscularly of urea Sulphazide was given. The second pup was born after

two hours, a second injection of 2 c.c. was given after 4 hours and a little while after the third and fourth were born. Subsequent births took over 48 hours and the pups were decomposed when brought out. The treatment carried out were injections of urea sulphazide in 2 c.c. doses thrice daily for the next 2 days and the temperature came down to normal, the appetite returned, discharge from the vagina ceased. Along with urea sulphazide the vagina was douced with Dettol Solution.

2. *Cocker Spanial bitch*:—Gave birth to 3 dead pups. Came with a temperature of 105°F, loss of appetite and a muco purulent discharge from the vagina. Three injections of 2 c.c. of the Urea Sulphazide solution brought the temperature to normal and she made an uneventful recovery.

The above illustrative cases demonstrate quite satisfactorily the value of the two products. It is also a pleasing feature that no untoward reactions were noted after injections of both Sterodin and Urea Sulphazide. The cost of the preparations is suitable to meet our need, where expense is always taken into consideration in the treatment of pet animals.

I would conclude with a word of thanks to Messrs. Union Drug Co., Ltd., for free supply of the preparations for my trials.

College News

List of Final year Class successful students in the annual examination held in June 1940 at the Punjab Veterinary College, Lahore.

S. No.	Name	S. No.	Name
1.	Radhe Mohan	14.	Gurbachan Singh
2.	Brahma Nand	15.	Abdul Ghani
3.	Beant Singh	16.	Mohamed Rafiq
4.	N. R. Michael	17.	Kharaiti Lall
5.	Didar Singh	18.	Abdul Basit
6.	Amar Nath	19.	Janardan Parshad
7.	Helena Parshad	20.	Rifat Ali
8.	Mohamed Ibrahim	21.	Satya Parkash
9.	Jarnail Singh	22.	Nazir Ahmad
10.	Om Parkash Saini	23.	Amir Ali
11.	Mohd. Anwar Zaman	24.	Ved Parkash
12.	Raj Pal	25.	S. E. C. Rawson
13.	Madan Mohan		

Lahore }
12-8-40 }

J. S. GAREWAL, M.R.C.V.S., I.V.S.,
Principal.

Association News

THE INDIAN VETERINARY JOURNAL

(Vol. XVI).

Receipts and Disbursements Account for the year ending 30th June, 1940

	Rs.	A.	P.		Rs.	A.	P.
To Balance on 1-7-1939	2318	14	2	By Establishment :—			
„ Subscriptions ...	4381	0	0	Rent Rs. 480			
„ Advertisements ...	451	10	0	Salary Rs. 480 ...	960	0	0
„ Interest ...	50	0	0	„ Honorarium ...	1000	0	0
„ Reprints ...	63	4	0	„ Printing Journal ...	1616	11	2
				„ Railway freight ...	2	14	6
				„ Binding books ...	16	4	0
				„ Postages ...	939	0	6
				„ Printing & Stationery ...	19	0	3
				„ Repairs to furniture	1	5	0
				„ Bank charges ...	2	12	0
				„ Audit fee ...	25	0	0
				„ Books ...	7	10	0
				„ Balance on 30-6-1940	2674	2	9
Total	7264	12	2	Total	7264	12	2

Examined and found correct.

Madras,
23rd August '40. }

K. GOPALAKRISHNA RAO,
Registered Accountant, Auditor.

Extract.

CROSSBRED COWS.*

By
C. A. WILLIAMS.

Dairy herds having yearly butterfat production below 275 lbs. per cow may be expected to increase production as much as 25 per cent within three to five years, if their owners will exercise adequate care in methods of feeding and management followed by a culling programme which will dispose of 10 to 20 per cent. of the lowest producers. This conclusion has been reached after a study of 150 herds on test in Indiana Dairy herd improvement associations. Dairymen who wish to develop herds averaging 350 lbs. or more of butterfat per year should adopt these essentials and, in addition, pay particular attention to herd sire selection.

Prices of dairy products not only control income but also size of herd. Suppose a farmer has a fixed overhead of, say, \$50 per month for a specific use such as wages or some other operating expense. Feed costs usually make up about one-half the total cost of producing milk. Consequently the total income derived from milk sales must equal \$100 every 30 days. Milk may be worth \$2 per 100 lbs. If cows capable of averaging 3 gallons of milk are available, seven cows will meet the owner's need.

Suppose prices drop to \$1.50 per 100 lbs. More cows must be added or production per cow increased; otherwise the necessary income will decline. The first alternative is chosen in too many instances. That may mean building the size of the herd up to nine cows. But what kind of cows will these two new ones be? Only those which are for sale and, since prices are declining, Mr. Purchaser is tempted to invest as little extra money as possible in the two new cows. Instead of the newcomers producing 25 lbs. daily, they may be only two gallon cows. Milk drops a dime a hundred lower so the tenth cow must be located.

Such reactions are reflected by a herd survey conducted by Indiana cow testers last fall. Five hundred ninety-two herds were classified according to breed and also whether they were registered or grade animals. Only those two years old and over were included. Herds made up of registered cows only accounted for 23.5 per cent; grades only 14.5 per cent; registered and grades, 33.6 per cent; and those with two or more breeds, 28.4 per cent. This latter group was further broken down according to the number of breeds found within each herd. Fifty-three per cent. reported two breeds; 32 per cent, three breeds; and 15 per cent, four breeds or more.

In a recent issue of Hoard's Dairyman, Dean E. L. Anthony states that he considers one of the greatest future changes which must come to the dairy industry is, "somehow we must place this product in the hands of the consumer at a price she can afford to pay or there will be no dairy business."

How can a dairyman with two, three, or four breeds of cattle hope to carry on a constructive breeding programme that will produce milk, cheese, or butter at a profit for himself and yet place his product "in the hands of the consumer at a price she (the consumer) can afford to pay." Can such a producer justly complain about market prices? Can he blame those intrusted with the grading and merchandising of his product if a time comes when there is "no dairy business. We think not."

A member of a dairy herd improvement association related his experience with cross breeding. Several years ago he attended a sale. The Auctioneer was doing his best to protect the seller but his gavel was announcing the fatal "blow" quite rapidly. A good looking cow was led into the ring. She was only four years old but a crossbred. Bidding lagged. A price of \$ 29 seemed ridiculously low. The auctioneer caught this dairyman's eye. Almost unconsciously his head gave a consenting nod. "Sold," cried the auctioneer.

Nine years later the herd record book showed credits totalling 3,363 lbs. of butterfat for this crossbreeding. Now, it was his turn to get the laugh on his neighbours. Not a bad lifetime production," said the proud owner. We agree. "How about her daughters", we asked? "Oh!" he sighed, "they were by the same sires as other calves dropped in the herd

from my own cows. Not one from "Crossbred" would more than raise her calf. That taught me my lesson."

The lesson is one which many Indiana dairymen have not learned as yet. Crossbreds may or may not prove profitable, but second and third generation crossbreds usually prove lasting disappointments. Dairymen who are striving to develop profitable herds of commercial animals capable of economical production, must decide the breeding programme they prefer to follow. A programme of mixed breeding is about as likely to succeed as a blind man looking in a dark cellar for a black cat which is not there.

* "Hoard's Dairyman", April 10, 1940.

MEDICINAL QUALITIES OF 'CHATIM' BARK A Substitute for Quinine

United Press of India,
Calcutta, July 31, 1940.

As a result of researches carried on by various leading Ayurvedic institutions in India, the bark of the *Chatim* tree (Latin *Alstonia Scholaris*, Sanskrit *Saptaparni*) has been, it is claimed, found to be more efficacious than quinine in the matter of treatment of malaria. It contains an active bitter constituent called 'Ditain', which in equal doses, has the same medical effect on malaria as quinine sulphate, without any disagreeable symptom of the latter, such as deafness, sleeplessness, excitement. In the Manila hospital, malaria cases were treated with the *Chatim* bark and the result has been, it is stated, so satisfactory that it may safely be predicted that it would completely replace quinine.

"Hindu", August 2, 1940.

ANIMAL HUSBANDRY AS AID TO AGRICULTURE *

Ministers' Suggestion to Veterinary Surgeons

CONTRIBUTION TO PROGRESS OF THE COUNTRY

"While we are making efforts to develop the natural resources of the country, if you engage yourself in improving the Island's livestock, then, when both are organised, I have not the slightest doubt that there will be ample opportunities for our people to go back to the land and live there comfortably," declared Mr. D. S. Senanayake, Minister of Agriculture, at the inaugural meeting of the Ceylon Veterinary Association yesterday morning at the Municipal Veterinary Surgeon's Office in Maligakande.

A large number of veterinary surgeons from different parts of the Island were present, and Mr. W. A. de Silva, Minister of Health, the first Ceylonese to qualify as a veterinary surgeon, who presided, requested the members of the new association to investigate the problem of a wholesome and cheap milk supply for Ceylon as millions of rupees worth of milk and milk food were being imported annually at present.

Two Objects

Mr. W. A. de Silva, the Minister of Health, presided, and in opening the proceedings expressed his pleasure at the decision of the veterinary surgeons to form an association. He remembered the time when there was

only one qualified veterinary surgeon in Ceylon. They had now a fairly large number of them and it was their duty to do their best for the advancement of the science which they had been fortunate enough to study and to organise themselves into an association for two purposes. The first was the spread of knowledge regarding veterinary matters and the second, incidentally, was to look after the interests of the profession. They should however, refrain from trying to make their association a trade union. They should not expect legislation to be introduced to prevent anybody else from treating an animal. That was not done anywhere in the world.

Much work to do

Continuing, Mr. W. A. de Silva said that there was a great deal of work for a Veterinary Association to do. The Minister of Agriculture would be able to tell them that he had only a very few officers trained in animal husbandry and that it was not possible to organise a comprehensive scheme for promoting animal husbandry in Ceylon.

"Millions of rupees worth of milk and milk foods are imported into Ceylon annually," continued Mr. de Silva. "But we have pasture land and cows, and proper steps should be taken to have our own milk supply and to obtain facilities to have the milk transported. It is for the veterinary profession in conjunction with agricultural experts and instructors to investigate the problem. You have also to investigate the question of animal food. It is one of the most important matters that awaits attention in this Island. In olden times people had what might be called an instinctive knowledge, gained through the experience of ages, and their work will give you a clue to have some scientific data prepared so that those old ideas may be applied to advantage in modern times."

"Knavery and Quackery"

Mr. R. J. Little, Municipal Veterinary Surgeon, in proposing the formation of the Ceylon Veterinary Association, said that it was the desire of the Veterinary Surgeons to ask the State Council to pass a Bill for their registration in order to protect themselves and the public from knavery and quackery and to extend to them the privileges now enjoyed by other registered professional bodies. The veterinary profession could by its knowledge of prevention of disease among animals be the corner-stone of agriculture.

Mr. C. W. Pate seconded the resolution.

Producing More Milk

Mr. D. S. Senanayake, Minister of Agriculture, spoke of the benefits that the country could derive from such an association, and said that they were very fortunate in having as their Chairman that day the first Ceylonese Veterinary Surgeon, who was also the Minister of Health. A few days ago, said Mr. Senanayake, he visited a Health Show at Mirigama. The Health Officer had spoken eloquently of how to bring up healthy children and build a healthy nation. He had asked them to start by taking milk, continue to take milk and end by taking milk. He (Mr. Senanayake) agreed with what the Health Officer had stated but there would not be the milk to start with and continue unless they succeeded in their activities. For the Minister of Health to succeed in building a healthy nation he must go

back to his original love, the veterinary profession. His presence there was an indication of the lively interest he continued to take in it.

Agriculture and animal husbandry had to go hand in hand. However much they might try to improve agriculture unless animal husbandry was associated with it there could not be hope of success.

Mr. Senanayake, continuing said that he had full sympathy with the association that was being formed because of the great task that lay ahead of it. They should consider that they belonged to a profession that was going to uplift the people of the country. They were unfortunate in Ceylon in another direction also. Ceylon students with brilliant qualifications obtained abroad started their careers in Ceylon with hopes of doing something for their profession and something for the country.

Importance of Research

"But what happened?" asked Mr. Senanayake. "They are not encouraged to pursue their scientific studies. They never get an opportunity of doing any research. They are made to do routine work that a clerk would do, and we ask; 'What do these people do? They have got their qualifications but what have they done?' Few people realise that it is not the individual but the system that is to blame. What I would like you to do is to get together not only for the exchange of ideas but also to obtain facilities to advance the scientific side of your profession."

Mr. Senanayake, continuing, said that in the first place they had to husband the natural resources of the country and in the second they had to improve the livestock. When both were ready he had not the slightest doubt that there would be ample opportunity for the people to go back to the land and live comfortably. If they were able to give those people the land and build each family a small cottage and give them good cattle and poultry he was sure they would tackle the problem of unemployment and poverty.

Cattle Food

They had an idea that nothing in Ceylon was good enough for their people and animals to eat and they considered it necessary to import foodstuffs. Was it possible for them to import foodstuffs for their animals and make animal husbandry pay? His view was that they should take their food from the land in which they lived and make use of the waste products for the benefit of the animals.

The proposal to form an association was carried with acclamation and proceedings ended with a vote of thanks to the two Ministers proposed by Mr. L. A. P. Babapulle and seconded by the Mr. L. P. P. Goonetilleke.

Office Bearers:

The following Office bearers were elected:—

President: — Mr. R. J. Little.

Vice-Presidents: — Mr. Crawford and T. M. E. Mahamorthi.

Hony-Secretary: — Mr. Hector C. Perera.

Hony-Treasurer: — Mr. L. A. Paul Babapulle.

Ceylon Daily News. July 29 —'40.

LIVESTOCK AND AGRICULTURE

The Minister of Agriculture in his address at a meeting of veterinary surgeons emphasised the part they can play in serving better certain needs of the community which now happen to be rather neglected. As he said, it is necessary to look at these matters from a practical point of view and with a due regard to the conditions existing in Ceylon. There is in the Island a crusade for the consumption of more milk as one of the means by which a better and more healthy nation can be built up. That is, no doubt, an excellent object but the difficulties are manifold. That a very large quantity of imported tinned milk is consumed is the best proof that fresh milk is not available in Ceylon at a price which those who buy tinned milk can afford to pay. This state of affairs is undoubtedly attributable in part to the deterioration there has been in the stock of cattle in Ceylon. It is useless blaming the peasant for those who live on meagre incomes cannot be expected to feed their cattle on imported foodstuffs which they have not the means to procure. As the Minister of Agriculture pointed out it is necessary that there should be evolved a diet which is obtainable locally and will be within the means of the peasantry. Although there is pasture land available it is doubtful whether that alone is sufficient for the preservation of the stock. It should be remembered that not only the peasants but even those who are much better off than them will not interest themselves seriously in this work unless it is worth their while economically. It is necessary, therefore, that such questions as the distribution of milk and the obtaining of a fair price for producers should also be solved before the necessary interest in these activities can be stimulated. In India where similar conditions to those prevailing in Ceylon exist, the tackling of these problems has been seriously undertaken and good use has been made of the opportunities made available to scientists who are engaged in this work. In Ceylon unfortunately the facilities have not been provided until recently but we should be able to learn much from the results that have been obtained in India. In this way at least some of the handicaps experienced here might be overcome so that the development of animal husbandry on approved modern lines may give that fillip to agriculture which is so badly needed if this country is to make any substantial progress towards self-sufficiency in food production. There is no doubt that if cattle breeding is made a profitable occupation for the villager the rural economy of the Island would undergo a metamorphosis that spells prosperity not only for the peasant and cultivator but also for the whole population. A higher standard of livestock and a better appreciation of the benefits of fresh milk would prove of very great value to the country.

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