

of solids-not-fat present in genuine cows' milk. Then, as the processes for extracting the fat were further perfected, 9.2 and 9.0 per cent. were the minima successively adopted. Finally, the Milk Committee of the Society of Public Analysts, after analysing 283 samples of milk, between February 1884 and May 1885, recommended that no sample of milk should be passed as genuine, which contained less than 8.5 per cent. of non-fatty solids. Of the six Colombo samples only No. 1 fell decidedly below this limit; but unless a large number of analyses should prove this to have been a very exceptional case, I fear we cannot fix a minimum for Ceylon above 8 per cent., and it may possibly be even less."

These analyses are valuable to those who have any interest in the production and even the consumption of milk. "The only really safe and satisfactory manner of examining milk," says Dr. Wauclyn, in his treatise on *milk analyses*, "is by means of an analysis of it." This authority referring to the lactometer states:—"I am convinced that one of the most necessary steps to be taken in milk analysis is to abandon the use of the lactometer," and again with regard to another device for testing milk, "The creamometer is at best a treacherous guide." Since these remarks were written many other instruments for testing milk have been patented (*e.g.*, the Babcock milk tester,) but though these are improvements on the appliances which have been superseded, they do not give as accurate results as chemical analyses do. Mr. Cochran's published analyses are thus particularly valuable records.

We are glad to find that dairies under responsible managers are springing up in Colombo. There is no doubt that people (whether private householders or heads of such institutions as hospitals) will pay good prices for pure milk of good quality; and it is because this is so that we find new dairies being established, in which attention is given to good feeding and general management, and that these dairies are found to be remunerative when properly worked. The Colombo Dairy Company of Park Grounds, Bambalapitiya, have lately had their milk analysed by the city analyst, with the following results:—

Fat	6.25 per cent.	6.43 per cent.
Sugar and Casein	8.43	9.17
Salts	.82	.70
Total solids	15.50	16.30
Water	84.50	83.70
	100.00	100.00
Non-fatty solids	9.25	9.87

"The above results," says Mr. Cochran, "judged by English standards, indicate not only genuine milk, but milk of excellent quality."

#### NOTES ON THE CATTLE MURRAIN OF CEYLON.

In transmitting to us a copy of a pamphlet on Rinderpest or Cattle Plague, being one of a series published by the Civil Veterinary Department of India, the assistant to the Inspector-General of that department made a request that we should communicate to him any local ex-

perience of the fell disease as it occurred in Ceylon." In a previous number of the Magazine we gave a summary of the exhaustive contents of the pamphlet itself, which we subsequently submitted to Mr. Veterinary Surgeon William Smith, now of Belgravia Estate, as the best qualified person to annotate the pamphlet. Mr. Smith has given almost a lifetime's study to the subject of cattle plague in Ceylon, and having been a large stock-owner, has had abundant opportunity for making himself thoroughly acquainted with it in all its bearings. The notes which follow, though they were written as disconnected remarks on the pamphlet, are still of inestimable value, and will no doubt be much appreciated by the veterinary authorities of India. We owe Mr. Smith our best thanks for permitting us to reprint his notes in the pages of the *Agricultural Magazine*:—

#### NOTES ON RINDERPEST OR CATTLE PLAGUE BY MR. WILLIAM SMITH, M.R.C.V.S.

Ceylon herds, from the earliest records of the Island as a British Possession, have been ravaged by Rinderpest, of my own personal knowledge for 38 years. This disease was identified, for the first time, by the Ceylon Cattle Commission of 1868, as identical with the Rinderpest of Europe, and so named by them (*vide* Indian Cattle Commission Report). I believe and maintain that the disease is endemic, and liable to outbreaks whenever conditions, favourable to its development, are present. Being highly contagious it often assumes an epidemic form, after having been carried from a common centre and disseminated over large districts. I have been able in several instances to trace its origin, and have even predicted outbreaks which speedily followed when insanitary conditions have presented themselves to me where cattle congregated.

In my opinion the Rinderpest of this country has been a more fruitful cause of the poverty and misery we find prevailing among the agricultural population of Ceylon, than all the other vicissitudes incidental to their mode of life.

Rinderpest in an epidemic form is most highly contagious and infectious, most subtle and insidious in its transmissibility by any vehicle coming in contact with disease and brought sufficiently near healthy stock. An instance in my own experience:—I held a postmortem examination on an animal which had died of Rinderpest more than 100 miles from my house, had the clothes I was wearing at the time packed away in my dirty-clothes box, and reached home two weeks after, when my servant unpacked the dirty-clothes box, hanging the contents on a rope stretched between two poles. Some six cattle I had passed under the rope and clothes while going to water; and 12 days after all were dead of true Rinderpest. These cattle were near no other cattle, nor was the disease anywhere in the neighbourhood then or afterwards.

The earliest pathognomonic symptoms of this disease are the peculiar twitchings of muscles, conjointly with the involuntary pharyngeal spasms (simulating deglutition), which usher in each muscular tremor; these with the rough staring coat afford sufficient evidence, should desquamations of the epithelium have in the least degree set in. (Discharge of a watery nature

from eyes and nose follow in due time.) But long before this a skilled Veterinarian will have taken every known precaution to stamp out this disease ere it has reached the stage of giving off the emanations which render it so highly contagious, be the *vera causa* what it may.

The later symptoms of the disease, discharge from eyes and nose, with purging, are all so well-known and self-evident, as to require no comment. The characteristic fœtor of Rinderpest is so marked that no experienced person coming within its pervading area requires other means of forming a true diagnosis.

Had Great Britain not stamped the plague out, it would have remained permanent as other introduced diseases have done.

I am of opinion that no animal which has been in any way near others suffering from the disease (although not attacked) should be allowed near healthy stock. I have known several fresh outbreaks to arise from animals, to all appearance healthy, being taken from an infected district, and there setting up a centre of disease among others and still retaining their own immunity from attack. Thirty days is, in my experience, the shortest period after which to safely allow such animals to come in contact with herds of healthy animals, and that should be only after severe disinfection, the bodies being several times well washed with the best known disinfectants.

Heretofore, animals carried from one district to another (often cart cattle fleeing from the dreaded disease so much feared by the owners) have carried the disease along high roads even from province to province. This has been one of the most-prolific means of dissemination in Ceylon.

(To be continued.)

#### RAINFALL AT THE SCHOOL OF AGRICULTURE DURING AUGUST.

1	.. Nil	14	.. Nil	25	.. Nil
2	.. '02	15	.. Nil	26	.. Nil
3	.. '20	16	.. Nil	27	.. Nil
4	.. '43	18	.. Nil	28	.. Nil
5	.. '01	17	.. Nil	29	.. Nil
6	.. '19	18	.. Nil	30	.. Nil
7	.. '01	19	.. Nil	31	.. Nil
8	.. Nil	20	.. '05		
9	.. '30	21	.. Nil	Total	.. 1'37
10	.. '01	22	.. Nil		
11	.. '11	23	.. '03	Mean	.. '044
12	.. '01	24	.. Nil		

Greatest amount of rainfall in any 24 hours on the 4th instant, '43 inches.

Recorded by P. VAN DE BONA.

#### THE EFFECT OF FOOD ON MILCH COWS.

We referred a short time ago to the fact that experiments conducted in America and Europe pointed to the result that milk is but little affected by the richness or other quality of food. The result of the American investigations were received in Great Britain with scepticism, and several men of eminence in dairy matters de-

clared that if the American experiments were correct, their whole experience on the subject had been at fault. Numerous experiments were at once undertaken in England and Scotland to prove the correctness or otherwise of the American investigations. Notably, Mr. John Speir, well-known as a careful and accurate experimentalist, set himself the task of thoroughly enquiring into the matter, and in an address given by him at West Calder, entitled, "Intricate dairy problems," made public the results of his experiments and observations, which in general confirmed the findings of the American experimentalists. Mr. Speir found that when the cows were fed on a ration, including 8 lbs. of meal per day, they gave no richer milk than when they were fed on green maize. It should, however, be noted that liberal rich feeding has the effect of increasing the quantity of the milk, and, although not affecting the quality, it in that way compensates the liberal feeder, because, although the average quality is not increased, the larger quantity will necessarily contain more butter fat than the smaller quantity.

"This subject," says J. L. T. of the Hawkesbury Agricultural College, N. S. W. (where, by the way, the experiments conducted also tended to support the American results already referred to), "is of such importance to all dairymen, that it will be interesting to see what has been done in connection with this subject in Great Britain and America up to date." This writer then summarizes these investigations as follows (published in the *Adelaide Observer* of June 23rd):—

"That when a cow is in full milk and full flesh she will give her normal quantity of milk for at least a limited time, even although the quality and quantity of the food may be deficient.

"That when in good condition a cow will take off her body whatever is deficient in the food in order to give her normal quantity of milk.

"That an extra supply of nutritious food at all times increases the quantity of milk, but the percentage of fat is not in any way improved by it, if anything the tendency being rather the other way.

"That an extra supply of nutritious food almost invariably very slightly increases the solids not fat of the milk.

"That a ration poor in food ingredients has a very slight tendency to reduce the solids not fat of the milk, but has little appreciable effect on the fat.

"That with a poor ration a cow in full milk will lose carcase weight, while on a rich diet she will gain weight.

"That although the percentage of fat in a cow's milk may vary daily, we at present seem unable to control these variations or to account for them.

"That for limited periods up to one month or thereabout, all ordinary quantities and qualities of foods seem to have no material effect on the quality of the milk.

"That the only food which seems to have any material effect on the percentage of butter in the milk, is an excess of brewer's grains.

"That very succulent grass has had only a very trifling effect in altering the percentage of fat.

"That most foods convey some flavour to the butter, but scarcely any of them will alter its percentage in the milk.