

been lost through bleeding, which is quite unnecessary. One important point not to be forgotten is, that on the third day the opening in the scrotum *must be re-opened*, to allow the exit of deleterious matter, if any.

J. F. SOGA, M.R.C.V.S., Vet. Surgeon.

Peculiar Cases in Castration.

During a professional visit to Griqualand East, the owner of a plater valued at eighty guineas, approached me with a view to castrating his entire, *Mike* by name. On examining the entire I could find nothing wrong with him, and asked the owner why he wanted to emasculate, to my mind, such a good animal. With the usual adjective he stated that when running alone the beast was excellent in time; but when in company he ran for a quarter of a mile splendidly, then all of a sudden clapped up like a concertina. On thorough examination of his heart, lungs, eye, penis, &c., he was in perfect health. Acting on his owner's wish I consented to castrate. Carrying my instruments, we made for the farm. Having cast *Mike*, I operated on the near testicle first. Imagine my astonishment when I found that the testicle had been turned, the artery being behind instead of in front. No. 2 testicle, the off one, was then seized and the same phenomenon presented itself.

Twice (only) before has this abnormality come to my notice; once in Somerset East, and once in Bomvanaland.

On ruminating, I came to the conclusion that it must have been during the second descent of the testicles that the twist occurred, and during the intense excitement of the race (the animals themselves being at high pressure nerve point), sudden traction was placed by the *cremaster muscle* on the very sensitive tissue of the testicle, hence the sudden collapse.

We all know that at birth the foal's testicles are in the scrotum after the fourth month they retreat into the abdomen, and do not return into the scrotum till nine months, a year, or, perhaps, not at all. It is during this return that the twist must occur.

Have any of our Colonial farmers come across this reversed condition of the testicles?

J. F. SOGA, M.R.C.V.S.

THE DAIRY.

Milk.

A *Bulletin* published by the New Hampshire Agricultural Experiment Station in America gives some interesting information on milk and matters relating to dairying.

In this *Bulletin* is given important results obtained in the course of a series of experiments carried out with cows Jersey, Ayrshire, Holstein, and Shorthorn breeds, with the purpose of determining the relative importance of certain influences known to affect the quality and quantity of milk.

The points covered by this investigation are the influences of—(1) breed, (2) individual characteristics, (3) period of lactation—*i. e.*, the time since calving, (4) time of milking—morning and night, (5) frequency of milking, (6) changes due to changed food.

Character of Milk.—Viewed under the microscope milk appears as a fluid in which countless millions of little spherical fat globules float. These droplets are pure butter fat. These vary greatly in size, both in individuals and in breeds. Globules are found that are only one forty-thousandth of an inch in diameter, and others one-twenty-five hundredth of an inch. The fat of the Jersey milk averaged from 4.34 to 6.06 per cent.; Ayrshire from 3.81 to 4.55; Holstein 2.84 to 3.54; Shorthorn from 3.50 to 4.15. These results were obtained from the same feed. The facts of this experiment show that

one of the Jerseys tested would give a pound of butter from fifteen lbs. of milk, while another's milk would give only one pound of butter for twenty-one lbs. of milk. The truth here is made apparent—namely, that "breed and individual characteristics are the two great factors that determine the richness of milk.

Period of Lactation.—The same cow on the same kind of food will yield richer milk after ten months of milking than at the end of one month. A cow that gave milk containing 3.5 per cent. of fat in November and December, on the same kind of food, the May following, gave milk with 3.9 per cent.; in August on pasture feed 4.16 per cent.; and in September 4.23 per cent.

Morning's vs. Night's Milk.—In the case of three cows whose milk was analyzed night and morning daily for a full year the *morning's* milk was richer than the *night's* milk during the time that the cows were on pasture feed, but when the same cows were put into the barn the reverse was true—that is, the night's milk was the richer.

The difference between morning and night's milk is quite marked; thus, during June, July, and August a Jersey cow gave milk which averaged as follows:—

Morning's milk,	6.26 per cent.	} Average 6.01 per cent.
Night's milk,	5.75 per cent.	

Difference	0.51 per cent.	in favour of morning's milk.
The same cow during January, February, and March gave:		
Morning's milk,	5.81 per cent.	} Average, 6.05 per cent.
Night's milk,	6.30 per cent.	

Difference	0.49 per cent.	in favour of night's milk.
Other cows gave like results		not so marked.

Frequency of Milking.—This experiment was made with two cows, a Shorthorn and Jersey. At the time of the commencement of the experiment the Shorthorn cow was giving 14.25 pounds of milk daily, in which there was 3.89 per cent. of fat, or 0.554 pounds of actual fat daily. In twenty-four hours of hourly milking she produced 16.25 pounds of milk in which was 5.27 per cent. of fat, or of total fat 0.856 pounds an increase of 5.45 per cent. in the total fat in twenty-four hours.

The Jersey produced, previous to the experiment, 10.07 pounds, in which was 6.02 per cent. of fat, or 0.606 pounds. The test was for seventy-two hours: during the first day she gained 22½ per cent. of fat, during the second 4 per cent., and during the third 3½ per cent., a total gain for the period of ten per cent. of fat. The gain in the amount of milk during this time was practically nothing. Here we have another important variation in milk *not due to food*.

First and last (Strippings).—It is a familiar fact that the last milk drawn from the udder at a given milking is much richer than the first. In the case of the Shorthorn cow that was milked hourly, the first four ounces of milk, and the last four ounces of the next full milking after the experiment, were analysed for fat. The first milk held 1.36 per cent. of fat, and the last 8.04 per cent.

How Milk is Formed.—It is sufficient for us to know that blood goes to the udder, carrying those portions of the food which have been digested and absorbed. From this blood supply milk results.

Starting at the teat there is the opening through which the milk is drawn; following this upwards it leads to a more or less well-marked 'milk reservoir': this is not always found. Innumerable branches or milk ducts lead out from this, dividing and subdividing, until the whole gland substance is traversed by small tubes. Opening into these tubes are the true secreting parts: these are little sacks lined on the inside with cells, which are the true points where milk is formed. The fat globules, says Foster, can be seen to form in these lining cells, and are forced out into the cavity of the little sacks. It is believed that the constituents of the