

A STUDY IN TYPE.

SOME ANATOMICAL AND PHYSIOLOGICAL FEATURES OF THE DAIRY COW.

Intelligent and progressive farmers and dairymen are becoming more familiar with the fact that milk and butter producing qualities of cows are accompanied by a general vigor, conformation, temperament, fitness, bearing and other features that are quite characteristic, says a bulletin of the State experiment station. The accompanying figure shows the outline and general features of a profitable cow of the dairy type.

The general constitutional vigor of the cow is of primary importance, and of nearly as great importance are efficient digestive organs, large and well formed milk organs, strong heart and good blood circulation, large, strong lungs and a highly developed nervous system. For the accommodation of a large and efficient digestive apparatus a good dairy cow should have a long, deep and wide barrel, with well sprung ribs. This form of middle piece gives ample room for the storage of food and for an apparatus capable of disposing of large quantities of the coarse, bulky fodder which the cow consumes.

The milk organs are quite intimately concerned in the productive capacity of the cow, as it is in these that the milk and butter fat are finally elaborated from the food. It is not altogether clearly understood how the milk is made in the gland, but it seems quite probable that it is produced by the epithelial cells within the udder. So far as is known, the quantity of milk that can be produced depends in a large part upon the number and activity of

these cells. The number of such cells is limited by the size of the udder and the amount of fatty tissue it contains. The dairy cow should therefore have a large udder capacity—the larger the better—but the size of the udder should not be due to any large amount of fat or flesh. There should be an elasticity of the tissue, with a shrinkage of the udder when empty. The udder should have considerable surface, extending far forward and well up behind. It should be well balanced and symmetrical in shape, indicating good development in all quarters, for the more perfectly developed the organ is the larger the amount of milk it will be likely to yield. It should be spread considerably from side to side, while the teats should be even and squarely placed. To make room for such a capacious, well developed udder, the hind legs of the cow should be wide apart, the thighs should be thin and the flanks high arched.

The digestive tract prepares the food for assimilation into the tissues, the udder elaborates the milk, the heart forces the blood with its load of food and oxygen through the body, the lungs supply oxygen to the blood and remove from it the products of the oxidation which takes place in the body, but the brain and nerve system are concerned in all these operations. Through the influence of this system the activities of all the organs are aroused, guided, controlled and harmonized.

In the cow the heart and lungs are ever active. The digestion, absorption and assimilation of food, and perhaps the mysterious elaboration of milk, are constantly going on. Coller estimates that a cow giving an average quantity of milk produces, on an average, 128,000,000 fat globules per second during each 24 hours. This and the secretion of the other constituents of the milk illustrate the amount of activity in the milk organs alone and suggest the need of a highly developed nerve system. The more pronounced of the outward signs that indicate this nerve development are a bright, lively and prominent eye, this prominence causing a deep set eye; a wide forehead; a wide junction of the skull and spinal column, indicating a large brain; a large, prominent backbone, giving room for a well developed spinal cord; a long, slim tail, and considerable energy and vigor of action.

Process Butter. Here is a description of process butter: "This butter is made from old, rancid and useless dairy butter purchased from country store keepers in the states farther west and shipped in old barrels, tobacco tins, shoe boxes, etc., which appetizing mess is put through a process of boiling and renovating to remove the nauseating odors and through other treatments which have brought it under the ban of the pure food laws of several states, after which it is worked over in sweet buttermilk, which gives it temporarily a fairly clean flavor." See that this stuff is not worked off on you by your grocer. The "aven" woods are full of it.—**Your Press.**

OUR CHEESE INDUSTRY.

Foreigners Afraid to Buy on Account of Misrepresentations. A leading cheese exporter who is quoted in the Boston Transcript states that the total production of cheese in this country at the present time is figured at about 235,000,000 pounds annually and that we export about 10,000,000 pounds of this amount. He figures that the home consumption is about 200,000,000 pounds, including about 12,000,000 pounds of foreign cheese that is imported. If these figures are correct, our exports of cheese are very much larger than they were last year, which are given by the treasury bureau of statistics at 38,198,753 pounds for the fiscal year of 1909. Most likely the Boston exporter's figures are exaggerated, but it is probable that we shall show a considerable gain in our exports for this year. Since the "crude" cheese our cheese has recovered some of the reputation that it lost. There is a demand for further legislation to prevent the counterfeiting of well known brands of cheese in order to restore the prestige of these different makes. Congress is being urged to

BACTERIA IN MILK

HOW THEY ARE DEVELOPED BY TEMPERATURE AND SUBSEQUENT HANDLING.

Bacteria are minute plants, frequently not more than one twenty-five-thousandth of an inch in diameter and permeating air, water and soil everywhere, says Professor W. H. Conn in The American Agriculturist. The milk produced by a single cow contains 700,000,000,000 of these minute organisms. Their importance to agriculture consists in their power of breaking up various compounds and also secreting from their bodies certain chemical products. The milk commonly in milk may be called dairy bacteria. They are so common that they cannot be excluded from the milk by any practicable means, but their numbers may be reduced. There are many uncommon kinds of undesirable bacteria that may be excluded together by care and cleanliness.

So far as concerns the milkman, bacteria are an unmitigated nuisance, because the cause of souring and finally of the curdling of the milk. This change cannot be prevented, but it may be postponed by reducing the number of bacteria. The first means of reduction is by cleanliness, carefully washing the udder and teats with water and soap, and the clean condition of the cow. The second means is by regulation of temperature. When freshly drawn, milk is at about 100 degrees, a temperature favorable to rapid growth of dairy bacteria. Cooling the milk immediately checks their growth greatly. It is necessary, however, to emphasize the need of immediate cooling. Half an hour or an hour after milking the cooling will be of very much less value than if done at once. During this half hour the bacteria have already become very numerous. It sometimes happens that night's milk keeps better than that of the next morning because the night's milk was cooled at once, while sometimes the morning's milk is put into the cans at once and taken into the city without cooling. The two chief agencies to prevent souring are cleanliness and low temperature. The same means will prevent all the other bacterial growth which causes slimy milk, tainted milk and other peculiar conditions.

Milk from a healthy cow contains no bacteria, but by the time it has reached the milk pail it is already containing a surprising extent, containing from a few thousand to 150,000 germs to the cubic inch, sometimes more. These are obtained chiefly from the udder, the teats, the milk and its clothing, the milk pail, the cow. They are always floating in the air, especially if hay is fed during milking. They are likely to be on the hands of the milker to some extent, and his clothes are teeming with them. Milk pails not completely clean contain a large number, but the greatest source of milk bacteria is the cow. The germs get into the teats through the milk ducts and between one milking and the next multiply rapidly. The first milk taken from the gland washes these bacteria into the milk pail.

Cow Comfort. The man who at this season of the year provides some kind of shelter from the sun for his cows is going to receive a big interest on his investment, says Hoard's Dairyman. A cow that returns a profit from the feed she consumes must be comfortable, and comfort is not found where the animal is required to stand under a blazing sun or huddle for a few moments of relief from the heat of the sun. The next multiply rapidly. The first milk taken from the gland washes these bacteria into the milk pail.

Failure with Alfalfa. In some sections of the west where alfalfa could be easily grown it has not become popular because, the farmers say, it will not succeed on account of being choked out by weeds or of falling to give a good second cutting. From a study of the failures in growing this crop it seems that the method of growing is at fault, according to a writer in Farm and Fireside, who says: "As a general rule, the ground is well prepared in the spring, the seed sown at once and a good, promising stand obtained, but in the autumn what alfalfa there is hides among the foxtail and other weeds. Few or no plants appear the following spring, and the farmer after perhaps another trial or two gives up." If this method were abandoned for the following, there would probably be more fields planted to this crop: Prepare the land—five acres is a convenient area—a year or two previous to sowing by growing well tiller corn upon it. In the spring sow an early maturing crop, such as early planted soy beans or oats. Harrow the ground after this is off each two weeks until the autumn rains commence. Plowing will not be necessary unless the stubble is dense. This harrowing will improve the soil and kill several crops of weeds. After the ground has become wet sow the alfalfa. If it does not become wet, postpone seeding until the spring. The best method of seeding is to cross drill, the seed being mixed with an equal quantity of sand, bran or other substance, or the drill being set so as to sow only half the quantity at each operation. In this way half the seed is sown across the other half. As soon as the plants reach a height of six inches they should be mowed. This, if practiced two or three times, will kill weeds and help the alfalfa. It should be done, weeds or no weeds. Don't cut alfalfa as you would clover—after full bloom. Cut before the maximum bloom and for the first spring cutting even earlier. This will insure heavier late cuttings, let the soil settle and become moist, avoid late cuttings and avoid pasturing until the third year.

Cream Separators. Their Advantages For Farmers With a Few Cows. Cream separators were not thought much of until recently, says William Swan in The Prairie Farmer. Now their use is becoming widely spread over the entire west. Every farmer who has six or more cows is obliged to have a separator in order to get good results from dairying, either on a large or small scale. The time is coming and is near at hand when every farmer who has as few or many cows to milk will have a cream separator. Still there are any number of farmers yet who do not realize how much profit they are losing every day by not using a separator. They have heard other tell of their experience with a separator, but paid little attention only for the time being. One thing they object to is "paying such an exorbitant price" as they term it, for a separator, but they do not hesitate a moment at the price of any other piece of machinery used on the farm. The cream separator is used more than any other machine on the farm, you might say, as it is used twice a day 365 days in the year, and it brings in more dollars than any other machine. Of course

A FEW INTERESTING FACTS

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There are other machines that must go hand in hand with the separator. I wish I could impress upon the mind of the farmer who has not a cream separator this thought: that whatever you do wish to receive as great a compensation as you believe you have honestly earned. Now, you earn more than you really get for your milk at present. You must remedy that lack as quickly as possible for your own special benefit. I am not an agent for separators, as some may suppose, but would merely give some facts as regards them. The cream separator that will separate all of the cream and only the cream from the milk is the kind to buy. Here are a few benefits to be derived from the use of such a separator: First, you get the cream out of the milk immediately after milking, and thus you will only have to care for the cream; the skim milk can be fed in its sweet, warm state to the calves and pigs; second, the milk becomes clear of all particles of dirt when separated; third, the finest butter is made from the cream, and it will command the highest market price.

How Cream is Made. Notwithstanding the protests of the press and its friends in congress, the various formulas for making oleomargarine have been made public, and are at least interesting, says the Philadelphia North American. One of the processes for making the kind of butter that is sold in Pennsylvania as a dairy product is thus described by the "New York Times": "The process consists in first forming a soap emulsion of the fats or fatty acids with caustic soda; then precipitate the lye; then applying chlorinated alkaline lye or chlorinated gas to the soap emulsion; then filtering the 'advanced product of the farm'; then adding a certain amount of Bisulphate of lime, borax, salicylic acid, benzoic acid, orris root, cottonseed oil, bicarbonate of soda, glycerine, papayaic acid, alum, capaic acid, and other substances, which are mixed with the milk to curdle it. This change cannot be prevented, but it may be postponed by reducing the number of bacteria. The first means of reduction is by cleanliness, carefully washing the udder and teats with water and soap, and the clean condition of the cow. The second means is by regulation of temperature. When freshly drawn, milk is at about 100 degrees, a temperature favorable to rapid growth of dairy bacteria. Cooling the milk immediately checks their growth greatly. It is necessary, however, to emphasize the need of immediate cooling. Half an hour or an hour after milking the cooling will be of very much less value than if done at once. During this half hour the bacteria have already become very numerous. It sometimes happens that night's milk keeps better than that of the next morning because the night's milk was cooled at once, while sometimes the morning's milk is put into the cans at once and taken into the city without cooling. The two chief agencies to prevent souring are cleanliness and low temperature. The same means will prevent all the other bacterial growth which causes slimy milk, tainted milk and other peculiar conditions.

Skim Milk as an Insect Destroyer. It may not be generally known that skim milk or buttermilk readily mixes with kerosene and forms a mixture which destroys insects without the danger of injury to animals or plants on which they might be that might result from the use of the pure oil or of oil and kerosene. We first learned of this from using this mixture for the scale insect, or mite, which causes scaly legs on fowl. We found that one or two dippings or washings with it would cure the worst cases of scaly legs and that the fowl would be perfectly hatched. We never had occasion to try it for lousy animals, for we never had one, but we do not hesitate to recommend it, and we have lately seen its use advised for ticks on sheep, using a gallon of kerosene to one gallon of milk. We did not make our mixture so strong of kerosene as that, but perhaps the larger tick may need a stronger application than an insect so small as to be scarcely visible to the naked eye.—**American Cultivator.**

Cow's Taste in Music. I am not an agriculturist, but for ten years I lived with an uncle who kept cows. We had several changes of cows and milkmaids during that period. It was noticed that certain milkmaids could draw more milk than others. Our most characteristic cow was Trixie, so named on account of her and bearing, and it required the most touching of border songs to prevail upon her to give a decent supply of milk. The old woman who generally milked her always wound up with "The Land of the Lilies" to a good effect. The result of the milking process, a new hand once tackled Trieste with sea songs, with dire consequences. Another cow was called the Evangelist on account of her intense hatred for psalm tunes and sancty hymns. She, strange to say, preferred rollicking tunes.—**London Chronicle.**

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| 9:00 p. m. | Portland | Portland |
| 9:15 p. m. | Portland | Portland |
| 9:30 p. m. | Portland | Portland |
| 9:45 p. m. | Portland | Portland |