

greatest importance to know all the strains. Should no record of their pedigree be kept, you cannot know the strains.

The fact that an animal is entered in the Ayrshire Herdbook makes that animal no better nor no worse. An animal should not be bought merely because it has a properly-recorded pedigree. Examine that pedigree, and if you there find two or three strains you know to have been good doers, count value on that pedigree. If, on the other hand, you find two or three strains you know to have been bad doers, have nothing to do with that animal. In that case, the animal is the worse of having her pedigree recorded. To anyone who has not been following up or studying the different strains, pedigrees can be of no use, further than showing that the animal is pure-bred as far back as the pedigree goes. It does not give any idea of what sort of an animal he is likely to get, further than that the prizes will be recorded, should she have won any. It is his own lookout to enquire into and learn what sort of blood he has there. In that case, in making a selection, some breeder or fancier should be employed who has been studying the different strains, or who, at least, will be in a position to find out whether it be good or bad blood. The greater the number of crosses of good blood you have in an animal, the greater tendency will that animal have to leave good offspring.

In showing in this country there are two classes, namely, those shown as one and two year olds (termed yeld stock), and those shown as cows in milk. Seldom does an animal which can win as a yearling and two-year-old take a prize as a cow in milk.

In judging cows in milk in this country, far too little attention is paid to the size and general appearance of the animal, and the size of its teats. In very many cases a good big, useful dairy cow, with good-sized teats, a fair milk vessel and like giving a good quantity, is beaten by a small, plain cow, having a very neat, tight vessel, not very large teats, and not very milky looking. In that respect, the Canadians are ahead of us in judging cows. They seem to go in more for what we call the yeld stock strain, and without doubt these are the more profitable animals in every respect.

Many people count a good deal on the color of the animal, but that is only a matter of taste. The most fashionable color now is white, with distinct dark-brown markings. They take the eye more readily, and look prettier when washed clean. For many foreign countries, brown and white of a distinct fleck is the color wanted.

The feeding and management of the cow is also a very important part in successful breeding, but in this short article I have not space to take it up. ADAM W. MONTGOMIRIE.

Ayrshire, Scotland.

### Water Content of Butter.

The Butter Act passed at the last session of Parliament stipulates that the percentage of water in Canadian butter shall not be higher than sixteen per cent. To determine what factors really affect the water content of butter, the Dairy and Chemical Departments of the Experimental Farm have been experimenting for several months. As a result, considerable interesting data have been secured, which indicate that to no inconsiderable extent is the percentage of water under the control of the maker. Several series of experiments were conducted, and the results are here given under several heads.

1. TEMPERATURE.—(1) It was found that the higher the temperature, within reasonable limits, the higher the water content. (2) A high temperature of wash water tends to a high moisture content, and vice versa, and the difference of temperature of wash water has a greater effect on the butter churned at a high temperature. (3) The effect of a high churning temperature cannot be sufficiently corrected by a wash water of low temperature to reduce the moisture content to a safe percentage.

2. DEGREE OF CHURNING.—Several churnings were made to the size of clover, several to the size of corn, and several to the size of walnuts, and the average percentages were, respectively, 13.59, 14.75, and 20.33. Thus showing that the larger the granules, the more water in the butter.

3. DRIPPING.—The length of time the butter is allowed to drip after washing apparently has no effect on its moisture content.

4. SALTING AND WORKING.—A light salting—one-half ounce per pound of butter—as compared with heavy salting—one ounce per pound—gives a butter with rather less water when worked two hours after salting, but when twenty-four hours elapsed between salting and working there is no perceptible difference. In all the experiments, the percentage of moisture is considerably decreased by salting before working after salting. Several samples salted at once, and worked after twenty-four hours, were somewhat drier than others

slightly worked, and then, after twenty-four hours, salted and worked.

These results are directly in line with those obtained by Rosendorf in Sweden. It might be well to suggest that it is advisable for makers of butter to come as near the sixteen per cent. of water as is consistent with safety under the law, for not only does a butter of this per cent. moisture work and spread more readily, but also yields considerably more than one with two or three per cent. less water. The object of inserting in the Butter Act the clause relating to the per cent. of water was to safeguard our growing export trade in butter, as there had been, in the past, considerable complaint of over sixteen per cent. of water in Canadian butter, and to handle such butter is, in Great Britain, a criminal offence.

### Marketing Butter.

Those who possess the knack of making butter that has that fragrant flavor that distinguishes the product of many farm dairies, often make the mistake of keeping the butter on hand too long after it is made before marketing it. It will be found that however palatable it may be, and however good the flavor it possesses when first made, it will have escaped after too long keeping. Even when transported long distances it loses its distinctiveness while in transit. In fact, it seems that butter which possesses to a large degree this much-desired flavor deteriorates much quicker than that of an inferior kind. As a consequence of this, the farmer's wife who makes a superior article which has a local reputation for excellence should endeavor to dispose of the product to local trade, or, at least, sell it so near home that it will not be but a day or two between the churn and the consumer. This can be easily managed in almost any locality where there is a market for it by securing a list of private customers and furnish it to them direct as they need it. This class of patrons is much more profitable year in and year out than the city hotels or the commission houses or those consumers who buy in the general market.—[Drovers' Journal.]

### Milking Cows by Electricity.

The "World's Work," London, in an article descriptive of scientific farming in France, says: "One has often heard of reaping and chopping dairy food by electric motors, but the latest story, which comes from France, shows that the motor has taken the place of the rosy-cheeked dairymaid herself, and actually draws the milk from the cow's udders in what seems to be a manner perfectly satisfactory to the cow, and certainly more cleanly and more efficient for the dairymaid."

The beauties of rural France pale in significance beside the intricacies and surprises of modern invention installed amongst them. In the cowhouses, with between one and two hundred inmates, consisting of Jersey, Brittany and Normandy breeds, straw, for instance, the immemorial accompaniment of dairy farms, is conspicuous by its absence. The cows sleep on dry sand, this being considered, both from hygienic and economical points of view, preferable to vegetable litter. Each stall, with stone feeding and drinking troughs in front, has a sloping floor with drains, so that it is always kept clean. But all this, interesting as it is, cannot compare with the sight of cows being actually milked by electricity. The apparatus is known as the Lawrence-Kennedy cow-milker, and is said to be the only one in existence worked by electricity. It is designed to imitate the sucking of a calf, and is operated by an ordinary vacuum pump, driven by any motive power. This power is distributed to the stalls by a range of pipes running through the stable above the cows and descending between each alternate cow into a pulsator on the top of the cone-shaped tail, from which branches out a tube on each side carrying four cups for attachment to the teats of the animal. When the vacuum cock is turned on, the pulsator commences to work, causing the rubber caps to collapse and expand. The number of pulsations to the minute, as well as the strength of each pulsation, can be regulated to a nicety by means of adjusting screws, which allow of the apparatus being adapted to the characteristics of each cow. The milk on its way from the teats to the pail can be seen passing through a glass tap, protected by a wire cage. As soon as the flow of milk ceases, the vacuum tap is turned off, but the cups remain on the teats until they are taken off to be put on another cow, so that during the whole operation the milk is not for a moment exposed to the air. Not only is the milk absolutely protected from the impurities of the air and contact with the hands of the employees, but trials have always shown the yield to be greater than when cows are milked by hand, and the milk is said to keep fresh for a much longer time.

In response to a question as to whether the animals objected to this novel method, the manager of the farm said: "At first it was doubted whether any mechanical system could be safely applied to Jersey cows, which are notoriously of a highly sensitive character, but we have never had any trouble, and they are not only perfectly amenable to this mechanical treatment, but actually take no notice of the apparatus, and continue to feed with less concern than when milked in the ordinary way."

### Thermographs for Creameries.

A thermograph is a recording thermometer, which can be locked up and left to give the actual temperature at any moment during a period of two weeks or less. It would pay every creamery to have one of these instruments. If the owner of any creamery would like to have a thermograph placed in his refrigerator for a week or so next summer, he should apply to Mr. J. A. Ruddick, Chief of the Dairy Division, Ottawa, who has been authorized to comply with such requests as far as possible. Creamery owners should give the matter of temperature in their refrigerators very close attention, and patrons should see that such things are attended to. They have a direct interest in the matter, as the butter belongs to them. Where a thermograph is not available, it is possible for a person to obtain a fairly accurate average temperature by inserting an ordinary dairy thermometer a few inches into a box of butter which has been in a room at least three or four days.

W. A. CLEMONS.

A new volume, recently published under the direction of Mr. F. D. Coburn, Secretary of the Kansas State Board of Agriculture, is devoted to the subject of dairying, and it is one of the best of an excellent series. Although dealing partly with the requirements of Kansas, the matter is of general interest, and covers the ground in an admirable way. The book is divided into three parts: The first, Kansas Dairy Farming; the second, Dairy Improvement; the third, the Creamery Industry. There is a wonderful collection of original and selected articles, and the volume contains much information on the subject. It is profusely illustrated with typical specimens of the various breeds, and will be perused with interest by all connected with the dairy. The motto is as follows: "What a wonderful thing is milk! Born of the mother-love, it nourishes the young of all warm-blooded creatures, whose term of life would quickly end were it wanting. From the lowest mammal to noble man, milk is for all the flesh-builder, the nerve power, the very essence of life. It is the one product all indispensable, universal." There are 288 pages in this report, and on its collection and arrangement Mr. Coburn is to be congratulated. The book is published by the Kansas State Board of Agriculture, Mr. F. D. Coburn, Secretary, Topeka, Kansas.

### APIARY.

#### Swarming.

(Reported from Syracuse Beekeepers' convention, by Morley Pettit.)

At a Beekeepers' convention, held in Syracuse, N.Y., Jan. 14th and 15th, Mr. N. D. West, one of New York's efficient foul-brood inspectors, described his method of controlling swarming.

At his first visit to the yard in the swarming season, Mr. West removes, and, unless very choice, destroys the queens of all those preparing to swarm. At the next visit, nine or ten days later, he breaks down all the cells in all except his choice colonies. From these the cells are saved, and put in other hives, 15 or 16 in a hive, protected by West cell cages. Again, in four or five days, when the colonies are hopelessly queenless, they are given the virgin queens, which will be found in the cell cages. At this time, if the brood-chamber is not full of brood, combs of brood are taken from other hives which are preparing to swarm. To introduce the virgin queens, drop them first into a cup of honey, until they are thoroughly daubed, then put one in each hive, and in nineteen cases out of twenty they are accepted without further trouble.

This method effectually stops swarming without increase, and at the same time gives every hive a young queen. The brood is all hatched out by the time the queen begins to lay, and when she does begin the loose honey which has been stored in the brood-chamber is crowded up into the sections, which causes them to be well-finished at the last.

#### THE PRICE OF HONEY.

Mr. Bettsinger, one of the oldest and most successful beekeepers in New York State, told how he, as Moderator of his Association, was able to largely control the price of honey in Syracuse. He would watch the whole season to keep track of the amount of honey likely to be put on the market, then go to the retail grocers and tell them what the retail price should be. They had learned to know and have confidence in him. The greatest fault he had to find was with beekeepers who put their honey on the market in bad shape. The firm he was now selling his own honey to wanted 100,000 pounds good comb honey. They did not want any of the poorer grades.

To get good comb honey you must only put sections on those that are strong. Run the weak ones for extracted honey. To prevent travel-stain, everything about the hive must be new and clean, new combs in the brood-chamber, and separators not over two or three years old.

With reference to size of section, the 100,000