

been anything wrong with the milk, I have generally found that it could be cured by aeration in pure atmosphere. Even after what has been said, I should be inclined to think that aeration should be encouraged; that is, where the conditions are favorable. There can be no doubt, of course, that aerating milk in a bad atmosphere is injurious. But until it can be shown that we cannot have the milk aerated under good conditions, I would cling to aeration a little longer.—[Report Conference Dairy Instructors and Experts.

Imported Holsteins.

Mr. F. S. Peer, who has recently imported some Holstein cattle for an American breeder direct from Holland, personally selected by him, in a letter to the Country Gentleman of recent date says:

It will naturally be asked in what respect are the native Dutch cattle superior to American-bred animals? Wherein are the Dutch breeders superior to American breeders? What makes it desirable to go there for animals to improve the American herds? Certainly there cannot be found in Holland any such milk and butter records as in America. The best breeders of Dutch cattle in Holland are more particular as to conformation. American Holstein breeders, as in the case of Jerseys, Guernseys and Ayrshires, have been too much carried away with performance. A worthless or even a degenerate bull as to conformation, if out of a great producer, has brought a high price, while a bull nearly perfect in conformation has gone to the butcher for the want of phenomenal record in his dam.

Americans, as a rule, want a cow for what she can do. "Handsome is that handsome does," but when this class of breeders come into the show-ring, they generally cut a poor figure there. "Handsome is that perfect is." Production is principally the result of good feeding; style, symmetry and beauty are the result of good breeding. Anyone can shovel grain into a cow up to her capacity. That's a good feeder. A man may be a great success as a feeder, and a perfect failure as a breeder. The art and science of feeding is one thing, and in this many Americans have succeeded. The art and science of breeding is another question altogether. American cattle-breeders, as a rule, have succeeded better at the former than at the latter. While some of the Dutch breeders have also been led astray by breeding principally for production, there are a good many all-round breeders—men who will not sacrifice everything for production. The greatest perfection in conformation is not, as many suppose, antagonistic to the greatest production, and no man can claim the distinction of being a first-class breeder who does not go in as much for breeding for conformation as for production. Anyone with feed can succeed at the latter; but it takes a genuine breeder to turn out year after year animals more perfect, more symmetrical in conformation. This, after all, constitutes a first-class breeder.

Pasteurized-cream Butter.

J. H. Anderson, New York.—My experience in making pasteurized-cream butter has all been gained in Denmark, and as I have not made any in this country, I can only describe the method I used there. The milk is examined very carefully, and any tainted and off-flavored milk is rejected. The factory and all apparatus is kept very clean. The milk is heated in the tempering vat to 85 degrees, and the cream is run from the separators into the cream elevator, and elevated by same so as to run in a continuous pasteurizer in which the cream is heated to 185 to 190 degrees F., and as the cream leaves the pasteurizer it runs over a cooler and is cooled at once to the ripening temperature, 65 to 70 degrees, according to the season of the year. From the cream cooler the cream flows into the cream vat, and as soon as about 20 gallons of cream is in the vat, 10 to 15 per cent. of pure culture starter is added to the cream, and thoroughly stirred several times, while we are separating, as well as during the afternoon, and as soon as the cream has developed about .36 per cent acid, it is at once cooled to 54 degrees, and enough ice water around the vat as to lower the temperature 2 to 3 degrees during the night. Butter is churned, washed, worked, salted and packed with care. Cleanliness, good milk, pasteurizing and pure cultures are necessary in order to turn out first-class butter, uniform, and with keeping qualities.—[N. Y. Produce Review.

Best in Existence.

I am very much pleased with the "Advocate," and think the change to a weekly has made it even more popular. I believe it to be the best agricultural paper for the price in existence.

Elgin Co., Ont.

FRED E. DUNN.

Moisture in Butter.

A great deal has been said during recent years concerning the amount of moisture contained in butter. Butter has been criticized by commercial judges for containing too much moisture, when a chemical analysis showed only a low percentage of water, and, on the other hand, much butter apparently dry contained much moisture. It has also been noticeable that the amount of butter which different creameries are capable of making from a given amount of fat has varied considerably. In order to throw some light upon these problems, Prof. McKay, of Iowa Agr. College, has conducted a series of investigations, the results of which, as issued in a bulletin, are summarized herewith, and conclusions given.

Many people think the less moisture there is in butter the better. The best judges, however, demand a certain amount, properly incorporated into the body of the butter, so that there is no appearance of leakiness. In Germany and England, 16 per cent. of moisture has been set as the maximum standard, more than that being considered deleterious to the quality of the butter. Danish butter, which is recognized as the best in the world, contains, on an average, nearly 15 per cent. moisture.

A casual examination, however, is not sufficient to enable the majority of people to decide whether butter contains too much or too little water. The only way to test whether the dry appearance in any sample of butter is due to too much or too little moisture, is to test it with a butter-trier in a rather warm room. The overworked butter will stick, but will not roll on the trier, while that containing too much water will shrivel and roll on both sides of it. This peculiarity will not show

been reached: (1) When the cream is thick and churned at too high a temperature, too much water is incorporated. (2) By churning at a high temperature and washing with cold water, much moisture will be incorporated, provided it is not cooled to such an extent that the granules become hard. Such treatment will impart a tallowy color to the butter. (3) By churning cold and washing with warm wash water, the butter will also absorb and hold moisture. Churning at high temperature and washing cold, and churning at low temperature and washing warm, are two conditions which must be guarded against. (4) By excessive churning in wash water, the butter will absorb and hold as much as 46 per cent. of water. Excessive churning in either buttermilk or water is to be condemned. The churn should be stopped when the granules of butter are still small, and the moisture content controlled by churning a trifle more in the wash water at the proper temperature.

The temperature of the wash water should be regulated according to the degree of hardness or softness of the butter. The water should not be so cold as to cause the small granules to become hard and stay apart. In such a condition the butter is likely to expel too much moisture when worked. The amount of water to use is also of importance. The less water that can be used and still obtain efficient washing, the better the butter is. If a large amount of water is used in the churn it is difficult to gather the granules; besides, a large amount of churning in a great deal of wash water is unfavorable to the flavor of the butter.

In order to retain the moisture in butter, and to incorporate it properly, it is necessary that the

butter is not in the hard, round, granular shape when the salt is added. The butter granules must not be churned together to such an extent as to cause massive butter lumps to appear throughout before the salt is added, but the small, somewhat irregular granules should be united into larger lumps, so that when the mass of butter is opened with a ladle the granules can still be distinguished as individuals. At this stage it is in the proper condition for salting, and the butter should be worked immediately after the salt is added. It has been the general practice in the past to add

the salt to butter while it was still in granular form, then revolve the churn a few times. This method has a tendency to produce leaky butter. If the butter is gathered a little more before the salt is added, it will retain moisture in better shape. It is necessary, however, to start the workers immediately after the salt has been added. When butter is gathered before the salt is added it is well to leave out the drain plug in the churn.

The Dip to Use.

At recent meetings of Western stockmen held to discuss the question of mange, Dr. Rutherford, Toronto, stated that the Dept. of Agr. did not intend to be arbitrary as to the dip to be used; and it was also suggested, we believe, by the same official, that steers to be exported previous to the dipping season, be sprayed with a 15% solution of creolin. Creolin is too expensive for general use, but excellent substitutes can be obtained, which cost less money, and some of which are closely allied to creolin, being coal tar products. We allude to such preparations as Chloro-Naphtholeum, Zenoleum, Little's dip and wash preparation, also Cooper's dip, all of which have been largely used for dipping animals. We have used some of these preparations when dipping sheep and swine, and in treating cattle for vermin, with satisfactory results, and have also given the two first-mentioned internally for worms in live stock. Such preparations as those mentioned are convenient to use, and are comparatively cheap, and are handy to have around as disinfectants available for many purposes. They have been in use by leading stockmen for many years, and have stood the test most satisfactorily.



Babyhood on the Farm.

noticeably unless there is more than 18 per cent. of moisture present.

The leaky condition of butter is brought about chiefly by churning the butter to small granules, washing it very little in cold water, and salting heavily while the granules are still small and firm. The salt added to the butter in this state seems to cause the small drops of water to run together into larger ones, which, during the working, become caught in pockets or crevices of the butter. The dull and dry appearance of other samples may be due: (1) To the presence of an excess of well-incorporated moisture, which has been taken into the butter by excessive churning in the buttermilk or in the wash water; or, (2) it may be due to churning at a very high temperature, or to being overworked, in which case it will contain very little moisture.

Experiments in regard to temperature tended to show that, although the moisture content of butter churned at a high temperature is not very much greater than that of butter churned at a lower temperature if the process is stopped at the right time, yet it is difficult to stop the churning early enough to avoid over-churning. Very little over-churning, when the butter is in such a soft condition, will induce butter to take up moisture very rapidly. As a rule, the larger the granules and the softer the butter the more moisture it will contain, sometimes as much as 30 to 40 per cent. Such butter is very poor; the buttermilk cannot be washed away from it, consequently it is likely to turn sour in a short time. The proper temperature is about 56 degrees F., or a trifle higher in winter. At this temperature the degree of hardness resulting is most favorable, permitting the salt to dissolve quickly and become evenly distributed.

The following are the conclusions which have