

oxygenized. No practical benefit is obtained by using cream quite sweet, as the increased labour required in churning far more than counterbalances any slight advantage which butter so made may derive for the purpose of keeping. If proper care is taken in "making up" the butter formed from cream slightly acidulent at the time of churning, it will maintain its freshness equal to that made from fresh cream; and at the same time avoiding the risk of overchurning, which will always be much greater in churning fresh than sour cream. For churning milk and cream the barrel churn is wholly inadequate, the upright churn, or one with revolving dashers, being requisite in order to sufficiently oxygenize the milk, for which purpose this form of churn is well adapted, as there always remain sufficient openings to admit the atmosphere; whereas barrel churns, are hermetically sealed during the act of churning, the operation having to be stopped occasionally for the purpose of opening a vent-hole, which is occasionally done to allow the escape of the gas evolved during the "breaking" of the cream.

The American churn varies only from the ordinary square churns with revolving dashers, in the circumstance that, instead of the dashers being open, the back of the dasher is a flat piece, without any perforation, having raised edges and four transverse pieces, dividing it somewhat similar to the shelves of a book case. When the dasher is turned round, the nests formed as described convey and force into the milk or cream a quantity of the atmosphere equivalent to the cubic contents of the hollow space, which will remain in the interstices alluded to, when their edges comes in contact with the fluid; in order, therefore, to produce the greatest action, the fluid ought to be on a level with the edges of those interstices; this will occur when the latter are in a perfectly horizontal position. This form of churn is the best for churning sweet cream, and will undoubtedly produce the butter from milk and cream, in any form, in much less time than any churn that has yet been introduced; but for working large masses of fluid, the labour would be excessively heavy, and in large dairies, where milk and cream are churned together, steam or other power would be required; it also remains to be yet tested on a large working scale, whether the butter will prove as good as that churned by the ordinary methods. Mr. Robinson, of Lisburn, has for some time introduced a churn from France, which is very neat and simple, and well adapted to gather the butter, having a grating for the purpose, to which also heating or cooling appliances can easily be adapted as the season or case may require.

Churning should be regulated by a thermometer, cold water being applied in summer, and warm water in winter, to obtain the proper temperature, particulars of which have already been given. When the butter is made from cream alone, early, in the morning (about 4 o'clock) is the best period of the day for the purpose. When a change is heard in the sound of the churn, and an equal resistance is felt against the dash-

ers, the butter may be expected to form very shortly.

After the butter is taken from the churn it must be well squeezed or "worked" by the hand, and all the water that possibly can be, should be pressed out, it being for this purpose kneaded, washed, and rolled out several times with clean cold water, and the last time a little salt should be kneaded into the mass, which will have the effect of causing the greater part of the remaining caseous matter to exude when subsequently washed in cold water, salt appearing to have the property of dissolving casein, as it does the albumen of bones, in pickled meats; the whole secret of Dutch butter-making consists in this circumstance. If intended for very long keeping, a small quantity of saltpetre may be added, which will prevent, in a great measure, the tendency of any remaining caseous matter entering into the putrefactive state—the cause of rancidity—the difference in quality between salt used in England and Holland having nothing to do with the superior keeping quality of the latter. If properly made, half an ounce of salt to 1 lb of butter is sufficient if intended for keeping; and $\frac{1}{4}$ oz. of salt to the lb. if intended for immediate use. The circumstances connected with the formation of butter from clouted or scalded cream have already been sufficiently detailed; for immediate use the quality is not equal to that formed by ordinary methods, and for keeping is wholly inadmissible; the superior weight obtained is attributable to the quantity of casein and coagulated albumen, mechanically mixed with the butter, which it is impossible to eradicate by any subsequent means.

It may be important occasionally to know that a little saltpetre dissolved in warm water, and mixed with the cream taken from milk with a turnippy flavour, entirely eradicates it in the course of churning.

A fictitious colour can be given to butter by the use of annatto, or the scrapings of the red part of carrots; but neither will give the appearance of fine grass butter. All such practices are to be deprecated; the latter described mode, however, is the preferable one, in case artificial colouring is considered desirable.

A SUBSOIL COMPANION PLOUGH.

The Oxford Journal, in speaking of the Stow-on-the-Wold and Chipping Norton Agricultural Society, England, says:—

"As soon as the ploughing was over, the company congregated to witness the trial of a subsoil companion plough, manufactured and patented by Mr. Gillet of Brailles. This plough is so constructed that it combines all the features of an ordinary plough with the addition of a subsoil plough, which may be used at the same time, or detached or suspended if necessary. The combination of these advantages naturally excited considerable interest as to whether the implement could fulfil what was said and expected of it, and its trial was looked on with great anxiety. The land selected for the trial was by no means adapted for it, because it was light and rocky,