

the milk not sufficiently warm to come readily, a can is filled with hot water, and this is placed in the milk in the churn, and stirred about till it reaches a temperature of 55 to 60 degrees." Water-power is preferred for churning to any other, as it is more regular. "When the butter has come, the power is stopped, and a pump rigged into the churn; the handle of which is attached to the power, and the buttermilk pumped into a reservoir just outside of the cellar, standing on a level with the ground: from thence the buttermilk is conducted by a tin pipe of about 100 feet to another reservoir close by the piggery, from which it is dipped out in buckets, and fed to the pigs. After being churned, the butter is thoroughly washed off with cold water; if this be not done, it is difficult to get the buttermilk clean out of it. As soon as cool and solid, the butter is taken on a marble or smooth stone table, properly salted with clean fine salt, and worked over thoroughly with a wooden ladle or spatula—the hand never allowed to touch the butter, as, from its heat, it softens it." After being thoroughly worked, the butter is packed in firkins of seasoned white oak. The firkin, previous to packing, is well washed with cold water, and then rubbed all round with salt, to prevent the butter from adhering to its sides. It is put down in layers as churned, 3 or 4 inches deep.

When the firkin is filled, a linen cloth is placed over the butter; on this, half an inch of salt; to which is added a little water, to form a brine. The cellar is considered very important; it should be seven feet deep—eighteen inches of which, at the top, should be allowed for ventilation; the windows to be covered with very fine wire gauze, to let in the air and keep out the insects; the walls to be of stone and pointed, the floor of slabs.

The best temperature at which butter may be procured from cream, as appears by the experiments of Dr. Barclay and Mr. Allen, is in commencing churning from fifty to fifty-five degrees, and at no time ought it to exceed sixty-five degrees; while if it falls below fifty degrees, it will be more difficult and labourous to obtain the butter. It was found by Mr. Ballantyne that the greatest quantity of butter is obtained at sixty, and the best quality at fifty-five degrees in the churn, just before it came. A mode of working butter is said to be practised in some parts of France, which makes it exceedingly compact and hard. A trough is prepared of requisite width. Into it is placed a wheel, which comes within the sixteenth of an inch of the bottom, and turning on a crank. The space in the trough is filled. At one end, which is left open, the butter and brine are pressed in; the other end, being nearly closed, the wheel made to revolve, and the butter comes out at the other, thoroughly salted, and free from buttermilk, in plates of the sixteenth of an inch in thickness. Great importance is attached to the kind of salt used in preparing butter for the market. Some of the kinds of salt have an injurious influence on the butter, to prevent its keeping.

It has been discovered that most kinds of wood contain considerable quantities of pyroligneous acid, which decomposes salt in butter kept in such tubs. The linden, or bass wood, is the only one which, as appears by careful experiment, is free from it; others, it is stated, may be freed from it, and thus rendered suitable, by boiling three or four hours, well pressed under water. Much importance has always been attached to the preparing of butter, so that it will keep on board of ships at sea and in warm climates. A simple process is now practised, which is said to be effectual for this purpose; which is, to have good butter well churned, and worked and packed hard and tight in kegs of seasoned white oak; the head is then put in, leaving a small hole into which brine is poured to fill up the vacant space; and of so much importance is it deemed, to prevent any bad taste, that the plugs for the hole must not be made of cedar or pine, but of cypress or bass wood, as otherwise it would be injurious. After which, these kegs are placed in a hogshead well filled with brine of full solution, that will bear an egg, which is then headed up tight and close. The importance

of this subject may be estimated from the fact that, as it appears, the standing contracts for butter, in our navy, that will keep at sea, at twenty-six cents per pound, and for cheese twenty cents per pound. It is now put up of good dairies in Orange county, and keeps perfectly. An account of a mode of preparing butter for shipping, by a merchant in one of the cities of New England, corroborating the above, may be found in appendix No. 19.

In the making of the best butter, rich pastures are considered very desirable. A sufficient diversity of grasses mixed together, is useful, but there are some weeds which do great injury to the milk. The species of ranunculus known by the name of the *Buttercup* is said to have effected great injury to the butter in parts of England. An epidemic has also prevailed among cattle in England, which has been traced to the same cause. It is said to be now spreading through this country. The plant is described as being of an acrid poisonous nature, and, by various experiments, it has been proved to be very fatal to animals; cattle will generally avoid it, but they sometimes do not. Those which are confined to limited pastures, are more exposed to it; while those which have a wider range, and can make their choice of plants, suffer less. Greater care should be taken to eradicate it from the fields; and by the use of lime among the materials of compost, and frequent turning over the seeds, which are sometimes thus carried forth into the fields with the manure, it should be destroyed. Ploughing up also of the land may be necessary; but, at all events, the buttercup, if possible, should be rooted out. Other weeds, too, of a similar nature, and likely to injure the milk of cows, should be taken from the pasture on which they feed; the effecting this object will be more than repaid by the benefit derived from the purer milk and more excellent butter which will be obtained.

The bone-dust manure used on certain pastures in England, in which the soil is not adapted to this kind of manure, is said to have caused the cheese to deteriorate.

Mr. G. Davis, of New York, to whose enterprise in visiting the cheese-making districts of Holland much is due, and who supplies the United States navy with cheese which will keep on ship board and in warm climates, by which thousands of dollars are saved to the country, describes the cheese thus made under the inspection of a first-rate cheese-maker from Holland, as globular, weight about four pounds each. The curd is worked by hand until it is put into other moulds, and salted—that is a small quantity is put upon the end of the cheese, and changed every fifteen days; then it goes through a process of salting in warm salt whey for forty-eight hours and is then taken out and wiped dry with a cloth: then put into other moulds for six weeks to dry and cure; after it becomes quite dry and hard, it is put on shelves to cure, so that it may be cast up. The loss in drying out is very great, as the Government receives them half yearly in each year. The expense of making is said to be much greater than of the common kind of cheese, and the loss in drying it four times as much; but the certainty of their keeping has been fairly tested, and they are stated to keep equal to the best Holland cheese. Of the flat kind formerly used in the navy, more than one-half, it is said, proved to be unfit for use, and was thrown overboard.

The Dutch are said to be remarkably particular as to the quantity and quality of the salt they use; and this is thought the principal cause of the sweet and delicious flavor of their butter, which, though well flavored, hardly tastes of the salt, or at all acrid. The average quantity of milk from Holstein cows in Europe is about two thousand five hundred quarts per annum; and it is calculated that every hundred pounds of milk will give three and a quarter lbs. of butter and six pounds of fresh cheese, fourteen pounds of buttermilk and seventy-six and three quarter pounds of whey, where cheese is made. Fifteen quarts of milk is, then, considered a fair average for a pound of butter, though sometimes the milk is so rich that twelve quarts make a pound. On the whole, it is thought that one hundred pounds of butter, and one hundred

and fifty pounds of cheese per annum, to each cow, is a fair product.

A great yield of butter and cheese is mentioned in a late agricultural journal as having been obtained in Onondaga county. From twenty cows (commencing 15th of April, and ending the 1st of December) were made ten thousand pounds of cheese and one thousand pounds of butter—being an average of five hundred pounds of cheese and fifty pounds of butter from each cow. They were fed on whey from the dairy and two quarts of oatmeal per day.

PRESERVATION OF CORN FROM FROST.

Mrs. S. N. Hawes, of Shoreham, Vt., relates a remarkable case of the exemption of a piece of corn from frost, which she thinks is to be attributed to the plentiful use of long barn-yard manure, in connexion with the stalks of a crop of corn which had grown on the ground the year before—the whole having been plowed into the soil. He says:—

"I plowed deep, strowing the old crop of stalks in the furrows and covering the whole entire. I had a rank and extra growth of a large kind, which required a longer time to mature; and some of the last days of August or first of September, the earliest cars had commenced hardening, when we had one of the severest frosts I ever witnessed at that season of the year. I had much anxiety respecting my corn crop, which I visited early in the morning; but the cracking of the frozen grass at every footstep, prepared my mind to behold it in ruins. Yet determined to know the worst, I pressed on, mounted the fence, which surrounded it, and to my surprise, not a particle of frost was visible upon it! I looked around upon every side; all bore a wintry aspect. I looked around again upon the crop before me; it bore the appearance of having been wet by a gentle but profuse shower. I sprang over the fence, determined to pass through it; but ere I had reached half a dozen rods was glad to retreat, and before I could effect it, was completely drenched. I again remounted the fence where I could take a view of every side; it was alike surrounded by a heavy frost."

"As I stood pondering upon the apparent phenomenon, the fact flashed upon my mind, that the process of decomposition from the extra quantity of long manure, particularly the old crop of stalks, was still going on to that degree that the heat completely counteracted the action of the frost. Near the middle of the day (which was extremely warm and clear,) I travelled a mile in length, visiting every field on the same level with my own, and all, without exception, were entirely destroyed. Mine remained uninjured, and yielded an abundant crop of remarkable sound, ripe corn."—*Albany Cultivator*.

FARMING CAPITAL.

From a communication by Mr. L. Durand, we make the following extracts:—

"I think it correct to say, that a liberal expenditure of capital in farming, will ultimately pay better than when laid out in any other business. The difference between capital laid out in farming, and that laid out in manufacturing, is, that all which is expended in the latter beyond the actual profits of the goods manufactured, is a dead loss, while that which is laid out on the farm, under good management, causes it to improve and increase in value from year to year. In manufacturing, the interest on the capital may be received within six months or a year. In farming, it may not be so, but it will be sure to give its return in a series of years. Another item which has been much neglected by farmers, is that of purchasing good implements to carry on their farming operations. In this country, where labor is high, a farmer should obtain as many labor-saving implements as can be used to advantage. Although these implements may cost more at first than common ones do, they will find their account in it at last. Get the best implements to be had, even if you have to go out of the State for them, and you will thus be able to perform more work in a better manner, besides saving much labor, and preventing a great deal of fretting and ill temper. Try it and see."