

Let your correspondent use maize-meal in conjunction with his cake, and then probably he will find that his milk will not be very white. Or, what is better still, let him use cut clover instead of cut hay, and then he will find that he may use decocted cake in moderate quantity without the objectionable consequence of finding his milk very white.

(Eng. Ag. Gazette)

J. S. Woodward in speaking of the way we abuse "Our Foster Mother, the Cow," gave an example of one barn 26 ft. wide, 45 ft. long, 6½ ft. high, having 26 cows in it, or cubic space equal to what a 150 pound man would have if nailed up in a box 34 x 35 inches and 6 ft. long. After you had kept him thus for 20 hours, the body would be there, but the man would be gone. The illustration is as striking as mixed. The next barn described would give one square inch hole in the "coffin" for ventilation. But this was nothing to the awful horrors of torture ascribed to the rigid stanchion. Besides the stiff necks and sleepless nights, we were told of ill shaped bunches on her knees and distorted shoulders. The cow is fed oat straw, and corn meal, an unbalanced ration, which makes no provision for milk or bone or muscle, and many a cow will give her hide for her keep by spring. Out of our 1,600,000 cows, 1,000,000 of them drink from the ice-bound brook. Must have water to make milk. Should have plenty of it and whenever they want it. Germs will not breed fast in sunlight. Give comfortable stables. Educate to eat hearty. Over eating is a vice in a man, but a virtue in a cow. Give no extra exercise. Let the bull do that. The vital energy used up by the cow is equal to a 40 mile drive for a horse; don't need more. — *Ex.*

TURNIPS AND BUTTER FLAVOR.

Several correspondents desire to know what will correct the turnip flavor in butter, and one expresses the opinion that turnips should never be fed to milk cows, as they are apt to taint both the milk and butter. Carrots and mangolds are no doubt preferable to turnips as food for cows giving milk, but the best authorities assert that if fed at or near one milking all the unpleasant effects will pass away before the next. It is undoubtedly the case that a great deal of milk and butter is spoiled for customers by the acrid flavor imparted by feeding turnips. The question was recently put to three expert butter-makers how to counteract the turnip flavor so often complained of. The replies given were as follows, according to the 'Nor'-West Farmer':—

No. 1 replied:— 'We have always fed turnips in the autumn and winter when making butter, and have sent our butter to the best markets and have always obtained the best prices for it, with the statement, "butter first-class." I have had the opinion of an expert on our butter, and he says if I want a certificate he will give me one stating that he could detect no turnip taint, that it was very fine in make and of first-class quality. The manner of making is this:— We are very careful to have the milking attended to so that the milk shall be clean, and free from anything that could in any way taint the milk, as this would be retained in the cream. As soon as possible after milking, we

pour boiling hot water into the can until it attains about 125 deg. Fahr., then we set in the common creamers or pans. The creamers we run off every 36 hours, and the pans every 48 hours, and as soon as the cream is ripe or turned a little sour we temper it to 60 deg., and about ten minutes before churning we dissolve a teaspoonful of prepared saltpetre in warm water and stir into the cream, and then churn. When the butter is in granules, we let it stand a few minutes, and then run off the buttermilk and wash the butter in the churn, until the water is clear, and then salt with fine salt, one ounce to the pound of butter.'

No. 2 wrote:— 'As you request me to furnish your readers information as to the quantity of turnips fed, I would say that I give each cow about half a bushel twice a day, fed after milking. I have an underground stone milkhouse with stone floor. The milk keeps sweet for three days in the hottest time in summer. We use mostly shallow pans, skim every twenty-four hours, pans kept well scalded and clean, churn in the autumn from 60 deg to 64 deg. If I were giving each cow two bushels a day I would dissolve some saltpetre and put some in the cream.'

No. 3 said:— 'Beautiful butter can be made if the cows are given only a small allowance of turnips after they are milked, at first, gradually increasing the quantity. The milk was set in pans, and two or three quarts of ice cold pure water put in the pan and the milk strained into it. The butter was beautiful; not the least unpleasant smell or taste of turnips was noticeable.'

N. W. Farmer.

FAT IN MILK.

EDS. COUNTRY GENTLEMAN—It is by no means a new thing that men of science and those of practice should differ in opinion about things. It has been the case ever since there was any science. It seems to be the right domain of science to give to the practical men the true reasons for things, and to discover the exact principle that underlies common practice. This pertains distinctly to the feeding of cows. It is worthy of regard that practical dairymen have a most confirmed belief that the way to get richer milk is to feed fatty food, and that if foods that are deficient in fats are used, the milk is proportionately, to a large extent, also deficient in fat.

Now we cannot well "Go back on" the results of twenty or thirty years experience in feeding cows and abandon what one has learned by months of steady feeding for rich milk for profit and not for experiment only, and accept the results of such tests as three days feeding or even a month of it, on different foods. There is, as asserted, an individuality in cows; there is in everything. But this individuality may be said to be the natural amount of resistance to changes on account of permanence of disposition. Some animals are slow to change this disposition, others are quick to respond to variations in feeding or other environments. And thus it is that it may take months to produce any change in this special character which some have called individuality. I should miss my point greatly if I omitted to mention the experience of Prof. Robertson who stands at the head of his profession as

a practical farmer and scientific investigator—in feeding cows grain on pasture for a whole summer, and with the result that the influence of this feeding went over to the next summer, and the benefit was conspicuous after the intermission of half a year. This is the kind of test we dairymen want our scientific teachers to undertake before they insist that our years of feeding for practical purposes and on business methods, and all their lessons should be abandoned for the results of one month or even a few days of feeding on varieties of foods.

This is one of the most important matters to feeders of cows. If we are throwing away money in buying foods rich in fats for the impossible end of making more butter of the milk, it is well to know it; and if we are right, it is well to know that too, that those who are always halting between two opinions may decide without delay and abandon profitless feeding for a better method.

It is a remarkable incongruity that we should be taught that our crops are to be fed on the principle that one element cannot replace another, and that nature always works in the easiest way to reach her ends, and at the same time that in feeding animals the fats in the food should not go to make the fats in the animal, but the protein should do this. Thus nature goes to the very great trouble to break up organized matter to effect some end when there is the precise matter all ready for use and merely to be distributed by the circulation wherever it is needed in the body of an animal. I admit this is only a rational argument and not a fact, but it has its force, and as much of it as the contrary argument has that the protein is broken up in the digestive organs and the hydro carbons of it changed into fat by a very indirect way.

The Royal Society of England settled this matter years ago, when I was a student of medicine, and the profession then wholly changed their beliefs, upon which the present remaining old idea is based, and accepted the new and well determined one that the fats of food or medicine were not changed in the system, but were passed still undigested into the circulation and deposited in the tissues where they were needed. The chemists seem to have not accepted this fact, proved by very numerous experiments, and still deny it, holding to the other view which they urge practical men to adopt against the almost, if not universal, belief to the contrary.

I might mention one fact in addition, which is that Dr. Taylor the Microscopist of the Agricultural Department at Washington, in tests of butter, found that that made from feeding cotton seed meal had precisely the same reactions as the oleomargarine made from cotton oil had, and asserted that if he were to analyze butter made from cows fed on this meal he could not distinguish it from the bogus article.

H. STEWART.

Maccon County, N. C.

STABLE MANAGEMENT OF COWS IN WINTER.

[C. L. Hill, Rosendale, at Wisconsin Dairymen's Convention, 1895.]

I would divide this subject into three heads: First, the stable; second, the care of the stable; and third, the care of the cattle. The stable should be so arranged as to be convenient for

the every day work, and all plans should centre around this idea, as the amount of labour required to do the necessary chores will largely depend on the arranging of the stables. If any are going to build new barns, I would advise visiting several good dairy barns and carefully noting the good points and defects also. I would profit by others' experience.

You will find that a stable made of two thicknesses of boards with paper between will be dryer and warmer than a stone basement. The model arrangement for a rectangular barn is two long rows of cattle facing each other, with a chance to drive on the feeding floor, and also behind each row of cattle so as to easily remove the manure. Make the barn larger than you now think you will need, or else plan it so you can build on to the end as it is needed.

By all means have a silo so situated as to be convenient for feeding. Have plenty of windows; in fact, have the south side largely glass. In our barn I have often noticed this winter if the sun shines at all it will shine on all but one or two at a time for the entire day. Have the stable so arranged that in case of weather 30° below zero it can still be shut up so it will freeze very little if at all. If an old stable, line it with paper and another thickness of boards. Don't go to the other extreme and shut it up so it will fairly steam when you open it. Some box ventilators running from near the floor up out of the ceiling will be an excellent way to keep the air pure. The ventilators can be made by boarding up between two of the silo studs down to within a foot or two of the floor. Let each one decide for themselves what kind of a fastener they will use, but let it be something that will keep the cattle reasonably clean.

The much condemned rigid stanchion is generally used and will answer in most cases. (1) If you use this make the floor the cattle stand on vary in length from four to five feet as there will be that much difference between the smallest heifer and the largest cow. Have the gutter sixteen inches wide, at least, and six inches deep. If possible have the walk behind the gutter wide enough to drive a wagon or sleigh through and draw the manure direct to the field. (2)

The manger should be about 24 inches wide and the feeding floor 6 inches above it, and the ceiling 6½ on 7 feet above the feeding floor. There are a few essential things in the care of a stable, and a couple of heavy brooms are almost as necessary as a fork.

Our feeding floor is swept every morning after milking and it adds a good deal to the looks. Then, if the cattle leave anything at all, the mangers are all swept out while the cattle are out to drink. After the stables are cleaned and bedded the walk is swept into the gutter. Another use for the broom is to occasionally sweep the ceiling and sides of the stable thoroughly so as to remove all loose dust and cobwebs, thereby removing, according to Prof. Russell, one of the chief causes of bacteria. Use plenty of good clean straw for bedding. It will pay, in the end, I believe, to cut all the bedding if conveniences are at hand for so doing. It will then make a better absorbent and make the manure finer, which is quite an object if it is to be used on corn land. Be sure your gutter is water tight and use road dust, sifted coal ashes, chaff or sawdust, to absorb what liquid the

(1) A neck-chain, slipping up and down a pole, is the simplest and best tie. — *Ex.*
(2) That depends. — *Ex.*