

each cow. Until the different causes are removed, it would be well to mix a small quantity of bi-carbonate of soda with the milk, which will prevent premature coagulation.

#### IV. SLIMY, STRINGY MILK.

The milk is either slimy, tough, stringy, when drawn from the udder, or it becomes so shortly afterwards. It has a slimy, stringy taste, produces a small quantity of bad cream, which churns with difficulty, and produces a quality of butter unpleasant to the taste. If a small quantity of such milk is mixed with normal milk, the latter becomes affected, and partakes of the same stringy character. This condition is caused either by bad hay, straw containing fungi, meal from damp grain, or other spoiled foods. In such cases the whole herd produces such milk, and the remedy consists in a change to a liberal supply of nutritious, wholesome food, such as oil-cake and bran, mainly. The same quality of milk is also produced by cows suffering from indigestion. In order to ascertain which cow is suffering, a small quantity of each cow's milk should be set by itself if it does not appear slimy when drawn from the udder, and when the affected cow is found out, she should undergo treatment, and none of her milk should be mixed with that from the rest of the herd. The treatment consists in administering a mixture, in equal parts, of salt, chalk and gentian-root powder, given three times a day in quantities of a good tablespoonful at a time in a litre of wormwood tea, or a half a tablespoonful of hydro-chloric acid in a wine bottle full of linseed gruel may be given twice a day. Such treatment for 5 or 6 days will usually effect a cure.

#### V. BLUE (YELLOW AND RED) MILK.

This milk, which appears to be perfectly normal when drawn from the udder, assumes indigo-blue spots on the cream after being set for 12 to 24 hours. These spots enlarge rapidly, first on the surface, so that sometimes after 24 hours the whole cream appears to be blue colored, then also below the surface, so that the whole contents of the vessel assume a blue color. Sometimes minute islands of a yellowish color are seen between the blue spots on the cream, less often also small red spots, which, however, enlarge very slowly, and are always confined to the cream. Sometimes the cream turns quite yellow, but the milk under it blue. The blue patches of the layer of cream consist mostly of masses of fungi, between which globules of fat are found enclosed. If any portion of this blue mass of fungi be placed into normal milk, the latter then also partakes of the same character. The cause of this blueness in milk cannot be safely asserted. It is, however, believed that two concurrent circumstances must operate; a lack of formed casein in the milk caused by imperfect digestion of the cow, and the presence of fungi spores in the milk. The latter are said to cause a division of the casein, the product of which is the blue coloring matter. Before the malady can be remedied, the cow or cows must first be picked out whose milk is wanting in formed casein. This is easily done by setting a small portion of each cow's milk by itself, in order to see which turns blue and which does not; but all the vessels used must be new, because blue particles may adhere to vessels already used. When the cows whose milk is affected are ascertained,

they must undergo a change of food, and their milk must not be mixed with normal milk, but must be kept by itself so long as it has any tendency to turn blue. At the same time all the milk vessels and utensils must be cleansed with hot water and lye, and the floor and walls of the milk rooms must be thoroughly washed with a solution of 1 part chloride of lime in 10 parts water, for the infectious matter may adhere to them. Until these measures are carried out, it would be well to mix some butter-milk—a teaspoonful to 2 litres (3½ pints)—with milk freshly drawn from the udder, and set for creaming, which will prevent the milk from turning blue.

#### Salting Butter.

There is a great deal of talk about the science of salting butter, and a great deal of time is wasted by our dairymen in getting the salted article just scientifically correct. The latest "science" consists in leaving just so much water in the butter as will dissolve sufficient salt to make it neither too salt nor too fresh, at the same time converting all the salt into brine without waste.

This is undoubtedly a nice piece of science, and it yields rich food for the nourishment of our common-sense faculty. There is another science which asks if butter should be salted, and still another which questions that man should use salt at all, except as a drug: in truth, the most exalted of all the sciences teaches us how we can live without the use of drugs. We have too much respect for science—for it has done a great deal for agriculture—to apply it to a business which ought not to exist. Science and art have proved that salt is a cheap drug, but it remains to be proved that people should drug themselves three times a day with this article because it is cheap. In practice we salt our butter and other articles of food because our mothers and grandmothers followed the practice; but this argument proves nothing, and should not be raised against the necessity for experimental investigation. Other arguments in favor of salting butter are: (1) That it adds weight to the butter, thereby making it more profitable to the farmer; (2) that salt flavors the butter; and (3) that it adds to its keeping qualities.

Now let us examine these so-called arguments in their order. If an ounce of salt is added to a pound of butter, the effect is that the butter is an ounce heavier, and the farmer gets paid for 17 ounces of butter. That is surely sound logic—for him who cannot see farther than the apex of his nose. Butter contains 12 to 15 percent of moisture, the extreme variations being from 8 to 18 percent. Has it never occurred to you that salt plays an important part in the regulation of moisture? Ah, you say, this is all theory. Well, let us see what practice has proved. The following table gives the results of accurately conducted experiments on scientifically salted butter:

Chemical Composition.	Unsalted Butter.		Salted Butter.	
	Washed	Unwashed	Washed	Unwashed
Water	15.26	14.22	12.50	12.00
Fat	83.59	84.00	84.50	84.54
Protein	.60	.80	.60	.65
Nitrogen	.40	.80	.40	.61
Free matter	.15	.18	2.00	2.20
Ash				
	100.00	100.00	100.00	100.00

When we associate the name of Prof. Dr. Fleischmann with the above experiments, no dairy authority will dispute their accuracy. You see that the effect has been that moisture has been given off, so that butter kept for a short time becomes lighter.

With regard to salt as a flavoring material, common sense teaches us more than science or practice. If the salt is more delicious than the butter, the salt flavors the butter; but if the butter is more delicious than the salt, then, of course, the butter flavors the salt. Those who have not vitiated their tastes by the use of salt or other condiments, maintain that every article of food possesses a natural, delicious, saline flavor peculiar to itself. Why should the eye be educated to admire harmonious arrangements of colors, while the taste must be educated to one flavor only? It has cost us a good deal of pains and money to solve this part of the problem. We have found that, of all the brands of butter, the lowest consumption was that of bad, unsalted butter, while the highest was that of unsalted butter of the best quality. The plain duty of the farmer, therefore, is to unite and protest against the salting of butter and make it of first-class quality, which will increase the rate of consumption and enhance the price of butter. Let him seek to control those markets which demand no brand but the unsalted article. To hide our sins by the use of condimental flavorings is a moral wrong, and it adds nothing to our prosperity or our happiness.

Does salt keep butter? Yes, if we are sinners in the art of butter making. Science and practice have aided common sense in proving that fats are not preserved by salt. Of course salt is a cheap antiseptic, but it must not be forgotten that it is only nitrogenous matter that is subject to decay. The above table shows that the amount of nitrogenous material in butter is very insignificant, viz.: 0.80 percent for the unsalted unwashed article, and 0.60 for the unsalted and washed, showing the great advantage of thorough washing. Numerous actual experiments have proved that salt has no effect on the keeping qualities of first class butter, so that here again salt must be indicted as a cloak for hiding our sins. Salt "must go"—out of the butter business.

However, we cannot hope to effect any revolutionary change in this respect; our present object is to educate in the true science of living, to awaken discussion, and to inspire a desire for better methods and better things.

The practice of washing butter with brine is an important step in the right direction, and in this way it can be made salty enough for the tastes of most people. In whatever form the salt is used, it should be of the purest and finest quality. But it cannot be had entirely pure, which is another strong argument against its use. The greatest hindrances to our progress in the art of butter-making are the time wasted in studying the so called science of salting butter, and the labor lost in working in the salt, the working being injurious to the quality of the butter.

Mr. J. Gould an able authority on butter-making, whose name is familiar to the readers of the *Advocate*, says: "Butter is exactly half made when the pail of milk is brought into the house."