

weeds have their value if properly used. I had much sooner have weeds growing on my land than to have it bare, provided they are not in the way of harvesting the crop and are worked into the soil before they go to seed. T. B. TERRY.

Summit Country, O.

DAIRY HUSBANDRY.

THE TRUTH ABOUT IT.

DAIRYING FALLACIES.

T. H. HOSKINS, M. D.

There have been great advances in the study of the scientific of dairying, during the last 10 years. Large credit is due to a number of enterprising men, who have devoted both money and time to the investigation of milk and its products, and also to improving the methods of breeding, feeding and handling dairy stock. If I were disposed to criticise anything these investigators have done, it would be the haste some of them have shown to become instructors before acquiring a mastery of their subject. To this we owe much building with "untempered mortar" that has not endured; and, worse than that, the diffusion of erroneous notions among the people, harder to be overcome than a simple, teachable ignorance.

Anxious to avoid the fault myself, and yet desirous to point out what I am thoroughly convinced are serious errors, I shall touch briefly in this article upon some important practical points which have been mis-stated and misunderstood, and about which the popular mind is yet adrift. I do this with some reserve, and only after more than 15 years of practical study, joined to careful closet investigation of both the chemical and physical sides of the question. The public are often at a loss to decide where "doctors" and "professors" disagree; yet I believe that I shall make the points I touch upon sufficiently plain, and shall support my statements with such good reasons that most intelligent and well-experienced practical dairymen will agree with my conclusions.

AIR IN CREAM.

For some time it was thought (and churns to carry out the principle were introduced) that the passage of air into the cream during the process of churning promoted the separation of the butter. This idea is now exploded, and the churns are found only in garrets. I allude to it merely to show, in the light of what will be hereafter stated, how far away from any true conception of the facts the minds of many must have been when such a theory could have had currency.

WITCHES IN THE CREAM.

Not infrequently the correspondence columns of agricultural journals contain queries headed, "Why Don't the Butter Come?" or something equivalent, in which the writer details the painful effort of hours, and even days, over a refractory churnful of cream. Most inexperienced people meet with this trouble, and not a few, also, who have made a good deal of butter, and made it well, when all natural conditions were favorable. The idea expressed by some that the cream was "bewitched," is the last resort, the world over, for the explanation of uncomprehended natural phenomena. It is only in the clear, white light of science (knowledge) that the witch becomes totally invisible. She and the ghost are always best seen in the dark. (1)

(1) Brewers, 50 years ago, were in the habit of making a cross on the top of the "mash" before closing the tun to "keep the witches out."

A R J F

TEMPERATURE IN SETTING.

As lately as seven or eight years ago it was the universal teaching that the proper temperature for setting milk was in the vicinity of 60°. The best authorities agreed that at a higher temperature the milk would become sour before all the cream would come to the surface, while at a lower temperature it would never rise at all. When the Swedish method of setting in ice-water was first reported in America it could hardly obtain serious notice, so contrary was it to received notions. Now, it has been abundantly demonstrated that cream swims to the surface soonest in milk cooled nearly to its point of greatest density, or about 40°. This is, in itself, a great advance—probably the greatest single step that has been made in butter-dairying. Yet it was not made by a Professor, but was blundered upon in practice.

THE "CURRENT" THEORY.

Some minds have a great fondness for mystifying plain matters. If one should see a quantity of apples going over a waterfall it would never occur to him that when these apples reached the still water below it would be necessary to "create currents" in the pool before the fruit would float to the surface. The fact that apples are lighter than water would be considered a sufficient reason why they should float upon it, and as it is a rule alike of philosophy and common sense that when we have a perfectly satisfactory reason for any occurrence it is folly to seek for any other, we should never think of a "current" theory. Having ocular evidence that a current submerged the apples, and that they came to the surface when the current abated, we should be satisfied. Now, the butter globule, though it is too small to be seen by the naked eye, is to the milk in which it swims what the apples in the case supposed were to the water. If we keep the milk in a state of agitation they do not rise; if the milk is at rest, and just in proportion as the rest is perfect, they swim to the top. The most rapid separation of cream takes place in that apparatus where the milk is quickest reduced to the proper temperature and most rigidly held there. Whenever you hear one of these "current" theorists holding forth, you will always find that he has a "new patent setting-can" in the ante-room, which he would like to show you. Remember the air-churns and eschew him.

THE ANIMAL ODOR.

That the best butter is now made from cream raised in closed, and even in submerged cans, is what the boys call "a sticker" to those gentlemen who have long and learnedly held forth upon the pernicious "animal odor" in milk, which required the most careful ventilation to be rid of, and which absolutely ruined the flavor and keeping quality of the butter when retained. Various ingenious ways of getting around the stubborn fact are resorted to. It is hard, indeed, after having explained how this "odor" originates, what its chemical formula probably is, and how it looks or would look when isolated, to find it disappear all at once, like a will-o'-the-wisp. No doubt there are "things" in milk, but no doubt, also, they are got there from filthy bags and teats, filthy hands, foul air and the like. Pure, healthy milk has nothing in it that needs to be removed by ventilation. Ventilate your cow stables, keep your cows clean, give them good food and pure water, keep yourself and your surroundings clean while handling the product, from the udder to the butter-tub, and you will never be troubled with the "animal odor." Another ghost has been laid, another "witch" has disappeared.

WASHING BUTTER.

Abundant experiment has shown that the natural flavor