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PURE FAT V. BUTTER.

By W. MATHIEU WILLIAMS, F.C.S.

Extract from Supplement to "The Grocer."

It is rarely that I find my own independent conclusions on any technological subject at variance with those expressed in the editorial columns of *The Grocer*; but this is decidedly the case in reference to the opinions expressed on the subject of "*Oleo-margarine v. Butter*," in an article on page 396. So far as the word "*oleo-margarine*" is concerned, we are quite agreed. It is un-English, pedantic, and incorrect. "Pure fat," or "purified fat," is intelligible, and more nearly a correct description of the best form of artificial butter—that which I am about to defend. There may be other substitutes, but all these are objectionable exactly in proportion to their impurity.

"Pure dairy butter" is an impure fat, and its impurities are indeterminate, very variable, and by no means fully understood by chemists. The great variations in the flavour of butter according to the dairy, the district, the peculiar pasturage, the season of the year, &c., indicate the fallacy of applying the term "pure" to any quality of this very indefinite compound. The first desideratum in food is that we may know what we are eating. Nobody knows what he is eating when he eats the butter that is manufactured from the secretions of a cow's udder; but the composition of purified mutton or beef-suet is intelligible, may be defined, and, if properly prepared, is always alike. In the "good old times," when artificial manures, sewage-irrigation, &c., were unknown, when "stall-feeding" and artificial cattle foods had not been invented, the constitution of the cow existed in a state of primitive simplicity, very different from that of the modern cow, who has become liable to all the diseases of modern civilization. Every mother knows that the food she takes affects the infant she is nursing, and that disease may be communicated through the milk. The milk of the cow is liable to corresponding variations, and the germs of disease may thus be spread.

There is another source of danger—viz., that arising from external impurities, which is especially serious wherever sewage irrigation is used. The cow lies on the ground, and her teats are soiled with the sewage matter on the surface. The milkman does not wash the teats otherwise than with the milk upon his hands, and this goes into the pail. If typhoid fever prevails in the district from whence the sewage is derived, it may be fearfully spread in this manner. From what I have been able to learn, I believe this to have been the real source of the recent epidemic in the neighbourhood of Croydon. It was attributed to the water, but the evidence in support of this was very contradictory, while the proximity of the sewage farms is unquestionable.

If milk is boiled or used for hot tea or coffee, the bacteria or other organic germs are destroyed, so far as their poisonous vitality is concerned. But when made into butter such germs are enveloped in the midst of the fat globules, and effectively preserved to do their deadly work. These objections do not apply to that produced on a farm where every proper care is taken; but who can tell the history of any sample of butter that comes to market in the ordinary course? I have kept cows myself, have lived at farmhouses, and seen much of milking. In many cases the milk has been disgustingly impure, even where all possible precautions were used, on account of ulceration of the nipples or internal secretion of blood or mucus. In the cases that came under my notice the milk thus tainted was either thrown away or given to the pigs, but we have no guarantee that such is done in the unknown and distant dairy farms from which our samples of

genuine Dorset, Cork, Dutch, Kiel, Clonmel, &c., are derived. None of these objections apply to purified fat, prepared in an open factory, subject to public or private inspection.

As regards the market value, this test *at present* is rendered fallacious by the operation of a factor which disturbs all the general rules we may lay down on that subject. This factor is prejudice. The absurd stories about making butter from Thames mud, and the possible fact that certain soap-boilers have taken to butter-making, naturally create a prejudice against the purified fat, or butter substitute; and if such substitute is in any cases made from kitchen-stuff or any such refuse, the prejudice against all its kindred is natural and justifiable.

But some samples of artificial butter are highly prized, and even preferred to the best dairy butter, where "ignorance is bliss." English tourists who visit Paris are loud in their praises of the beautiful, white, fresh, sweet butter of the Parisian hotels, cafes and restaurants, nearly all of which is purified fat. Some very eminent French chemists have given much attention to this subject; many papers have been read at the Academy of Sciences, especially during the siege of Paris, and at the present time the dairyman is fairly beaten by the fat-purifier in the butter market of Paris. For my own part, if I knew where in London to purchase this skillfully purified mutton or beef fat, warranted free from any adulteration with excrementitious milk-fat, no dairy butter should enter my house.

What is wanted in this, as in all other trading, is honesty, which in the end will prove to be the best policy. If a skillful manufacturer would enter upon the business of purifying and softening mutton-suet, doing this openly in works free to public inspection as regards the raw material used, and would put the product in the market openly, boldly and honestly, with an intelligible brand or trade mark, he might, I am satisfied, lay the foundation of a great fortune; but he would have to be content to begin on a small scale at first, and supply only a select few, free from prejudice. His first customers would be medical men and chemists; if he pushed his trade in the right direction, their example would gradually spread among their friends and patients, and he would need to invest all the profits of his small beginnings in extensions of his manufacturing plant, as the demand would grow like the progress of compound interest. The present system of adulterating dairy butter with animal fats justifies the strongest denunciations that have been hurled against it; but the difficulty of detecting this adulteration gives to the nefarious trade a temporary success. This would speedily disappear if met by the open competition of an artificial butter of the highest class, superior to any possible dairy produce. My conviction is that twenty years hence the churning of milk or cream will, like the driving of four-in-hand stage coaches, become a purely amateur occupation, practised only by those who keep a cow or two for home produce, and that all the butter prepared for the great markets of civilized countries will be produced from the surplus fat grown on the bodies of sheep and oxen; that these animals will be specially fattened for that purpose, as the fat will become of equal value to the lean; and mutton chops with the fat cut away will cost no more per pound than the loin sold with all its fat upon it. We shall thus get better butter and better meat than at present, and both at lower prices, as a smaller price will cover the value of the whole beast when the fat can be sold for 20 or 30 per cent. more than at present.