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ARTIFICIAL BUTTER AND BUTTER SWINDLES.

With the introduction of artificial butter, oleomargarine, "butterine," etc., was instituted a rivalry—or rather a jealousy—on the part of the farming community, who feared the utter abolition of a market for their product. This fear has by no means been fulfilled. However, farming interests were able to secure legislation of an exclusive character, whereby artificial products resembling or imitating butter are obliged to be branded and labeled; and furthermore, a tax was laid thereupon which, of itself, was intended to be prohibitory.

Not satisfied with this, in some States it is even demanded that hotels, restaurants, and public institutions using artificial butter, oleomargarine, "butterine," etc., shall conspicuously place large placards announcing the fact in their dining rooms. That the law, both as to sale and advertising, is in many instances evaded must be evident. Thus these prohibitory laws work injuries to large and beneficial manufacturing interests; but, at the same time, it must be admitted that these very restrictions have, in no considerable measure, contributed to the improvement and perfection of this class of products. It is a fact that, at the present moment, so-called "butterine," or oleomargarine, can be bought on the market, which, while representing in exact chemical constituents the products of the dairy, is, at the same time, much cleaner and purer and more uniform as to quality. Artificial butters have come to stay. Already they are found on the tables of the wealthier and better classes. It is notorious that manufacturers of these products prefer them to the best butters, whether of dairy or creamery production. Moreover, artificial butters possess one insuperable superiority, in that decomposition, through lactic fermentation, is impossible. Again, they are never *salvey* in character.

To those who profess abhorrence to the factory products, the query might well be propounded: What object is there in fostering exclusively the dairy industry, when it forces upon the public a product that is largely inferior, extremely variable as to constituents, and, in the majority of instances, suspicious as to handling and making? So far as nine-tenths of the population is concerned, the butter purchased is in a condition closely bordering upon decomposition, whose sole claim to superiority is that it is derived from animal sources, through the medium of the udder. On the other hand, precisely the same product chemically, combined in the same precise proportions, under the title of oleomargarine, "butterine," artificial butter, etc., is obtained from the same source by a method absolutely cleanly and unobjectionable, without the intervention of the secreting apparatus. This is not to say, however, that there are no inferior oleomargarines, the result of working up waste, or an admixture of other fats than those of beef, and that are sold at low prices; the purchase of these, of course, is optional, and measured by the pocketbook of the purchaser.

It is also a notorious fact that the farming community, alive to the cheapness of the products simulating those of the dairy, purchase the inferior grades in large quantities and mix with butter, which they return to the market as the latter product solely. Two-thirds of the dairy product marketed in the large cities of the West is of this character.

Again, for two or more years past, a large portion of the United States, and likewise of Canada, has been invaded with agents professing to sell a chemical composition which will not alone increase the yield of butter from cream, but likewise precipitate the same from skim milk. Among other preparations of this class sold is one which has invaded Michigan, Ohio, Illinois, and Indiana, termed "black pepsin." It is simply necessary to say there is no such thing as black pepsin; and further, may be added, there is no pepsin whatever in the compound. This, as hawked about at the extraordinary price of \$2 per ounce, possesses an absolute value of less than three cents, it being simply a preparation of salt and annatto, with a small quantity of rennet added. A mere tyro in chemistry will readily recognize that this does not increase the product of butter pure and simple, but that the increased yield obtained from the milk is due to a fat that should be entirely foreign to the dairy. In other words, this so-called "butter-increasing compound" precipitates an average of 3.64 casein, in addition to 3.55 butter, in 100 parts of milk. As a result, the final "butter" is considerably worse, both as to keeping qualities and as an article of food—judging from a standpoint of nourishment alone—than the poorest oleomargarine.

It is a fact that butter contains a small portion of casein, which is taken from the milk; but the best butter contains the least. The changes in butter which render it *rancid* are dependent upon the alterations in the casein, which acts as a ferment and liberates fatty acids. It is readily understood, therefore, that the less casein, the better the butter will keep; and the more there is, the worse it must be for the product.

Again, butter when pure, it must be remembered, is a fatty substance, made up of non-nitrogenous elements. Casein, on the contrary, is almost wholly a nitrogen-producing compound. It might be mentioned

here that while butter *absolutely* free from casein is a comparative rarity, so also cheese that is *absolutely* free from butter is equally as rare. Cheese *per se* is composed almost wholly of casein, and a compound very difficult of digestion. Butter, on the contrary, if pure, should be assimilated with the greatest ease.

An analysis of so-called *black pepsin* reveals:

Salt.....	0.83+
Annatto.....	0.15
Rennet (nearly).....	0.02

This, however, is not the only compound of the kind sold for the specific purpose mentioned. There is also hawked about a liquid which, on investigation, proves to be a very weak solution of a poor quality of muriatic acid. It would seem, under the circumstances, if prohibitory laws are to be enforced against artificial butter, products that are merely adulterated butter, or that purport to increase butter by commingling with it the casein matters of the milk, should also be made subject to severe inspection and legislation.

Developing Electrical Inventions.

The industry of the world, whether mechanical, electrical or chemical, is based on the invention of some inventor, and may be very old or very young, as the case may be, but the great fact is nevertheless the same. The extraordinary developments that have within very few years taken place in electricity have shown the world what an inventor can do when his genius is used in the right direction and backed up with a good technical education. There is hardly any one that requires such a thorough scientific training as our electrical engineer of to-day, and this fact is recognized more and more as time advances. It is a young industry, and, like the men that work in it, young, vigorous and pushing. Capital to the extent of many hundred millions has been invested and is continually going in for new and various applications of the science.

Nothing is too good or sacred here, and a thing that a year ago was considered perfect has to-day to give way for something still better. One would naturally think that it would be a very risky business to engage in, but this does not seem to be the case, judging from the ease with which capital can be secured for it. This is a fact, because every electrical concern keeps up with the times and does not stand still. Problems relating to measuring, transforming, transmitting, heating, etc., have been presented and quickly solved in many different ways and so far very satisfactorily. Once, now and then, the inventor comes across a stubborn and intricate question, and it looks as if all the skill and patience bestowed upon it were thrown away for nothing. They have to be solved, nevertheless, it being too important to let rest, as every new departure means honor and increased business to those who are working on it.

In this category we have to class production of electricity direct; an economical way of storing it, which probably will be radically different from the present way; electric traction without any overhead construction, and a more reliable lamp, with the same or higher efficiency than the present makes for out of door illumination. They are very hard to solve, some of these problems, and they require both capital and intelligent labor if anything good shall be accomplished. There are capitalists willing to invest money in just those things, but how shall the inventor know where they are? That is another problem, and sometimes almost as hard to solve as a difficult electrical one. This obstacle ought to be done away with in some way. An engineer is very seldom also a business man; he has in fact no time to think about money matters, and must consequently be associated with some one who understands that part of the business, which indeed is very essential, if eventually the problem is successfully solved.

It seems to me, nevertheless, that an institution of high rank, like the Franklin Institute, or the electrical press of the country, could fill that part, if a popular inclination were directed in that direction. These institutions come in contact with men of just those classes in question, and the great benefit that would be a result (if carried out) is too obvious to need any arguing. An inventor would then know exactly where to turn when he has anything new in the departments mentioned. I think in any case that it would be to advantage to have the question ventilated in the electrical press, when undoubtedly several new points would come up, throwing further light on the subject.—G. Emil Hesse, in the *Electrical Age*.

IN the course of his researches among the mummy pits of Achmin, Professor Baeyer, rector of the University of Munich, has discovered cosmetics which had been in vogue among the belles of the land of Egypt at least three thousand years ago. The most notable of these beautifiers were found in the mummy case of an exalted titled personage, the Princess Aft. To enhance the power of the eye, a "brightener" had been employed containing an ingredient which seems to have been imported from far Hindostan, and its peculiar effect was to impart a verdant sheen to the iris.