MILK PRESERVATIVES.

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THE trade in milk preservatives appears to have increased of late, the larger number of quack nostrums in use, and the greater extent to which they are advertised, tending to prove that this is the case; but the most convincing proof is to be found in the fact, that the relative proportions of ash and solids not fat in commercial samples of milk sold in London are not so uniform as has been found to be the case in genuine milk, or even so uniform as used to be the case with ordinary samples of milk, whether genuine or watered, as purchased by inspectors. There is therefore a strong inference that as the ash shows a relative increase, mineral matter of some kind has in many cases been purposely added. It is of course highly improbable that this would be added simply for the purpose of increasing either the specific gravity, or the amount of solids not fat; the proportion which could be added for such a purpose would not be sufficient to effect the object sought, and the mineral substances used must be added either as preservatives, or as antiseptics, or must be contained in the form of mineral impurities in common annatto, or some other colouring matter which has been added to the milk.

I have recently examined a few of these colouring matters and preservative fluids, so-called, in order to see what is being used at the present time for the purpose of mixing with milk, and I append a few notes on the results of the analyses.

———'s Extract of Annatto is a very dark-coloured liquid, quite free from suspended matter, sp. gr. 1040. It contains—

Volatile organic matter	..	..	..	..	..	2.79 per cent.
Ash (mineral matter)	..	..	..	..	..	3.95 „
Total solid matter	..	..	..	..	..	6.74 „

The Ash contained Fe, Na, K, Ca, Al, SO₃, CO₂, with a trace of NH₃.

This liquid is sold at 2s. 9d. per pint, and it is evident therefore that it could not pay to use it for the mere purpose of increasing the "solids not fat" in watered milk, while it is equally possible that the large amount of ash may sensibly alter the ratio between solids not fat and ash in a sample of milk to which it has been added for other purposes. Obviously the only use which could be made of it by a dairyman is to give a higher colour to milk, butter and cheese.

———'s Cake Annatto at 4s. 6d. per lb. contains—

Moisture..	..	..	..	..	..	51.2 per cent.
Volatile organic matter	..	..	..	..	..	25.3 „
Ash (mineral matter) ..	..	..	..	..	..	23.4 „

A qualitative examination of the ash showed Fe, Na, K, Ca, Mg, SO₃, PO₃, Cl, CO₂.

It will be seen that the relative proportions of ash and volatile organic matter do not materially differ from the Extract of Annatto last referred to, and the results of the qualitative examination are sufficiently similar to render it highly probable that the Cake has been prepared from Extract of Annatto of this class by merely evaporating it to dryness so as to render it more portable. It is clear that this Cake Annatto is a far cheaper material to use for colouring, inasmuch as at 4s. 6d. per pound it possesses about four times the relative colouring power—value for value—that the Extract does. There can, I think, be little question that it has been mixed with foreign mineral matters, and these of course may seriously affect the ash of milk with which it has

been used; it could not, however, be profitably used to increase the amount of total solids, or to diminish the apparent amount of water in milk.

———'s Cream Sweetener is a liquid sold in canisters at 2s. 9d. per pint, and 16s. per gallon. The instructions issued by the manufacturers state that it is to be added in the proportion of one pint to sixteen imperial gallons, or in very hot or thundery weather it is advisable to use a quart to the sixteen gallons. It is expressly stated that it is perfectly free from adulteration, and that it "assists greatly in throwing up the cream, and even increases the percentage." An examination of the fluid shows that it has a sp. gr. of 1070.

Total solids	..	..	..	..	..	..	..	12.5 per cent.
Ash (mineral matter)	..	..	..	..	..	..	..	4.1 "

The most noticeable feature is that the Sweetener contains a large proportion of glucose; the ash consists almost entirely of borax and carbonate of soda. Traces of iron are present, but there is no salicylic acid.

It will be seen that in this case the sp. gr. might sometimes cause a sample of milk to give slightly erratic results, and the addition of glucose to milk or sugar is certainly, in my opinion, a fraudulent admixture. But however this may be, it seems scarcely feasible that any dairyman could use such a compound as this, at the advertised price, for the mere purpose of strengthening watered milk. Even if there were the inclination on the part of any dairyman to adulterate in this way, no profit could possibly ensue to him, but only to the makers of such a nostrum.

———'s Pure Antiseptic Powder fully justifies its name, or at any rate the first adjective, for it consists of pure boracic acid; the retail value of boracic acid is about 8d. per lb., and one cannot help pitying the poor milkman who buys this patent medicine at the rate of 1s. per 6-oz. packet. The directions for use are very interesting: 6 oz. is to be dissolved in a gallon of warm water, and each can is to have from $\frac{1}{2}$ to 1 gill (according to the weather) of the solution to every gallon of milk it contains, and is then to be set aside for the cream to rise. Clearly the makers of this powder are under the impression that dairymen generally want to prepare skimmed milk, instead of to sell the genuine article, as under the Act they are bound to do.

———'s Food Preserver has one merit, or perhaps I should say the proprietors have the merit of being candid, for they coolly say in their advertisement that "if those using it do not object to risk a prosecution under the Adulteration Act, it may be diluted with advantage, as its solution, at the rate of an ounce in a quart of boiling water will give a fluid," &c. This seems to me to be about as clear instructions for adulteration as any I have recently met with. However, this Food Preserver, which is described as a harmless, odourless, colourless, and tasteless powder, and which is sold at the rate of 6d. per ounce packet, or 5s. per pound tin, consists simply and solely of borax. From a list before me I find that the price of borax is about 6d. per pound. I cannot wonder, therefore, that the proprietors find it profitable not only to manufacture, but to advertise such a preparation.

There is another advertisement going the round of the dairy papers of another compound said to have been of immense value in preserving milk, and which the vendors say may be safely used, because it has been certified by medical authorities. This also consists simply of borax.

In conclusion I think Public Analysts would do well to carefully examine the ash of milk for the purpose of detecting borax, or any of these other substances, and then use their judgment as to what future steps should be taken. I think I need hardly say what course I should myself pursue.