

THE MILK SUPPLY OF LONDON.

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PURE milk appears to be the exception rather than the rule in London, though, perhaps, London is not worse off in this respect than some of the other large cities, but it has been my

conviction for a long time that the regular reports which we, as Public Analysts, make, give very little idea of what the actual extent of milk adulteration is. Inspectors, are, of course, always recognised by those who make adulteration a business. The regular adulterators are seldom convicted.

It is very important, however, in the public interest to know how far milk adulteration actually prevails, and at some considerable trouble I have endeavoured to find out what the quality of the average milk supply of London really is. Londoners within the area of the London Water Companies supplies number nearly, or quite, four and three quarter millions, say 4,760,000 and the cost of the milk supply is therefore a tolerably large figure.

The limit of pure milk has by almost (but not quite) universal consent been fixed at 9·00 per cent. solids (not fat), and 2·50 per cent. fat. My opinion is that this is if anything too low, especially in fat; so I procured 55 samples during the month of October from entire dairies of milk as the milk arrived in London. The farmers' men may have added a little water, but, unless in one case, I have no reason to think that this has been done. No precautions whatever were taken to procure special samples, so I am fairly justified in saying that this milk is a fair sample of what dairy farmers can supply in London during the month of October. These deliveries are from the milk of about 2,000 cows.

Out of this series of 55 samples, the solids (not fat) fell in one case to 8·93 per cent., with 3·14 per cent. of fat, and in the next lowest case to 9·10 solids (not fat); that is 54 out of 55 samples are above the limit, and the one remaining sample has a high proportion of fat, but the average is more important, and this comes to solids (not fat) 9·60, fat 3·46, total solids, 13·06, so that the average of these 2,000 cows is at the very least six per cent. above the limits used by the Society, and nearly 40 per cent. higher in fat.

So much for what comes to London: now let us see what is sold in London.

It is proper to expect that *some* of the best milk should be delivered, for however leniently a milk seller may generally look upon watering, we cannot expect that all of them do so.

I purchased 300 samples in London, and three out of the 300 corresponded with the average of the milks sent to London, and one of the 300 was richer than the average; 296 remain to be accounted for, 98 of these pass the limit. They may have been watered, and, in fact, many probably have, but they are just above the limit; 203 or 67·9 per cent. are below the limit, and this represents the amount of sophistication I have actually found. The percentage of added water in these samples varies from 3 per cent. to 61 per cent.

Out of the 300 samples no less than 60, or 20 per cent. of the total, are just on the limit line of solids (not fat), and fat in genuine milk.

But as soon as this limit line is passed, watering goes on rapidly; 15 per cent. of the samples contain more than 20 and less than 30 per cent. of added water, and 15 per cent. contain more than 30 per cent., in all 68 per cent. were watered.

The percentage of skimming is almost equally formidable; here again I have passed all samples above the limit, though it is too low; but even on this low calculation 19 per cent. were skimmed as well as watered, and more than 7 per cent. were skimmed but not watered.

This tale of sophistication is really serious to the public. Averaging the 300 samples, the average result is that 13 per cent. of the fat has been skimmed off, and that the milk has, in addition, been watered nearly 13 per cent.; while if the figures I actually found in

the dairies are taken as the standard, as I consider they ought to be, 20 per cent. of the fat has been skimmed off, and the watering is 19 per cent.

Ten years working of the anti-Adulteration Acts has brought us really to this point, that as regards milk our position is hopeless until the law is amended; no one can hope to get pure milk in London, unless under other guarantees than this Act affords, and we ought to tell the public so that they may take action in the matter.

Trivial fines of a few shillings do not bear on the question at all. The average consumption of milk in the middle class districts of London may be taken at something like 10 gallons per head per year, but to put it at the least I will take  $3\frac{1}{2}$  gallons per head per year as the average, or say  $1\frac{1}{2}$  oz. per day each person. The milk bill of this population of  $4\frac{1}{2}$  millions must therefore be, at 5d. per quart, somewhat about £1,400,000, or seven-eighths of the water rates, which are £1,562,000.

This milk appears to be watered on the average nearly 19 per cent. The value of this milk replaced by water is £266,000 per year. It is not easy to say absolutely what value shall be given to the fat, but certainly it is putting the most lenient view possible on the matter if we consider that the abstraction of this fat is equal to a value of £90,000 more.

Adding this figure to the other, I find that we in London pay £356,000 a year for fraudulent dealing with milk—just about one-fifth part of our water rates. How long this will be tolerated I cannot say, but it needs no calculation to show that the amount is enough to pay a profit to all the vendors concerned, if only it were fairly divided.

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