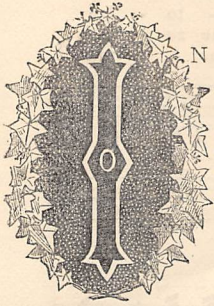


## THE ADULTERATION OF FOOD: HOW TO DETECT OR AVOID IT.

BY A FAMILY DOCTOR.



IN order that our bodies may be properly warmed and nourished by the food we eat, and health and stamina thereby obtained from it to enable us to resist the wear-and-tear of life, our diet must first and foremost be well chosen, and contain the elements of nutrition in proper proportion; secondly, it ought to be well cooked and, I may add, served; thirdly, it ought to be taken in sufficient quantity; and, lastly, it should be of the utmost purity procurable. Unhappily, in this weary, wicked world of ours, this last quality is far from easy to obtain. Your viands may be of the best, your kitchen utensils scientific and free from poison, your cook both clever and kind, and your waiting-maid perfection, but that any single article placed there on that snowy board is free from adulteration of some kind is, to say the least, a matter of the greatest uncertainty. I refer, of course, to made-dishes, puddings, pickles, condiments, &c. A leg of mutton cannot very well be adulterated, nor a plainly-boiled potato, and the salt escapes, though the sugar suffers sadly.

Now it is generally believed that an Act came into force about two years ago, in this country, which has to a great extent done away with adulteration and the various tricks of trade. That such an Act does exist it is true; that its provisions, and in many instances its penalties, have been carried out must be admitted, and to a certain extent good has been accomplished; but the profits to the manufacturer and trader arising from adulteration are so very great, and the risk of detection so small, that the vile work goes on almost as merrily as ever. A more stringent Act, one more easily carried out, and one the clauses of which shall be less faulty, less easy to drive a carriage and four through, will require to be brought into force before the middle classes and the poor—for it is just these who suffer the most—cease to be both pillaged and poisoned.

Morally speaking, the adulteration of food is surely very sinful, and none the less a crime because the custom is such a common one. A man who wilfully adds a non-poisonous substance to an article which he sells, for the sake of increasing its bulk or weight, and afterwards retails that to you as pure, is, it seems to me, no better than a pickpocket, and the man who adds that to his goods which shall injure the health of the partaker is certainly worse. For my own part, I would far rather deal with a baker or grocer who sold pure goods but dealt in light weights, than with one who sold me an adulterated article, giving me full measure and a little over. Rob me, if it be my fate to be robbed, but spare my health.

Yet it must be confessed that the buyers themselves

are sometimes to blame for throwing temptation in the way of the tradesman. They will not pay the price for the genuine article, on the one hand; or, on the other, they prefer beauty to reality—facts, however, that do not for a moment exonerate the dishonest trader.

The profits arising from the sale of adulterated articles are, as I have already said, very large, and in many cases the only gain the retail merchant has comes from the added adulterations.

There can be no doubt that the use of adulterated food and drink greatly affects the national health, and that thousands annually owe their death to the tricks of trade. The lower orders suffer the most, although the higher do not escape. Hard indeed is the lot of the poor man who, after toiling all day, must sup at eventide on bread and tea; but harder still it is if both be adulterated, which they usually are. Poison in the cup! Poison in the cake! The alum and other foreign matters in the bread will not aid digestion. No wonder he does not feel exhilarated. The cup did not cheer—it was a vile fraud. You can hardly blame the poor fellow if presently he finds his way round the corner, just to have one half-pint of the national beverage. National beverage, indeed! Beer used to be beer—that is, it used to consist of water, malt, and hops—I do not deny that it may be had both good and wholesome still, but with all due modesty I must add, *it isn't quite so common*. My humble friend, whom I have just allowed to step round the corner, because he didn't relish the plumbago in his tea, has been supplied—with what? It tastes all right, it is clear, and an excellent bitter. Ten to one there is *cocculus indicus* in it—that is the bitter—and picric acid—that is the colour—and just a dust of salt to make him call for another glass. It is no business of mine if he should; but there is little harm in saying that, unlike *strychnine*, which is often added to ale, *cocculus indicus* is never used in medicine—it is a terrible poison in large doses, producing death with convulsions and coma. If the man takes spirits instead of beer, I'm not sure that his case is not worse. *Cocculus indicus* finds its way into rum. Several sailors were poisoned a few years ago in Liverpool, although, it is stated, they had but one glass apiece. Lead also gets into rum sometimes, and cayenne. Cayenne is put in gin to impart a seeming strength to it after it has been reduced by water, and "fined" with alum or acetate of lead. (N.B.—I am told that cayenne is given to canaries, to improve their coats—it certainly does not improve the coats of the human stomach.)

Well, brandy is very much adulterated, and whisky sometimes vilely so.

For many reasons, I shall not here give any clue to the detection of the various adulterations of beer and spirits. Nature does not *compel* the use of either.

The detection of the adulteration of food is at times difficult enough even to analysts—to the uninitiated in



the science of chemistry, and knowledge of the microscope, it is always so. No good, therefore, my advising my worthy frugal housewife reader to invest ten or twenty guineas in purchasing that instrument of divination, that tells us men of science so very much about so very little; no good advising her either to set up a chemical laboratory in the corner of the pantry: all sorts of plaguy little accidents would be constantly occurring; and if little Harry got hold of the key—then, indeed! But, nevertheless, I'll wager I can tell her a few things about the commonest articles of household consumption, which she never knew before, and perhaps add a few hints to aid her in judging quality and making purchases. I shall follow no sort of order, but just take the substances as they occur to me.

Ah! here comes Bridget with my lunch. Mindful girl, Bridget! Corn-flour nicely boiled, with an egg in it.

"Which it will just keep ye going, sir," says Bridget, "till dinner-time."

Now, as to the egg, I know that is all right, because I know it was gathered this morning. But if I hadn't any hens that were kind to me, I should purchase my eggs new-laid in summer, when cheap, and *preserve* them for the scarce season. You see eggs are not like butchers' meat—eggs *can* be adulterated. You adulterate new-laid eggs in dozens, by letting every eleventh egg be a stale one.

A large number of vegetable and other impurities find their way into brown or unrefined sugar: there are sugar-mites, somewhat like cheese-mites, and vegetable fungi, and bits of sugar-cane. There is a disease well known as the grocer's itch, which is supposed by medical authorities to originate from the bites and burrowing habits of these sugar-mites. Now, sugar is certainly not an expensive item in one's dietary—the refined kind should therefore be invariably used. The impurities in some kinds of brown sugar are so disgusting as to render it entirely unfit for human consumption. Some of the cheaper kinds of white sugar are adulterated with chalk. This is insoluble in pure water, and a few drops of acid added to this will cause effervescence. Common sugar is often mixed with sand. If you take a clear, narrow glass, and dissolve some of the suspected-sugar in it, you will find, if your suspicions are correct, that after it has stood for a few hours there will be a sediment.

From sugar to sugar-confectionery the transition is easy; and I beg mammas will listen, and fond, foolish old uncles too. First and foremost, let me tell you that the articles in question are not even entirely composed of sugar, but are largely adulterated with chalk, starch, and pipeclay. I don't think pipeclay can be good for little Tommy. At all events, little Tommy doesn't need it. Again, "sweets" are often "nicely" done up in coloured papers, and those papers are very often dyed with poisonous colours, and Tommy, not content with eating his sweets, will persist in licking the paper.

But worse than all this, poisonous, because beautiful, pigments are very frequently made use of to colour the confectionery itself. Of course, we must remember

that there are harmless colours, as well as poisonous—for instance, sap green, turmeric yellow, saffron yellow, indigo blue, carmine or cochineal red, log-wood or madder purple, &c.: these don't harm Tommy. Indeed, as the first-mentioned, sap green, is nothing more or less than the juice of the buck-thorn-berry skilfully prepared, it might almost be submitted that at times Tommy would reap a positive benefit from a handful of sweets so coloured.

But these harmless colours have the misfortune to be rather expensive; and some wicked manufacturers, reckless as regards the consequences to poor Tommy, find in poisonous pigments a cheaper substitute, and use copper and arsenic greens, lead, antimony, or arsenic yellows, ferrocyanide of iron, or copper blues, and seek their reds from lead or mercury.

Honey is "doctored" with starch, and at times with chalk or pipeclay.

Marmalade would seem to be a second-cousin to the apple, and own brother to the boiled turnip. Jams and fruit jellies, I need hardly say, suffer greatly at the hands of the adulterators. They are not only often artificially coloured, but they sometimes contain copper. This last adulteration, I ought to add, is usually unintentional, being the natural result of boiling the preserves in copper or brass saucepans—such a practice is highly to be condemned. Gooseberry or raspberry jam, being somewhat cheaper than strawberry, is often used to make up the bulk of the latter; the pips, however, of the different fruits are very easily distinguishable by their size and shape, so that if you purchase black or white currant jam, you may without much difficulty find out whether or not you have the genuine article. Mix a teaspoonful of the jam in water in order to separate the pips.

Now, if one could be always sure of being able to purchase good flour, there would be no difficulty in making good bread at home. I have no wish at all to be severe upon bakers; they are fully as honest as any other class of tradesmen, but they are driven by the public themselves to use various ingredients for the purpose of beautifying, so to speak, the loaves they sell—the public being imbued with the insane notion that the whiter the bread is, so much the purer must it be.

Flour is adulterated with barley-meal, rice-flour, bean-flour, Indian corn, and potato-flour. Barley-meal I consider *most nutritious*, and the addition of the other kinds of flour to wheaten, while they may affect the purse of the purchaser, cannot really hurt his stomach. But the practice of mixing alum with the flour, in order to whiten the loaf, I consider nefarious in the extreme. Carbonate of soda is also largely used. Now, as a medical man, I shall not attempt to put it any stronger than this: daily doses of alum or carbonate of soda produce dyspepsia, and dyspepsia is the forerunner of one-half the ills that flesh is heir to.

A flour that is heavy is usually an adulterated one, for wheaten flour is the lightest of any. A too white loaf of bread should always excite suspicion.

Milk, one of the most nutritious articles of diet, is very



largely adulterated, especially in towns and cities; probably not one-half is genuine. The unprincipled owner of a milk-walk, indeed, usually makes more money out of the pump-well in the corner of his dairy, than he does from the produce of all his cows put together. Now most people think that if milk were diluted nearly one-half, it would certainly look blue and thin: and so it would, but the honest dairyman, while manfully pocketing the profits arising from the iron cow, with a thoughtfulness which does him credit, endeavours not only to suit your sight, but to please your palate. "Milk blue and thin," did you say? Bless you, he wouldn't sell such stuff for the world! and the addition of a little arnatto restores the colour in a wonderful manner; and doesn't a little sugar or treacle make it taste nice? and don't a dash of salt bring out the flavour? Ha! no wonder you smack your lips when you taste it, and say, "I wouldn't change my milkman for all the world!"

And starch, and chalk, and sheep's brains, and turmeric, and the decoction of white carrots are sometimes found in milk, but of course these all get in *quite* accidentally. If milk is of a very suspicious *rich* colour, you ought to evaporate a portion of it to a small quantity; if it gets a darker yellow or yellowish red, arnatto is most likely present; if a few drops of acid render it considerably redder, there can be little doubt about the matter.

When you can buy your milk from a farmer you ought to do so. The average specific gravity of milk would seem to be about 1030. A middle-aged cow gives the best milk, and one that is fed on pasture-land, and not too frequently milked. The morning's milk is the richest, and that from cows much in the open air is the healthiest.

The principal adulterations of butter are water, salt, curds, starch, and different kinds of fats. Place the butter in a bottle near the fire, when after some time the water will sink to the bottom, and a fair estimate of its amount may thus be formed.

No article of commerce has been more shamefully treated in the way of adulteration than tea. It is painted and faced with poisonous substances; "lie-

tea," which isn't tea, but an agglomeration of all sorts of filth held together by gum, is added to it; and it is also often mixed with the leaves of the willow, the poplar, the elm, the oak, or the hawthorn. I advise my reader, if he or she cares for a cup of this most delicious God-gift, to obtain a few pounds at a time from a good tea house, and give a fair price for it. If it is wished to find out if there be any admixture of foreign leaves, the shape of the leaves of the trees I have mentioned must first be learned, or a few samples may be procured and pasted on paper, then take a sample from the tea-pot, float them on water to make them unroll, and so compare them.

Coffee is adulterated with chicory, burnt beans, &c., and the chicory is itself mixed with roasted wheat, sawdust, and probably brick-dust. The best way to obtain really good coffee is to buy the freshly-roasted beans, and grind them at home, adding a little chicory if you like the flavour of it.

Pepper is mixed with flour, mustard, ground rice, &c.; cayenne with red lead, vermilion, ground rice, and brick-dust—the latter by way of flavouring, I suppose. Anchovies seldom are anchovies. Pickles are dyed and poisoned, cheese is stained, and flavouring powders mixed with arrowroot, while, for fear it should be too strong and injure the mucous membranes of customers, traders often thoughtfully reduce it with wheaten flour, and afterwards restore its colour with turmeric.

Potted meats are adulterated and dangerously dyed, and tinned vegetables are often rendered beautifully green by the addition of sulphate of copper. (N.B.—Preserved vegetables ought to have an olive-green appearance—not a bright and showy green.)

It is a good plan, if you can manage it, always to deal with the best shops, and pay a fair price for the articles you want. Avoid shops that puff and pretend to undersell their neighbours. When I see a grocer retailing his goods at wholesale prices, I know that man is one of two things, he is either a wholesale rogue or a duke in disguise—a man of immense wealth and extreme generosity, who has doffed his ducal coronet, and exchanged his ermine robes for the humble, though honourable if honest, shopkeeper's apron.

### THE CHOICE.



MARGARET'S face is passing fair;  
Margaret has a stately air;  
Scarce in woman would you find  
Finer soul, more cultured mind.  
Wisest friend, unwedded yet,  
Do you not love Margaret?

Margaret—yes—is fair and tall;  
Margaret's wit can dazzle all;  
Much and well she writes and says,  
Golden words in sordid days.  
Saints might pause to read again  
Her last poem's noble strain.

May is neither tall nor fair;  
May has but a rustic air;

May would strive to grasp in vain  
Half the thoughts of Margaret's brain.  
Friend so learned—answer, nay—  
Is your wife-ideal May?

May could scarcely understand  
Margaret's words so true and grand;  
Ah! but angels smiling note,  
May lives *all* that Margaret *wrote*,  
Nothing conscious—as a flower  
Knows not of its fragrant dower.

Friend, you give no answer yet—  
Choose you May or Margaret?

Praise I Margaret's poem?—Yea.  
Choose I God's sweet poem—May.

E. R. MASSEY.