

Pure Food, Clean Water and Fresh Air

A canter through the 19th century touching on today's horse meat scare

by Laurence Scales

An old recipe goes like this. For making lark pâté take one lark and one horse and mix them thoroughly together. The scandal surrounding horse meat labelled as beef has added some new recipes to that apocryphal cook book. Definitely not apocryphal is the book written in 1850 by London journalist and former plantation bookkeeper Peter Lund Simmonds (1814–1897) called “Coffee, As It Is, And As It Ought To Be”. These are among his opening remarks.

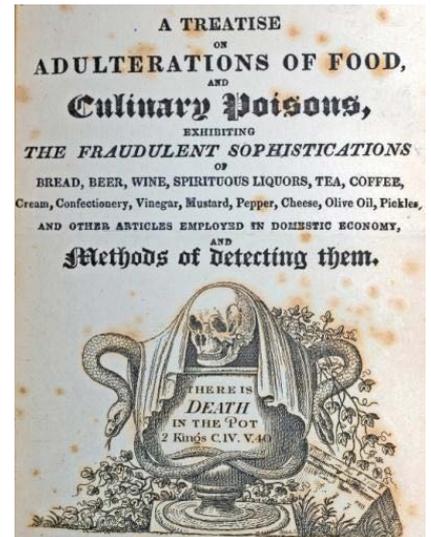
No Article, it has been well observed, presents greater facility for adulteration than coffee; from its being usually purchased in a pulverized form. Its colour, too, is favourable to this; and its aroma being powerful, will bear a good deal of “taking down,” without its deterioration being made very perceptible, unless to a practised dealer. In the continental towns, few buy coffee in its powdered form, except the humbler class of those who use it...

In various parts of the metropolis, but more especially in the east, are to be found liver-bakers. These men take the livers of oxen and horses; bake them and grind them into a powder, which they sell to the low-priced coffee-shopkeepers, at from fourpence to sixpence per pound; horses' liver coffee bearing the highest price. It may be known by allowing the coffee to stand until cold, when a thick pellicle or skin will be found on the top. It goes farther than coffee, and is generally mixed with chicory...

To the inevitable question “why horse liver?” Simmonds needed to give no answer, any more than we need to ask why there is horse in lasagne. It is cheap. I will only add for the benefit of those readers who eschew offal that there is a slight bitterness to coffee as there

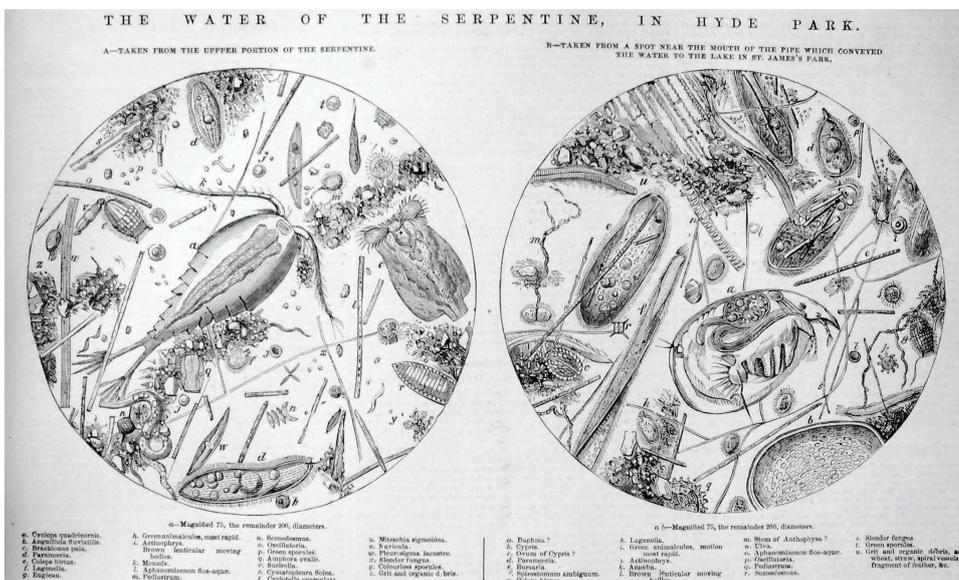
is in overcooked liver. Who has not at some time taken a cup of thin coffee from a vending machine and wondered for a moment whether they had been dispensed Bovril by mistake?

Simmonds was perhaps attempting to revive some of the outrage that had abated in the generation since the appearance in 1820 of a book by chemist Friedrich Accum (1769–1838). It was called “Treatise on Adulterations of Food and Culinary Poisons”. The frontispiece has the cheery Biblical inscription, “There is death in the pot.” Accum exposed the existence of, among other things, red lead in anchovy sauce. (Poisonous dyes used in faking green tea may explain why the British have long gone over to buying black tea where colour was not so important.) Accum was correct in his findings but his celebrity was short lived. He seems perhaps to have been driven out of town for his trouble by parties whose grocery interests he had infringed.



Death in the Pot. Plate from Accum's book..

In 1851 Arthur Hill Hassall (1817–1894) began producing, with the encouragement of Thomas Wakley (1795–1862), the founder of the Lancet, a series of reports ascribed to the “Analytical Sanitary Commission”, in which he named and shamed producers of adulterated food. Beer, for example, was often made bitter with nux vomica, a plant containing the poison strychnine. Other poisons were used to colour food and snuff. Under the microscope he found various unwholesome fillers and contaminants including fungal spores and insects. A proportion of mouse hairs and insect limbs is still tolerated in dry goods such as herbs in which it is impractical to exclude them. Now, at last, new acts of parliament were introduced to eliminate such problems but the process is obviously still incomplete.



Microscope images of Serpentine water from Illustrated London News (ILN) 18th July 1857 first appeared in a parliamentary report and originated with Arthur Hill Hassall although the ILN text does not specifically mention him.

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Replica of the water pump in Soho at the centre of the 1854 cholera outbreak.
Image: Laurence Scales

Hassall and his microscope already had a track record. Four years before John Snow (1813-1858) famously linked cholera with drinking water in Soho in 1854, Hassall had been intrigued by the animalcules he found teeming in the water supply. In London the cess pits had just been closed and evil new tributaries were adding their noisome contents to the great river. He published an account in 1850 called “A microscopical examination of the water supplied to the inhabitants of London and the suburban districts” with the microscopical organisms specially illustrated in colour. A similar study of the Serpentine followed in 1857, the mud there being described as “a laboratory of epidemic miasma”. But there was still resistance to the idea that such little horrors caused disease.

In the late 1860s the chemist Sir Edward Frankland (1825–1899) also came to believe, against the tide of opinion, that a connection existed between the presence of sewage in drinking water and the risk of cholera. As he was a chemist and there was no specific *chemical* agent detected in the dirty water samples he was criticised for drawing an unwarranted conclusion.

At the same time (1865) Sir Joseph Bazalgette (1819-1891) who was busy building London’s new sewers was delivering a paper to the Institution of Civil Engineers, still with the conviction that disease was a product of smelly air. Despite his modern reputation as a secular saint it was only much later, in the 1880s, that anyone thought to treat collected sewage before pouring it into the Thames.

In his later years Frankland was one of the pioneers of sewage treatment, discovering that it was better to filter sewage through gravel rather than just dump it on to the fields. (The archaic name “sewage farm” still persists in the language from that arrangement.)

We now know that gravel, better than soil, provides a surface on which bacteria can thrive that help to break down the sewage.

Even as scientific progress was being made, from 1868 sewage treatment was elsewhere in Britain being based on Biblical teaching. Purification by blood was ordained which, it was decided, meant mixing the sewage with fish offal and other matter, and then leaving the resulting mixture to throw a precipitate which could be bagged as fertiliser.

There was a serious and widespread outbreak of cattle plague in 1865. The dumping of sewage on the land and the perceived need to prevent disease by banishing bad smells led to interest in carbolic acid as a sewage deodorant. Carbolic acid was a substance found in creosote, a plentiful by-product of the nation’s ubiquitous gas works. A coat of creosote, it had been found, prevented meat going bad and the word creosote was thus assembled from Greek roots conveying the notion of it as a flesh preserver. But its use as a marinade, tonic or skin cream cannot be recommended however much it may extend the life of your fence. MacDougall, a company we now associate with self-raising flour, was originally a chemical concern. At this period it was the purveyor of a proprietary disinfecting powder made with carbolic. The use of carbolic acid against sewage smells prompted Joseph Lister (1827–1912) to introduce this antiseptic in the operating theatre. Strangely, chemical purification of water before rather than after you drank it was only introduced in a few places at the very end of the 19th century after continuing outbreaks of deadly disease. But the agent used for this purpose was chlorine.

The cattle plague resulted in a shortage of beef and, for a brief time until people tried it, it looked as though horse meat might fill the gap. There was a famous horse banquet in 1868 at the Langham Hotel at which the throng of influential diners was served almost everything but the whinny. Afterwards some of the diners reported mild ill-effects, and rather stronger distaste. One may speculate as to the origin and quality of the horse. After all, these were still the days when refrigeration was a novelty, like today’s chocolate fountains, rather than an integral process in the human food chain.

A friend of Frankland, John Tyndall (1820–1893), became interested in particles suspended not in the water but in the air. Tyndall is a



Sewage farm near Barking. Illustrated London News 26 Sep 1868.

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scientist rather overshadowed by some of his contemporaries. But he was the first to demonstrate the atmospheric greenhouse effect (at the Royal Institution) and show that light scattered by dust is what produces a sky that is blue by day and red at sunrise and sunset through the changing angle of the sun's rays. Tyndall's interest in airborne particles was sparked by trying to make air optically pure for his light scattering experiments.

He developed a sterilisation process for food when it became apparent from the research of Louis Pasteur (1822-1895) that organisms in the air were responsible for putrefaction. Sterilization, Tyndall found in the late 1870s, had to be a multi-stage process because bacterial spores could survive boiling. They have to be coaxed out of their spore state and then attacked again. While we talk about Pasteurization (another heat-based disinfecting process), food cartons on the continent sometimes proclaim that their contents have been Tyndallized, perhaps a case of the grass being greener (or the food being less green) on the other side of the Channel.

Poor Tyndall himself became a victim of a domestic accident involving inappropriately labelled ingredients. He was killed by his wife who administered the sedative chloral in place of milk of magnesia. She was considered not to blame.

In the second half of the 19th century there were many more particles besides bugs in the atmosphere. Domestic hearths, steam engines, gas works and factories of all kinds produced vast outpourings of smoke. The locomotives and factory flues have gone but there remain a fantastic number of chimney pots on London's old rooftops to give us some idea of the magnitude of the problem. It is said that umbrellas are traditionally black from the fact that any

light fabric was immediately soiled by rain drops depositing their burden of soot.

It was not a politician, doctor or scientist with a microscope but an artist who called publicly for clean air. Sir William Blake Richmond (1842–1921) founded one of the first environmental protection organisations, the Coal Smoke Abatement Society, in 1898 decriing the effect of smoke on the light for painters and the way works of art were quickly befouled by “black and greasy dirt” in the air. In an 1898 letter to *The Times* he wrote of light levels in winter that “the darkness was comparable to a total eclipse of the sun.”

However, clean air legislation was still more than half a century away. If little was done by the Victorians to improve the air optically then at least there were those who sought to make it easier on the nose. The engineer William Santo Crimp (1853-1901) studied the ventilation of sewers and introduced “stink pipes” to vent the foul gases overhead rather than in your face. Peter Lund Simmonds, with whom we began, left some advice to deal with other smells.

A room in which meat in an advanced degree of decomposition had been kept for some time, was instantly deprived of all smell on an open coffee-roaster being carried through it, containing a pound of coffee newly roasted.

Coffee, he wrote, was also great for deodorizing dung pits outside stables. So, after using a horse to put the flavour into your coffee, coffee could take the smell out of your horse. It is not recorded whether anyone followed his suggestions, but perhaps the high street coffee chains of today might diversify and sell their own brand of cat litter.

List of the principal references in addition to those mentioned in the text.

<i>By Candlelight: The Life of Dr Arthur Hill Hassall 1817-94</i>	Ernest A. Gray
<i>Edward Frankland: Chemistry, Controversy and Conspiracy in Victorian England</i>	Colin A. Russell
<i>Inventing Pollution: Coal, Smoke, and Culture in Britain Since 1800</i>	Peter Thorsheim.
<i>Food and Its Adulterations (1855)</i>	Arthur Hill Hassall
<i>Terrors of the Table</i>	Walter Gratzer
<i>William Crookes (1832-1919) and the Commercialization of Science</i>	William H. Brock
<i>Greater London Industrial Archaeology Society, Wimbledon Columns, 1996</i>	Rita Ensing
<i>Dictionary of National Biography</i>	OUP

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Laurence is a guide specialising in offbeat historical walking tours focusing on intriguing and amusing tales of discovery, invention and intelligence. Laurence is a volunteer working at the Royal Institution for which he has devised walking tours, and also guides walks and tunnel tours for the London Canal Museum. Surprising life stories, eccentric personalities, startling achievements, and forgotten oddities particularly relating to science, technology and espionage are his passion. Welcoming residents and visitors who want to look beyond the main London attractions he reveals a wealth of lesser known historic sites and offers a double-take on some famous ones. Contact him via his web site, <http://www.laurenceswalks.co.uk>