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## GERMAN HAM AND ENGLISH PICKLES

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*With Bentham bewilder, with Buonaparte frighten,  
With Accum astonish . . .* —James Smith, *Milk and Honey* (1840)

In the history of food adulteration, there are two stages: before 1820 and after 1820; before Accum and after Accum. It was only after 1820 that any sort of concerted fight against poisonous or superfluous additions to food in the modern Western world began, a fact that is entirely due to the appearance that year (in both Britain and the United States) of a single small book entitled *A Treatise on Adulterations of Food, and Culinary Poisons*, written by the expatriate German chemist Frederick Accum (1769–1838). It would be an exaggeration to say that this book changed everything; after it was published, the swindlers carried on swindling, and more often than not they still got away with it; no food laws were changed on account of Accum; and Accum himself, though initially feted, later suffered a total personal disgrace. But his treatise finally opened people's eyes to the fact that almost everything sold as food and drink in modern industrial cities was not what it seemed; and by being not what it seemed, it could kill them.

A Westphalian by birth (his real name was Friedrich), though a Londoner by choice, Frederick Accum was a man who loved his food. He was robustly fond of good healthy bread (wholemeal, not white), smoked ham, aromatic black coffee, and properly made jams and preserves, simmered from peaches, cherries, pineapples, quinces,

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and plums, or, when ripe, from delicious orange apricots.<sup>1</sup> Accum's attitude toward food was not that of a French gastronome, who looks down his nose at anyone who fails to yelp with delight at the sight of a truffled partridge. His appetites were less pretentious and more Germanic than this. A malty pint of beer; a bowl of sauerkraut made from white winter cabbages and caraway seeds; a crunchy pickled cucumber seasoned with pimento; a "light, flaky pie-crust"—these were a few of his favourite things. Yet there was nothing cavalier about Accum's approach to eating. He insisted that you could be as exact and particular about boiling potatoes as you might be about dressing fancy steaks; and only snobs would pretend otherwise. For Accum, this was not simply a question of taste; it was also a question of science. Cooks, he held, were chemists, and the kitchen was a "chemical laboratory." This was something Accum was well placed to judge, since, at the height of his career, in 1820, he himself was perhaps the most distinguished and certainly the most famous chemist in London, at a time when chemistry was at its zenith, and chemists were true celebrities.

As both a lover of food and a chemist, Accum believed in "precision in mixing ingredients." And, as both a lover of food and a chemist, he shuddered with moral indignation at those "respectable" criminals who tampered with food for the sake of profit. Fortunately, Accum did not keep his indignation to himself but wrote it up in his treatise, showing that countless foodstuffs were routinely falsified in ways that were at best dishonest and at worst poisonous. "It would be difficult," he wrote, "to mention a single article of food which is not to be met with in an adulterated state; and there are some substances which are scarcely ever to be procured genuine."<sup>2</sup> The work in which these words first appeared sold a thousand copies in a month (a substantial figure for the time) and went on to sell countless thousands more.

To read the reviews of Accum's treatise is to get a sense of a sudden collective sickening at the thought of how basic foods were falsified. "Since we read [Accum's] book," wrote a reviewer in *Blackwood's Edinburgh Magazine*, "our appetite has visibly decreased . . . yesterday . . . we turned pale in the act of eating a custard."<sup>3</sup> Another reviewer, in the *Literary Gazette*, complained that "It is so horribly pleasant to

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reflect how we are in this way be-swindled, be-trayed, be-drugged and be-devilled, that we are almost angry with Mr Accum for the great service he has done the community by opening our eyes, at the risk of shutting our mouths forever.” The reviewer went on to lament:

Our pickles are made green by copper; our vinegar rendered sharp by sulphuric acid; our cream composed of rice powder or arrow root in bad milk; our comfits mixed of sugar, starch and clay, and coloured with preparations of copper and lead; our catsup often formed of the dregs of distilled vinegar with a decoction of the outer green husk of the walnuts, and seasoned with all-spice, Cayenne, pimento, onions and common salt—or, if founded on mushrooms, done with those in a putrefactive state remaining unsold at market; our mustard a compound of mustard, wheaten flour, Cayenne, bay salt, radish seed, turmeric and pease flour; and our citric acid, our lemonade, and our punch, to refresh or exhilarate, usually cheap tartareous acid modified for the occasion.<sup>4</sup>

This is a fair summary of Accum’s book, which called for “all classes of the community to cooperate” to abolish the “nefarious traffic and deception” of adulterating food and drink.<sup>5</sup> Accum describes children’s custards poisoned with laurel leaves, tea falsified with sloe leaves, lozenges made from pipe clay, pepper mixed with floor sweepings, pickles coloured green with copper and sweets dyed red with lead. “Good heavens!” exclaimed one reader. “Is there no end to these infamous doings? Does nothing pure or unpoisoned come to our tables?” In truth, there *was* almost no end to the scandals Accum uncovered. His book was greeted with shock and consternation. It has been said that no chemistry book was ever so widely discussed.

This shocked reaction was exactly what Accum had sought. “THERE IS DEATH IN THE POT,” read a motto in large letters on the side of an urn on the title page. In case anyone missed the point, the urn was draped in a shroud, with a gruesome skull set above it, and two serpents slithering around. Accum repeated the theme in his text. “We may exclaim with the sons of the prophet,” he wrote, “*There is death in the pot*,” reminding his readers of the line’s biblical origins (in II Kings 4:40). The slogan “Death in the pot” would become a

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rallying cry for food safety campaigners of the nineteenth century, but it was never employed with such biting moral outrage as by Accum. “Feelings of regret and disgust” were, for him, an entirely appropriate response to adulteration. The “nefarious practice,” he complained, was applied not just to “the luxuries of life” but to basic necessities, such as bread, which was commonly mixed with alum to give it a spurious appearance of whiteness. The motive behind adulteration was “the eager and insatiable thirst for gain,” a greed so overwhelming that “the possible sacrifice of a fellow creature’s life is a secondary consideration.”<sup>6</sup> “It may be justly observed,” Accum sorrowfully remarked, just in case any of his readers might have failed to get the message, “that ‘in the midst of life we are in death.’”<sup>7</sup>



“Death in the Pot”: a detail from the frontispiece of Accum’s *Treatise on Adulterations of Food and Drink* (1822 edition).

What made Accum’s *Treatise* so compelling? It was not that people had been entirely unaware of adulteration in food before 1820. He himself said, in his preface, that “every person” was aware that bread, beer, wine, and “other substances” were frequently adulterated.<sup>8</sup> Complaints about watered-down or doctored wine go all the

way back to the ancient Romans, as the next chapter will discuss in more detail. More recently, in the eighteenth century, there had been countless rumours and satires on the contamination of food. The subject of adulteration found wonderful expression in the writing of the novelist Tobias Smollett, who described in his novel *Humphrey Clinker* the foul and debased foods of London, compared to the bucolic simplicity of the country where the chickens are free, the game are fresh from the moors, and the vegetables, herbs, and salads are picked straight from the garden. As Smollett describes it, London is a place where strawberries are washed in spit, where vegetables are cooked with brass to make them green, and where milk carried in open pails through the streets is contaminated with the “spewings of infants,” “spittle, snot and tobacco-quids from foot passengers,” “spatterings from coach wheels, dirt and trash chucked into it by rogueish boys for the joke’s sake,” and even “frothed with bruised snails.” The bread in London is “a deleterious paste, mixed up with chalk, alum and bone-ashes; insipid to the taste and destructive to the constitution.” The wine is a “vile, unpalatable and pernicious sophistication, balderdashed with cider, corn-spirit and the juice of sloes.”<sup>9</sup>

This is all very disgusting, but no one reading Smollett at the time would have believed that London food was really so bad. He exaggerates for the sake of comedy. What was so startling for Accum’s earliest readers was the discovery that many of the adulterations that people had assumed to be comic distortions were actually true. The editor of the *Literary Gazette* commented, while reviewing Accum’s *Treatise*:

One has laughed at the whimsical description of the cheats in *Humphrey Clinker* but it is too serious for a joke to see that in almost everything which we eat or drink, we are condemned to swallow swindling, if not poison—that all the items of metropolitan, and many of country consumption, are deteriorated, deprived of nutritious properties, or rendered obnoxious to humanity, by the vile arts and merciless sophistications of their sellers.<sup>10</sup>

Accum’s genius was to make readers see that “swallowing swindling” really was “too serious for a joke.” That he managed this was due in

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part to the times in which he lived—times when the possibilities for adulterating food multiplied as science and industry grew—and in part to his own outstanding talents as a publicist. Accum was the perfect commentator on this new rash of skulduggery, since he was a man whose passion was the science and industry of modern Britain, who nevertheless saw that science and industry could be used to do damaging things to food. The story of this book is largely the battle between the science of deception and the science of detection. Accum's *Treatise* represents the beginning of this struggle.



Portrait of the chemist Friedrich Christian (Frederick) Accum (1769–1838), who first opened the eyes of the British public to the extent of food adulteration. An engraving from the *European Magazine* (1820) at the height of Accum's fame.

*The Glorious Career of Frederick Accum*

London in Accum's lifetime was a city where outsiders could forge their way to the top very quickly, if they had enough bravado and talent. In this centre of commerce and relative tolerance, Accum was

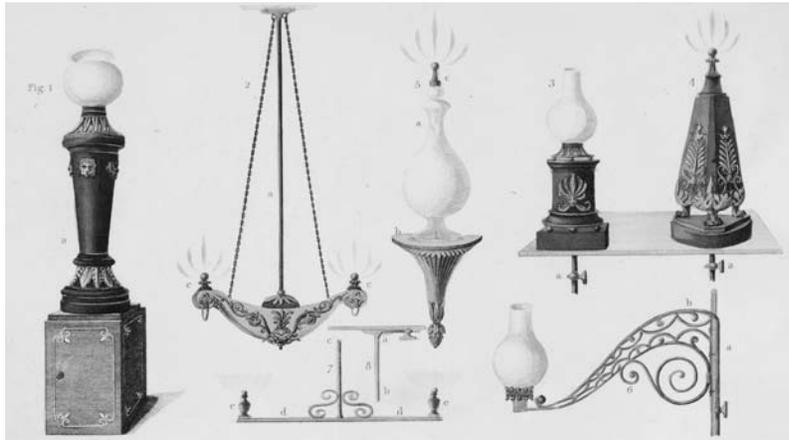
one of many Germans who made their way to prominence. There had been a German Lutheran church in the East End since 1762 and a German school attached to it. Accum counted among his London friends the German publisher and inventor Rudolph Ackermann (1764–1834), famous for his lithographic prints. But he was by no means part of a Germanic clique. Accum had a knack for making contacts in every walk of British life: lawyers, scientists, politicians, aristocrats, men of letters; and charladies, as we shall see.

Bad food was not the first public cause Accum took up. A man with limitless reserves of energy, charisma, and a swaggering belief that he could make himself the master of every branch of chemistry and turn it to profit, he had already secured a place in history by overcoming public prejudice against gas lighting. It was largely thanks to Accum that by 1815 the streets of Westminster were lit by gas lamps rather than, as previously, by lanterns. Yet this was not all. Accum was also famous as a chemical lecturer and teacher, as a purveyor of chemical equipment, as a royal apothecary, as a popularizer of the ideas of Lavoisier, and as a writer on every subject from analytical mineralogy and crystallography to vanilla pods. “In the whole history of chemistry,” wrote C. A. Browne in 1925, “there is no one who has attempted to discharge so many different roles as Accum.”<sup>11</sup> Most historians no longer believe in the notion of a single “industrial revolution”; but if we might still speak of such a thing, Accum was the industrial revolution in microcosm, a man in whom knowledge and trade, enlightenment and profit, plus a fierce pride in the riches and power of Great Britain, coalesced in one single, handsome, restless figure.

His gas lighting triumph shows how Accum’s talents combined to achieve spectacular results. Gas lighting had first been demonstrated in Paris in 1786 by the French innovator Philippe Lebon, but Lebon’s “thermolampes” had not been put to practical use. They certainly hadn’t made it to London, whose streets and houses were still lit mostly by whale oil, tallow, or beeswax. Then, in the winter of 1803–4, a German based in England called F. A. Winsor (another Friedrich like Accum who had anglicized his name to Frederick) gave a series of spectacular demonstrations on the benefits of gas lighting at the old Lyceum theatre on the Strand.<sup>12</sup> One witness described how the

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large theatre was “most brilliantly illuminated by inflammable air,” with tubes of gas fixed round the ceiling, the boxes, and the stage, supplied from a reservoir below. Soon after, Winsor obtained a patent for his method of gas lighting and tried to set up a company for lighting the buildings and streets of London.



Ornate gas lights from Accum's *Practical Treatise on Gas-Light* (1815).

But there was widespread resistance to the idea of burning gas for light. Ordinary people feared the stench and that gas would escape and poison them. British seamen opposed gas lighting, fearing that the decline in demand for whale oil would put them out of a job. Perhaps most significantly, many distinguished scientists also cast doubt on whether gas illumination could ever be safe, including Sir Humphry Davy (1778–1829), the electrochemical genius who later invented the miner's safety lamp. It didn't help that Winsor was himself no scientist, but a self-aggrandizing buffoon. In 1807, he gave his proposed company the ridiculous title of the New Patriotic Imperial and National Light and Heat Company and boasted that annual profits would amount to £229 million (around £15 billion in today's money, using the retail price index, the most modest index of

calculation)—a transparently self-serving and counterproductive attempt to garner investors.<sup>13</sup>

It was here that Accum stepped in. An accredited and well-connected scientist, he had a much better sense of what it would take to make gas lighting a going concern. Like Winsor, he scented the profit that could be made from gas, but went about it in a much more effective manner. He brushed up an earlier interest in the chemistry of gas, spending months experimenting with gas stoves, measuring gas flames against tallow flames, and distilling sticky coal tar with the consistency of treacle. He then presented himself before Parliament as an expert witness on the safety of Winsor's method of gas lighting. In 1809, Accum assured the House of Commons that, based on his extensive experiments, there was "no smell" in gas at the time of combustion, if it was properly done and "no danger" of the gas bursting the pipe; gas illumination, he insisted, was not just as safe as tallow light, it was greatly superior to it. Compared to the constant dangers of fires caused by guttering candles in enclosed spaces, gas-light was cleaner and more dependable, contained in its glass dome.<sup>14</sup> It was the right light for a modern society. In 1810, Parliament passed a bill permitting the incorporation of Winsor's company; the name of Frederick Accum, "practical chymist," appeared on the first board of directors. In 1813, Westminster bridge was lit by gas, and by 1815 thirty miles of gas main had been laid in London.

Accum was now in demand throughout England as a coal-gas expert. In 1815, he published his *Practical Treatise on Gas-Light*, the first work in any language on the subject, beautifully illustrated with pictures of gas chandeliers and lamps, published by Accum's great friend, Rudolph Ackermann. In this work, one can see Accum's passionate belief in industrial progress. Accum pleads with his readers to ignore the "common clamour" that rises up against all "improvements in machinery," whether the steam engine, new spinning and threshing machines, or gaslight. "It ought never to be forgotten," he wrote, "that it is to manufactories carried on by machinery, and abridgment of labour, that this country is indebted for her riches, independence, and prominent station among the nations of the world."<sup>15</sup> Well he

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might believe in progress and in Britannia, given his own personal progression from German obscurity to British fame and wealth.

Accum's career was one of dramatic upward mobility, from humble origins in Westphalia to a glittering and lucrative position as part of the scientific establishment of London. The sixth of seven children, he was born in Buckeburg on 29 March 1769—the birth year of both Napoleon and Wellington, as well as the great scientist Cuvier, and the year that “James Watt patented his steam engine and Arkwright his spinning frame.”<sup>16</sup> But nothing suggested that Accum's birth would lead to similar greatness. Only two of his siblings reached maturity, a sister, Wilhelmina, and a brother, Phillip; the other four died, two of smallpox. Accum's father was a soapmaker, a converted Jew, born Herz Marcus, who at the age of twenty-eight changed his name to Christian Accum, probably for reasons of love; soon afterwards, he married Accum's mother, Judith Suzanne Marthe Bert la Motte, a devout Huguenot. Christian died when Accum was only three, so it was his mother, Judith, who brought him up. Not much is known of Accum's childhood, except that he attended the local gymnasium, where he would have studied Homer and Herodotus, Cicero and Tacitus, but no science. His inclination towards chemistry seems to have been nurtured more by familial influences. Watching his father, and later his older brother Phillip, making soap must have been one influence, as all Accum scholars have noted.<sup>17</sup> The process of saponification is a very immediate form of chemistry. Young Accum must have known his acid from his alkali, must have seen the magic of how potash could turn crude hog's lard into soap. Yet he did not choose to follow his brother into the family business. What Accum scholars don't say is that his love of chemistry was undoubtedly encouraged also by watching his mother cook.

“The inhabitants of Westphalia,” he later recalled, “are a hardy and robust people, capable of enduring the greatest fatigues, [who] live on a coarse brown rye bread.”<sup>18</sup> He probably meant pumpernickel, a Westphalian speciality famous even then outside Germany, whose strange dense texture was said to owe a lot to the characteristics of the local grain.<sup>19</sup> Accum himself came to prefer a slightly lighter wholemeal sour dough bread; but some of his tastes remained

distinctively Westphalian. Long after he had settled in London and left Westphalia behind, Accum continued to extol the excellence of Westphalian ham, that smoky dried delicacy flavoured with juniper whose reputation then exceeded that of the hams of Bayonne and Parma. The nineteenth-century German food writer Rumohr called Westphalian ham one of those products that is “unique, incomparable, unrivalled.”<sup>20</sup> A contemporary English cookery book said that “it cannot . . . be denied that the Westphalian hams, made from wild boar, have a richness and flavour which cannot be completely imparted to the flesh of the finest and fattest hogs.”<sup>21</sup> Often, though, the hams were made from hogs and not boar. Accum wrote that “families [in Westphalia] that kill one or more hogs a year . . . have a closet in the garret, joining the chimney, made tight, to retain smoke, in which they hang their hams and bacon to dry; and out of the effect of the fire, they may be gradually dried by the wood smoke, and not the heat.” This is surely autobiography as well as description. The Accum family would have needed to kill hogs for their lard for soap; delicious ham must have been a side effect.

As well as feeding him well, Accum’s mother seems to have been the one who secured him his entrée to London life. Judith Accum was acquainted with the Brande family, who, thanks to the Hanoverian connection, were apothecaries to King George III of England. After leaving school, Accum took an apprenticeship at the Brande family pharmacy in Hanover. At this time, writes one historian of science, “the pharmacist’s shop was virtually the only place to gain a practical knowledge of chemistry.”<sup>22</sup> Young Accum must have done his job well, because in 1793, at age twenty-four, he was transferred to the London branch, in Arlington Street, just off Piccadilly and round the corner from St James’s Palace. From here, he flung himself with great enthusiasm into the blossoming world of British science. He attended lectures at the School of Anatomy in Windmill Street, where he was taken under the wing of the physician Anthony Carlisle, who introduced him to other scientists, including William Nicholson, the founder of the *Journal of Natural Philosophy, Chemistry and the Arts*, where Accum published his early articles on the adulteration of drugs and on the scientific properties of vanilla pods.

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Little by little, he made a name for himself. Just seven years after his arrival in London, Accum was setting up his own business in Old Compton Street, Soho, as a supplier of chemical apparatus. This is where he lived for the remainder of his time in England—the twenty years until the publication of the *Treatise on Adulterations*.

Accum's public life was very different from the narrow laboratory existence of today's academic chemist. He campaigned; he performed; he advertised; he showed off; he shared his joy of curious experiments involving Bunsen burners with the general public. He combined a fine mind with a popular touch. His aim, he wrote, was



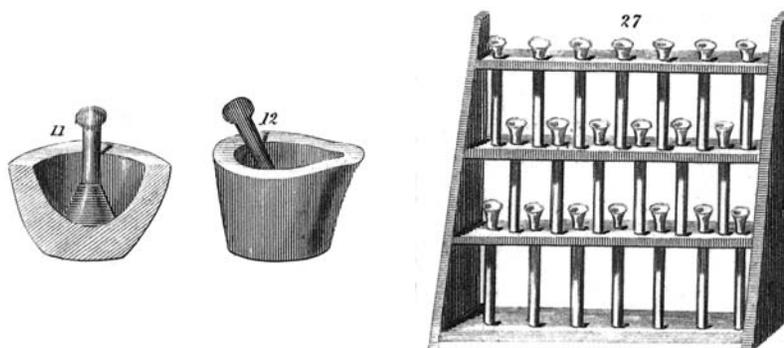
Accum giving a public lecture at the Surrey Institute, Blackfriars Road, London, ca. 1810, by the satirist Thomas Rowlandson.

to mingle “chemical science with rational amusement.”<sup>23</sup> He was said to have great personal charm, a fact confirmed by the warm defences of him issued by friends following the scandal that finally ruined his career in England. There are several illustrations of Accum giving public chemistry demonstrations at the Surrey Institution, where he had become professor of chemistry. A rapt audience looks on from

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gallery and stalls; society ladies lean forward eagerly over the balcony to get a better look. Were it not for Accum's Regency attire—with his Byronic dark hair, beetle brow, full lips and Romantic collar—he could almost be a modern celebrity chef doing a cookery show. He is pouring some substance from a great height into another substance, with a flourish.

Chemistry, then at the height of its fashion, suddenly seemed relevant to all aspects of daily life. As one journalist wrote in 1820, chemistry was “intimately connected with that enthusiasm and laudable desire for exploring the productions of nature, which characterize the age in which we live . . . chemistry within our own times has become a central science.”<sup>24</sup> Accum himself was seen as the “pet chemist” of London.<sup>25</sup> Chemistry governed the twin passions of



Some chemical instruments from Accum's *Explanatory Dictionary of chemical apparatus* (1824). Accum sold this kind of equipment—at a nice profit—from his premises on Old Compton Street.

Regency England, for industry and hygiene. Chemical advance powered the industrial revolution, but it was also chemistry that cleaned up the mess the factories left behind: the stinking air, rank water, and overflowing sewers. In the works of Accum, there is a fervent belief in the capacity of chemistry to make life better.

Most of his countless projects combined enlightenment and commerce. He believed in scientific truth but did not mind making money

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out of it. He was “obliging and kind-hearted” but also arrogant and reckless.<sup>26</sup> From 1800 onwards, he took on private pupils, for a fee of 160 guineas a year, a very considerable sum in those days (equivalent to around £11,000 in today’s money); many of his early students went on to become distinguished scientists in the United States—Professor Benjamin Silliman of Yale, Professor William Peck of Harvard, Professor James Freeman Dana of Dartmouth. Accum was one of the first scientists to pioneer the notion of the chemistry chest, a forerunner of the child’s chemistry set, although his were designed for “Philosophical gentlemen.” In his book *Chemical Amusement* (1817), he wrote up instructions for “amusing” chemistry experiments that could be safely done at home. These sound marvellous, the kind of mad-scientist experiments you long to do at school but are rarely allowed to: “To melt a coin in a nut-shell”; “A fountain of fire”; “To produce an emerald green flame”; “To render bodies luminous in the dark”; “To make indelible ink for marking linen.” At the back of the book is a catalogue for the apparatus and instruments needed to do the experiments, all of which can be bought—conveniently—from Accum’s own shop: test tubes, hydrometers, prisms, mortars, moveable universal furnaces ranging in price from £6 16 s. to £8 8 s., as well as whole chemistry sets. He was constantly coming up with new chemical devices and materials to sell to the public. “As a manufacturer of new and improved chemical apparatus, Accum’s name was for many years almost a household word . . . Accum’s gasometer and pneumatic trough were in demand for fifty years.”<sup>27</sup> If anyone should question whether science was best served by so close an alliance with trade, Accum would say, not a little pompously, that he who manufactures “an article of use to the sciences, which could not before be purchased, is a benefactor to the public.”<sup>28</sup>

Sometimes, though, his eye for easy money took over to an extent that even Accum, for all his self-regard, might have found hard to dress up as philanthropy. One of his friends found Accum in his laboratory one day, in a state of “high glee” at a bargain he had made with Mr. Pitt, the prime minister. Pitt had come in to order a large shipment of chemical apparatus to go to Pondicherry in India. Accum was chuckling because he had played Pitt for a fool, by taking

“this opportunity to sweep my garrets of all my old apparatus and odds and ends that had been accumulating for years” and to sell these oddments at an exorbitant price to the British government.<sup>29</sup> Interestingly, this puerile little trick did not seem morally wrong to Accum, even though he raged against the duplicity of shopkeepers; but then, he saw nothing wrong in making fun of the high and mighty, while the thought of deceiving some poor worker who only wanted to feed his family revolted him.

### *The Chemistry of Adulteration*

Accum’s world of fun, flames, and commerce was a long way from that of the Royal Academy and the other pillars of British science. Yet to a remarkable extent, Accum had managed to crack this milieu too. He may never have achieved the gravitas of a Sir Humphrey Davy, but he was a fellow of the Linnaean Society and a member of the Royal Academies of both Britain and Ireland. In 1803, he published a *System of Theoretical and Practical Chemistry*, introducing the new concepts of Lavoisier to an English audience. Accum was fortunate to have been born at a thrilling time for chemistry. As one historian of science writes, “In the space of about twenty years commencing in 1770, the science of chemistry experienced a change more complete and more fundamental than any that had occurred before or has occurred since.”<sup>30</sup> This period saw the emergence of many of the great names in chemistry—Galvani and his twitching frog’s leg, Scheele, Cavendish, Priestley, Bergman, Klaproth—but none was so great as Antoine Lavoisier, Accum’s hero, who was beheaded during the French Revolution.

In 1769, the year of Accum’s birth, chemistry was in many respects still alchemy. The names that chemists used for their materials were quaint and confusing—“butter of arsenic,” for example, or “liver of sulphur.” Central to the theory of combustion at this time was an entirely fictitious substance called phlogiston: a colourless, odourless, weightless substance believed to be present in all flammable materials. Materials containing this substance were called “phlogisticated”; when burned, they were said to be “dephlogisticated.” All kinds of

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sensible people believed in this theory, until Lavoisier used oxygen to come up with the true theory of combustion. Lavoisier, moreover, swept aside the old alchemical names and unified chemistry into a single modern science. Lavoisier also prefigured Accum in making the first attempts to analyse the composition of alcohol, burning spirit of wine over mercury. He broke olive oil down into hydrogen and carbon. He shared Accum's interest in fruit; a memoir of 1786 by Lavoisier on the nature of organic acids analysed acids produced from pomegranates and barberries, cherries and currants, peaches, apricots, and pears.

Accum's *Treatise on Adulteration* was very much part of this newly prestigious chemistry; he saw clearly that chemical science was both the source of much adulteration and the only way of combating the growing use of adulteration. How "lamentable" it was, he thought, that chemistry, which ought to serve the "useful purposes of life" had been "perverted into an auxiliary of this nefarious traffic." Many "wholesale manufacturing chemists" occupied themselves in crystallizing alum, knowing full well that it would be used by bakers to falsify bread. On the other hand, "happily for the science," chemistry could also be "converted into a means of detecting the abuse."<sup>31</sup> As a later chemist wrote, analytical chemistry had the power to be "the great enemy of adulteration."<sup>32</sup> Before 1820, if you wanted to find out whether a certain food was pure or not, you would most likely use your eyes, nose, and tongue. If milk tasted thin and looked bluish, you might surmise it had been watered down. If coffee was too bitter, you might guess it had been tainted with chicory. If lemonade tasted too acidic and was sold too cheap, it wouldn't take a genius to figure out that it had been made with tartaric acid instead of lemons. This sort of common-sense testing of food is probably the method most employed even now to judge the quality of food. It is called the "organoleptic" approach, and so long as the food being judged is fairly natural and simple, it can work quite well. If you compared two eggs, one of inferior quality and one spanking fresh from some well-looked-after hens, you would know at once which was the good one—all your senses would tell you that the egg whose yolk was rich, orange, and flavourful was better than the anaemic one with its

watery whites. But the organoleptic approach has its limits: it depends entirely on the person testing the food knowing what a certain substance *should* taste, smell, or look like; and it doesn't work so well when food has been tampered with in clever and subtle ways.

By 1820, Accum wrote, adulteration had reached “such a perfection of ingenuity” that “spurious articles of various kinds are every where to be found, made up so skilfully as to baffle the discrimination of the most skilful judges.” Modern food fraudsters were using a little chemical know-how to come up with ever more cunning ways of tarding up cheap ingredients to look as good as new. If they had some old cayenne pepper on their hands, they might touch it up with red lead (just as modern fraudsters touch up stale chilli pepper with red azo dyes). Conversely, if they had some young, raw brandy that they wanted to pass off as the finest aged cognac, they might, wrote Accum, use “tincture of raisin stones” to give the brandy a “ripe taste.” These new forms of adulteration made a mockery of the old organoleptic tests. Take cream, for example. By sniffing a jug of cream, you can usually tell if it is fresh; and by looking at the consistency, you can attempt to judge how rich it is—the thicker the cream, the richer and more desirable. But what if the thickness in the cream came not from butterfat but from the addition of rice flour or arrowroot, a common trick in Accum's day? Could you still trust your eyes to know the difference? With the swindlers raising their game, the process of detection had to become cleverer as well. Chemistry needed to be fought with chemistry. In the case of the adulterated cream, Accum offered a simple procedure to test for the addition of thickeners. If you thought you had some arrowroot-thickened “cream” on your hands, you needed “a few drops of a solution of jodine [iodine] in spirit of wine” to add to a sample of the cream. Real cream would turn yellow; fake cream would turn dark blue.<sup>33</sup>

Much of Accum's power to shock came from the way he subjected food to rigorous scientific analysis, and so he could not be dismissed as a scaremonger. At his Soho premises, he had a little sideline as a practising consultant on the adulteration of food: victimized members of the public could bring him samples of suspect food, and, like a Sherlock Holmes of the mustard pot, he would whip out his

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pipettes to give them dazzling proof of the crime. Accum claims in one of his books that he had twenty-eight years of experience in analysing the respective strengths of British beer and porter (the same kind of specialist knowledge as Sherlock Holmes's ability to spot 140 different types of tobacco ash). The *Philosophical Magazine* of 1819 told the story of how Accum had helped a poor charwoman solve the mystery of some strange blue tea.<sup>34</sup> This charwoman was in the habit of drinking green tea mixed with a teaspoonful of spirit of hartshorn, or ammonia, which she presumably added for medical reasons, since it can have done nothing for the taste (ammonia was sometimes taken internally to help circulation or relieve headaches). One day, this woman purchased an ounce of her customary green tea from a grocer's shop and made up a pot of tea, adding the hartshorn as usual. She was amazed at the "lively blue colour which the beverage made of it assumed." She took the tea back to the grocer, who seems to have professed ignorance. Puzzled, she took a sample of the tea leaves to Accum, who wasted no time in pronouncing the leaves to be coloured green with toxic copper, since copper mixed with ammonia goes bright blue. This he proved by mixing two parts of the leaves with one of nitrate of potash, throwing the mixture into a red-hot crucible. All that was left behind was copper, "in combination with the alkali of the saltpetre." Clearly, the so-called tea was actually some other kind of leaf—probably sloe leaves—tinted green with copper to look like real China tea. Thus were the lies of the grocer exposed and the humble charwoman vindicated.

The *Treatise* is filled with simple chemical tests that could be done to ascertain whether the food you had trustingly bought and brought home was real or fake. For example, Accum noticed that olive oil was often diluted with cheaper poppy seed oil. By freezing a sample of the oil, he could tell whether it was pure.<sup>35</sup> The olive oil would freeze, while the poppy seed oil would remain fluid. Equally, to tell whether lemonade had been doctored with tartaric acid, he recommended adding a concentrated solution of muriate of potash.<sup>36</sup> If a precipitate ensues, "the fraud is obvious." Few readers of Accum probably went to the trouble of obtaining and carrying muriate of potash samples around with them on the off chance that they should be offered a

refreshing glass of lemonade. But the mere existence of these tests gave far greater potential power to the consumer than he or she had ever had before. Too often, a consumer in a pub complaining that a pint of beer was not pure would be met with brazen denial by the publican. Accum's chemical tests proved beyond doubt that the adulteration of beer was "not imaginary" but real, ranging from the relatively harmless additions of molasses and honey for sweetness and orange peel for fragrance to the more sinister admixtures of quassia and wormwood for bitterness, capsicum for pungency, and green vitriol, a substance to enhance the head of a pint of beer, giving it the sought-after "cauliflower" appearance. As a Westphalian, Accum took his beer very seriously and wrote another treatise, still popular among real-ale enthusiasts, on the most wholesome ways of making this essential beverage.

But to understand what made Accum's original *Treatise* so electrifying, we have to see it in the context of its times. Its appeal was partly due to the fact that it appeared at a point and place in history when, for the first time, adulteration on an industrial scale had become a serious and endemic problem. Accum himself quotes an anonymous source from 1773 saying that "Our forefathers never refined so much; they never preyed so much on each other; nor, I presume, made so many laws for their restraint, as we do."<sup>37</sup> Many of the deceptions Accum was describing were relatively new. It was only in an industrialized and impersonal city that the swindlers could get away with the crimes Accum described. Britain in 1820 had the most highly industrialized cities in the world, coupled with a relatively laissez-faire government that failed to police bad food in the way that it was policed in other industrial cities, such as Paris. As a result, adulteration affected the lives of everyone. One of Accum's reviewers described as "almost ludicrous" the extent to which the deceptions were carried on:

So inextricably are we all immersed in this mighty labyrinth of fraud that even the vendors of poison themselves are forced, by a sort of retributive justice, to swallow it in their turn. Thus the apothecary, who sells the poisonous ingredients to the brewer, chuckles over his

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roguery and swallows his own drugs in his daily copious exhibitions of brown stout. The brewer, in his turn, is poisoned by the baker, the wine-merchant and the grocer.<sup>38</sup>

And yet they all continued in their business, as if nothing were the matter. This is why the story of adulteration starts with Accum, who, while half in love with the magnificent industrial activity of his chosen country, retained a Germanic dismay at the British failure to care enough about the way that food was falsified “to a most alarming extent in every part of the United Kingdom.”<sup>39</sup>

*Industrial Britain and the “Insatiable Thirst for Gain”*

Accum depicts Britain in 1820 as an exciting but terrifying place, where anything could be bought for a price—even the tremulous foetuses of young cows, purchased by pastry cooks “for the purpose of making mock turtle soup”<sup>40</sup>—but where staples are pushed to the lowest prices possible, making padding and adulteration almost inevitable. This is a society intensely and foolishly class-conscious, with everyone aspiring to eat the white bread of the rich and to feed their children an array of multicoloured candies that would once have been the preserve of the wealthy, but where almost no one asks *how* their bread can be so cheap and yet so white, or *why* their children’s sweets can be coloured in shades not known in nature. It is a country where cunning and ignorance combine to create hazardous patterns of eating. Accum conveys how easy it was for the unprincipled to debase food often already debased—when Lancashire dairies heated up milk in lead pans, and innkeepers in the north of England wittingly ground mint for “mint salad” using a giant ball of lead instead of a pestle and mortar so that “portions of the lead are ground off at every revolution of the ponderous instrument.”<sup>41</sup>

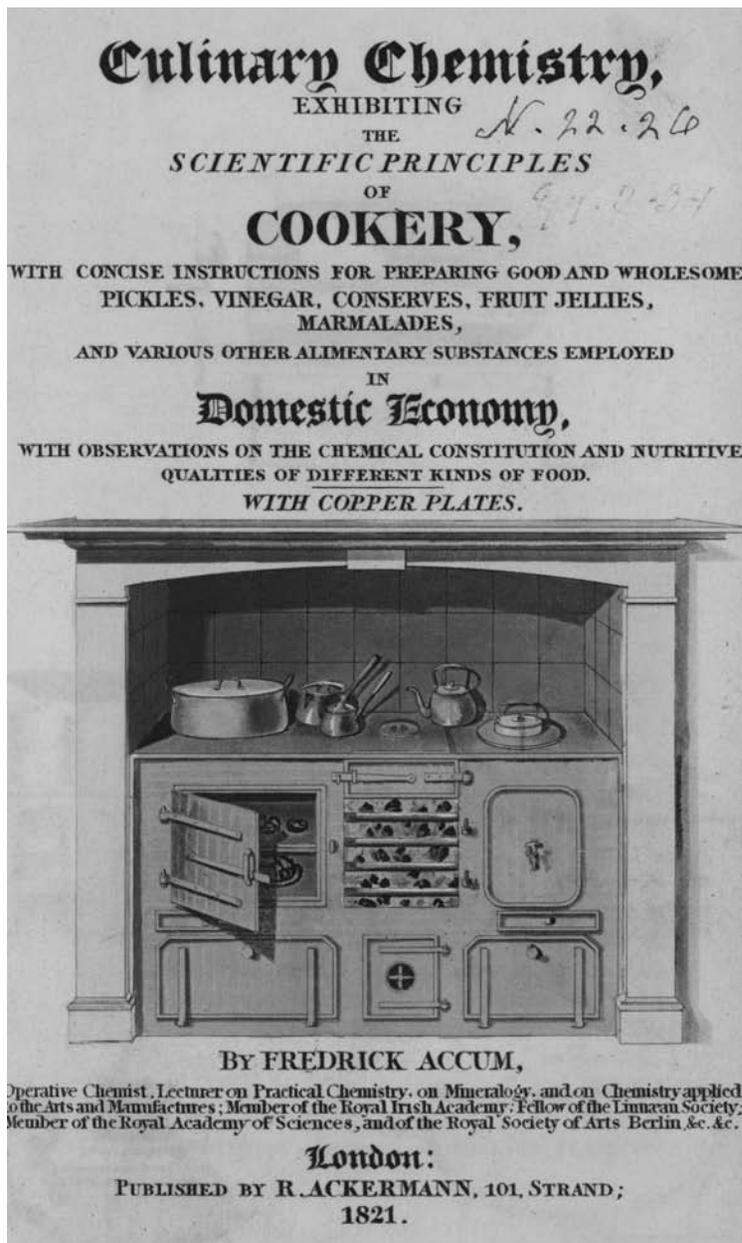
To a certain extent, such ignorance was not new. Lead had been used in cooking since ancient times, as we shall see in the next chapter. The difference was that no one in ancient times had known that lead was poisonous, whereas by 1820 scientists had known of lead’s toxic properties for over a hundred years. What shocked Accum was

that as the elite of British society progressed in science and industry, general ignorance in the kitchen seemed to get worse, not better. The problem was partly that the British had already lost much of their heritage of peasant cooking, as land enclosures drove smallholders off the land. These enclosures had been taking place since the sixteenth century, but they escalated in Accum's lifetime; between 1750 and 1850, there were more than four thousand Acts of Enclosure. These deprived tens of thousands of country-dwellers of the ability to forage for wild greens and berries—as woodland got swallowed up into vast country estates—or to grow their own vegetables and keep their own chickens, as they had once done.<sup>42</sup>

After the end of the Napoleonic Wars, agriculture was in an even worse state, with a slump in prices leaving many farmhands either out of work or living on a miserably low wage. The skill of soup making, always a basic part of peasant knowledge, now declined. The cookery writer Eliza Acton, in 1855 looking back over the previous half-century, observed in 1815 that the English had lost “the art of preparing good, wholesome, palatable soups, without great expense.”<sup>43</sup> Already, in *The Cook's Oracle* published in 1817, Kitchiner was complaining that when the English did make soup, they smothered it with spice. What had been forgotten was the art of the simple pottage made from roots. A cook who could not so much as make a basic soup was not likely to have the necessary knowledge to guard against the wily tricks of swindlers.

It was not that Accum found all English food bad. He thoroughly admired the English habit of eating a lot of fresh meat, and he credited this diet with “the striking fact that the English soldiers and sailors surpass all those of other nations in bravery and hardihood,” an ingratiating comment that contrasts with his insistence on accuracy elsewhere.<sup>44</sup> From his recipe book entitled *Culinary Chemistry*, it is obvious that Accum enjoyed foraging for seasonal foods, picking nasturtium pods in July, red cabbage in August, and mushrooms in September. He adored the whole calendar of English “domestic fruits.” He gives recipes for conserved gooseberries, greengages, damsons, peaches, nectarines, bullaces; for apricot paste and other lovely things.<sup>45</sup> As well as having a passion for making jams and jellies

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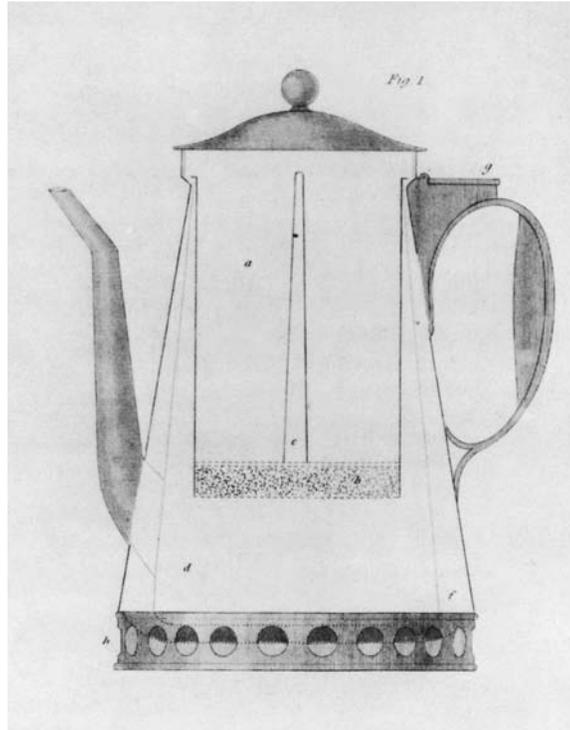
The frontispiece to Accum's *Culinary Chemistry* (1821), a book that showed him to be a connoisseur of good, simple food.

(always with punctiliously well sterilized jars), he wished to overcome the “vulgar prejudice” against turning these fruits into wine. English blackcurrants, he thought, were ideally suited to making a wine like “the best of the sweet Cape wines.” Sloe and damson juice mixed with elderberry juice would make an approximation of port. Meanwhile, “grapes of British growth, are capable of making excellent sparkling and other wines, by the addition of sugar. I have made wine from immature grapes and sugar, which so closely resemble the wines called Grave and Moselle that the best judges could not distinguish them from foreign wines.”<sup>46</sup> High praise, from a German.

The main problem with British food, in Accum’s opinion, was not the raw materials themselves but the dreadful things British cooks did with them. Accum reproved the English tendency to hurry over dinner yet waste “whole hours over the bottle as if time were of no value.” He contrasts this with France, where a “good table” is “a grand object in life.”<sup>47</sup> For a coffee-addict such as Accum, it was evidently distressing to live among people who had never learned the basics of coffee making. Coffee, Accum believed, “diffuses over the whole frame a glow of health, and a sense of ease, and well-being which is extremely delightful.”<sup>48</sup> The English version, however, simply made him miserable. Most of what passed for coffee in England was little more than bitter “coloured water,” he grumbled—hardly surprising given the ubiquity at grocer’s shops of “sham coffee,” made from burnt peas and beans.<sup>49</sup>

Even when real coffee was used, it often tasted terrible. The standard advice was to boil the coffee for five minutes, then boil for another another five minutes with isinglass (a clearing agent made from the bladder of sturgeon), before leaving it to stew for a further ten minutes until it was soot-black and acrid.<sup>50</sup> Accum much preferred fresh strong coffee roasted to a “deep cinnamon” colour and brewed for a minimum amount of time. He bought his own beans, roasted them, and ground them himself in his own coffee mill, following the advice of a retired grocer that you should “never, my dear fellow, purchase from a grocer any thing which passes through his mill.”<sup>51</sup> As for brewing, he used the modern percolation method invented by the American scientist Benjamin Thompson, Count Rumford (1753–1814).

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A coffee pot invented by Accum's hero, Benjamin Count Rumford.

Accum agreed with Rumford that “Coffee may easily be too bitter, but it is impossible that it should ever be too fragrant”; not a lesson that the English had learned.<sup>52</sup> Accum also agreed with Dr. Johnson that “he who does not mind his belly will hardly mind anything else.”<sup>53</sup> He writes, a little wearily, of the way that melted butter forms the basis of almost every English sauce—“melted butter & oysters, melted butter & parsley, melted butter & anchovies, melted butter & eggs, melted butter & shrimps, melted butter & lobsters, melted butter & capers.” You can tell he has himself endured one too many plates of meat swimming in butter at grand English tables on his way up the social ladder. He is impatient of English snobs, citing an absurd “Lord Blainey” who claims that hams “are not fit to be eaten unless boiled in Champagne.”<sup>54</sup>

While the rich boiled their hams in champagne, the basics of a good diet were neglected. People judged food too much on what it looked like, and not enough on what it tasted like, or whether it did their bodies any good. Bread was the capital example. In “this metropolis,” wrote Accum, bread was “estimated entirely by its whiteness.”<sup>55</sup> According to the “caprice of the consumers,” white bread was good bread. Yet it was almost impossible to produce properly white bread, “unless the very best flour is employed,” which was too expensive for most pockets. Therefore, to please their customers, bakers would take low-grade flour and “improve” it by adding the bleaching chemical alum, which could make the bread whiter, lighter, and more porous. Without the alum, the bread would remain moister longer, but have a “slight yellowish grey hue,” like greying laundry, which put people off. Accum believed that the use of alum was almost universal in London at this time. Nor did he blame the bakers as much as he blamed other swindlers (partly because he thought that alum was relatively inoffensive compared to copper or lead). “I have been assured by several bakers, on whose testimony I can rely, that the small profit attached to the bakers’ trade, and the bad quality of the flour, induces the generality of London bakers to use alum in the baking of their bread.”<sup>56</sup> They got away with it because commercially minded Londoners did not expect them to do otherwise.

Accum was more exercised by the lackadaisical attitude of the British towards the safety of what they ate. The use of copper to heighten the green look of vegetables was a case in point. “Will it be believed,” he exclaimed, “that in the cookery books which form the prevailing oracles of the kitchen in this part of the island, there are express injunctions to ‘boil greens with halfpence or verdigrise,’ in order to improve their colour!”<sup>57</sup> In his *Treatise on Adulterations*, Accum reproduces a sinister recipe from a cookbook called *Modern Cookery* for something called “greening,” a mixture of verdigris, vinegar, alum, and bay salt to be used with “whatever you wish to green.” In another book called *The Ladies Library*, Accum had found a recipe for pickled gherkins that recommended boiling the vinegar in a copper pot.<sup>58</sup> In a third book, Mrs. Raffald’s well-known *The English Housekeeper*, there were directions to boil pickles with

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halfpence “or allow them to stand for twenty-four hours in copper or brass pans.”

The use of copper to make pickles green was a case where commercial manufacturers were following the bad practice of the home cook. Accum regretfully noted that in order to sell well, pickled vegetables—whether gherkins, samphire, French beans, or green capsicums—needed a “lively green colour.” The consequences of this taste for green pickles could be “fatal,” as Accum lamented. He quotes a Dr. Percival on the case of “a young lady who amused herself, while her hair was being done, with eating samphire pickles impregnated with copper. She soon complained of pain in the stomach; and in five days, vomiting commenced, which was incessant for two days. After this, her stomach became prodigiously distended; and in nine days after eating the pickles, death relieved her from her suffering.”<sup>59</sup> Copper was used in sweet things, too, “such as small green limes, citrons, hoptops, plums, angelica roots,” always conveying an impression of vitality that was entirely misleading.<sup>60</sup> It was Accum’s opinion that

Copper cooking utensils are attended with so much danger, that the use of them ought to be laid entirely aside. They have not only occasioned many fatal accidents (which have been made public) but they have injured the health of great numbers, where the slower, but not less dangerous effect has not been observed. If not kept very clean and bright, the rubbing or scraping that takes place when making stews, or cooking dishes that require stirring and remaining a considerable time on the fire, always wears off some of the metal which impregnates the food, and has a deleterious effect.<sup>61</sup>

Copper-green foods were—alas—not the only example of reckless stupidity in the kitchen. This stupidity, though it was not ill-intentioned, could be every bit as damaging as the venality of real swindlers. “For many years,” Accum wrote, British cooks had been using the leaves of the cherry laurel (*prunus lauro-cerasus*) to flavour custard. The reasoning was that cherry laurel leaves, when steeped in milk, give it a nutty flavour not unlike the much more expensive bitter almond. As a result, cherry laurel was used to communicate “a kernel-like flavour” to custards, puddings, creams, blancmanges, and

other delicacies of the table. There was just one flaw with cherry laurel. It was poisonous, and it had been known to be poisonous since 1728, when “the sudden death of two women, in Dublin, after drinking some of the common distilled cherry laurel water, demonstrated its deleterious nature.”<sup>62</sup>

Yet still cooks used it, believing it to be harmless in small quantities. As Accum remarked in a different context, “different constitutions are differently affected by minute quantities of substances that act powerfully on the system.”<sup>63</sup> He cites a case from just the previous year, 1819, when some children at a boarding school in Richmond became “severely ill” after eating some custard flavoured with cherry laurel. A girl aged six and a boy aged five fell into a profound stupor. Two other girls developed intense gastric pain. It took all the children three days to recover. Such pain just for eating a custard! It is impossible not to share Accum’s rage at this dangerous folly. “What person of sense or prudence, then, would trust to the discretion of an ignorant cook, in mixing so dangerous an ingredient in his puddings and creams? Who but a maniac would choose to season his victuals with poison?”<sup>64</sup>

Accum gives the answer himself. Who but a maniac? A villain. There were plenty of them about, judging from the evidence of the *Treatise*, “unprincipled modern manufacturers” who hid under the guise of respectability. Accum was angry enough with the “inexcusable negligence” of those cooks who poisoned eaters by mistake by underestimating the dangers of copper pans or cherry laurel, but to poison cunningly and knowingly was a crime akin to murder, driven by naked greed. “The eager and insatiable thirst for gain, which seems to be a leading characteristic of the times, calls into action every human faculty, and gives an irresistible impulse to the power of invention; and where lucre becomes the reigning principle, the possible sacrifice of even a fellow creature’s life is a secondary consideration.”<sup>65</sup>

Such men would risk even the health of children, if it meant enhanced profits. One of the most chilling chapters in Accum’s *Treatise* is the one concerning “Poisonous Confectionary,” in which he writes of the “grossest abuses” in “those sweetmeats of inferior quality frequently exposed to sale in the open streets, for the allurements

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of children.”<sup>66</sup> Accum writes about these sweets in the same fearful terms that modern mothers might use to warn children against strangers. Children were tempted to buy these candies by the bright colours, colours that would do their little tummies no good.

The white comfits, called sugar pease, are chiefly composed of a mixture of sugar, starch, and Cornish clay (a species of very white pipe-clay;) and the red sugar drops are usually coloured with the inferior kind of vermilion. The pigment is generally adulterated with red lead. Other kinds of sweetmeats are sometimes rendered poisonous by being coloured with preparations of copper.<sup>67</sup>

After Accum’s *Treatise* appeared, a father wrote a letter to *The Times* saying that his family had suffered terrible stomach pains, sickness, and retching after eating some multicoloured comfits the shape of “turnips, parsnips, carrots and beans” bought as a treat.<sup>68</sup> Some treat!

Yet the confectioners who sold such poison candy often pleaded ignorance of their side effects; others admitted that lead or copper was bad but claimed that they did not know that these poisonous additives were present in their particular product; and they weren’t *always* lying. In the world described by Accum, no single person can take responsibility for the quality of a given food or drink, since it has passed through so many hands. Adulteration thrives when trade operates in large, impersonal chains. In a rural setting, swindling is a risky business. If you are the village milkman, the chain between you and your customers is very short: you know them all by name because they are your neighbours. If you start watering down your milk, the chances are that word will soon get out and you will be ostracized. But if you are selling milk in the metropolis of London in 1820, to an ever-shifting clientele, it is easier to cover your tracks. With less perishable goods, such as tea, sweets, or spices, it is easier still. The chain between producer and consumer may be so long that it becomes hard to determine who exactly in the chain did the dirty deed.

Sometimes, indeed, the chain was so long that food could become poisoned without anyone intending it. Accum noted that during “the long period devoted to the practice of my profession,” he had had “abundant reason to be convinced that a vast number of dealers, of

the highest respectability, have vended to their customers articles absolutely poisonous, which they themselves considered as harmless, and which they would not have offered for sale, had they been apprised of the spurious and pernicious nature of the compounds.”<sup>69</sup>

The most startling case Accum cited was of some Double Gloucester cheese, which through a convoluted sequence of events became coloured with red lead. Ordinarily, Double Gloucester—so called because it originally used the milk from two milkings—is coloured, when it is coloured at all (sometimes it isn’t), with annatto. Annatto (now known as E160 (b)) is a vegetable dye that comes from an orange pulp on the tropical annatto tree. A few people are allergic to it, but otherwise it is fairly harmless. Red lead, on the other hand, is lethal. Accum repeats a story told by a Mr. J. W. Wright of Cambridge of a gentleman who had reason to stay for some time at an inn in a city in the West Country. One night, he was “seized with a distressing but indescribable pain in the region of the abdomen and the stomach, accompanied with a feeling of tension, which occasioned much restlessness, anxiety and repugnance to food.” Twenty-four hours later, he was completely better. Four days later, exactly the same thing happened—the agony, the tension, the anxiety, the recovery. Now the gentleman remembered that on both occasions he had asked the mistress of the inn for a plate of toasted Gloucester cheese, a dish he often ate for supper at home. The mistress was affronted at this news. Why, she had purchased the cheese from a respectable London dealer. But when the gentleman ordered the toasted cheese for a third time, and for a third time suffered “violent choleric,” there was no mistaking it; the cheese was to blame. Then a serving maid chipped in that a kitten had been violently sick after chewing a rind of the same cheese.<sup>70</sup>

At this, the mistress swallowed her pride and had the cheese examined by a chemist, who pronounced it contaminated with red lead. The respectable London dealer now asked the farmer who had manufactured the cheese how it had become contaminated; he said he had bought the annatto from a mercantile traveller who had supplied him for years without causing “a single complaint”; but he in turn had got it from another supplier who had touched up the

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annatto with vermilion (a nonpoisonous dye), which had been mixed with red lead by a druggist who had assumed the vermilion was only to be used as “pigment for house painting,” never imagining it would go into cheese. Thus, concludes Accum’s source, “through the circuitous and diversified operations of commerce, a portion of deadly poison may find admission into the necessaries of life, in a way which can attach no criminality to the parties through whose hands it has successively passed.”<sup>71</sup>

Often, though, adulteration arose by exploiting the division of labour in a much more conscious way. Given his admiration for industry, it upset Accum to see how the adulterators mimicked “the order and method of a regular trade,” in which sinister kingpins would manipulate workmen who were often “ignorant of the substances which pass through their hands.”<sup>72</sup> “It is a painful reflection, that the division of labour which has been so instrumental in bringing the manufactures of this country to their present flourishing state, should have also tended to conceal and facilitate the fraudulent practices in question; and that from a correspondent ramification of commerce into a multitude of distinct branches, particularly in the metropolis and the large towns of the empire, the traffic in adulterated commodities should find its way through so many circuitous channels, as to defy the most scrutinizing endeavour to trace it to its source.”<sup>73</sup> The swindlers did everything possible to evade capture:

To elude the vigilance of the inquisitive, to defeat the scrutiny of the revenue officer and to ensure the secrecy of these mysteries, the processes are very ingeniously divided and subdivided among individual operators, and the manufacture is purposely carried on in separate establishments. The task of proportioning the ingredients for use is assigned to one individual, while the composition and preparation of them may be said to form a distinct part of the business, and is entrusted to another workman. Most of the articles are transmitted to the consumer in a disguised state, or in such a form that their real nature cannot possibly be detected by the unwary.<sup>74</sup>

Take the liquor business. Dodgy liquor manufacturers were in the habit of using something called extract of *Cocculus indicus* (made by

boiling the berries of that plant) to make porter and ales extra intoxicating. But to cover their tracks, the market name for this substance was “black extract,” the implication being that it would be used by tanners and dyers, rather than by liquor-makers.

Some forms of adulteration were crude—such as “P.D.” or pepper dust, a “vile refuse” swept from the floor of the pepper warehouses that often got mixed in with ground black pepper. An even worse version was known as “D.P.D.,” short for “dust of pepper dust,” the very grimmest, nastiest floor sweepings of all. There was little art in this deception. On the other hand, some truly intricate labour went into many of the more outrageous forms of adulteration. Real black peppercorns—which many consumers doubtless bought in preference to ground, thinking, wrongly, that there was no way to adulterate the whole spice—were sometimes padded out with “factitious peppercorns,” which seem to have been the work of an artisan to make. First, blackish “oil cakes” were taken (the residue left over after pressing linseed oil) and mixed together with common clay and some cayenne pepper (to give the “corns” some bite so that consumers might really be fooled by them). Then this paste was pressed through a sieve and rolled in a cask until it formed little pellets. Making these tiny balls of fake “pepper” must have been highly laborious, and swindlers couldn’t get away with adding very many to the real peppercorns before suspicion was aroused—around 16 percent was standard—yet evidently it was still worth the swindlers’ while to do it. Labour was cheap and spice was expensive (the duty on a single pound of pepper was 2s. 6d., a tax that was reduced in 1823), and there was no shortage of workers to carry out this peculiar trade.<sup>75</sup>

It was in the manufacture of fake tea that the intricacy of the adulterator’s art reached its pinnacle. Accum details numerous cases where “tea” was not tea at all, but elder leaves, ash leaves, or, most often, sloe leaves, boiled and baked and curled and dried and coloured until they resembled the best China green tea. In 1818, the attorney general brought numerous cases against tea swindlers, including one against a grocer, Mr. Palmer, who had been purchasing imitation tea from a pair of crooks called Proctor and Malins. These crooks engaged another man, Thomas Jones, to gather the sloe leaves

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and whitethorn leaves for them. Jones seems to have been unaware, at least at first, what the leaves were for. He in turn subcontracted the spadework of picking the sloe leaves to another man, selling the leaves on to Proctor and Malins for tuppence a pound.<sup>76</sup>

Now the real villainy began. To convert the leaves into “an article resembling black tea,” they were first boiled, then sifted to separate out the thorns and stalks, and baked on an iron plate to dry out, then “rubbed with the hand, in order to produce that curl, which the genuine tea had.” It was then coloured with logwood (*Haematoxylon campechianum*), a dye from the West Indies, which in large doses



Accum's illustration of real and fake tea leaves, from his *Treatise on Adulterations* (1820). Those on the left with “deeply serrated” edges are real. Those on the right are sloe leaves.

can cause gastroenteritis. The “green tea” was more poisonous still, being boiled with verdigris (copper acetate, a poison) and, when dry, painted with a toxic mixture of “Dutch pink” dye and more verdigris. To bring the scandal of this to life, the crown prosecutor told the jury

that whenever they supposed “they were drinking a pleasant and nutritious beverage, they were, in fact, in all probability, drinking the produce of the hedges round the metropolis, prepared for the purposes of deception in the most noxious manner.” Needless to say, the jury found the defendants guilty.

This case—along with the other tea prosecutions of 1818—demonstrated how widespread tea adulteration really was. In his book, Accum included sketches of sloe leaves and tea leaves to show how differently shaped they were. Tea leaves, he noted, were “slender and narrow,” while sloe leaves were round and “obtusely pointed,” with less serrated edges.<sup>77</sup> Once rolled up and painted with verdigris, though, the differences would be much harder to spot—unless you brought the tea home and moistened it and rubbed it against a white sheet of paper, as Accum suggested, to bring off the dye; but by this point you would already have been swindled. Even a high price was no guarantee that tea was genuine. Accum himself managed to obtain twenty-seven different samples of “spurious tea” from the merchants of London, ranging from “the most costly to the most common.” Tea fraud was thus a problem affecting the whole of British society. For much of the previous century, tea had been seen as a rather feminine and aristocratic drink; but now the habit of tea drinking had spread to the working-class masses. Heavily sweetened tea sustained the workforce that powered Britannia’s industrial advance. To poison that workforce with sloe leaves and verdigris was a serious matter. What should be done about it, though, was a matter of fierce disagreement, because it touched on the most divisive political issue of the day, the question of the relationship between government and commerce, law and freedom. How far could legislation interfere with the divine liberty of free trade?

### *Adulteration and the Law*

Reading British newspapers from this period, you often come across the view that, while adulteration was regrettable, it was a natural consequence of the free trade that was necessary to power Britain’s commercial success. To introduce new regulatory measures would

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have the undesirable effect of stifling the market. It was therefore better to do nothing. *Laissez faire, laissez aller, laissez passer*, as the Physiocrats said: keep government out of trade. Accum observed that “public opinion” now saw adulteration as just another “mercantile pursuit,” and it was thus “not only regarded with less disgust than formerly, but is almost generally esteemed as a justifiable way to wealth.”<sup>78</sup> He summarized the commercial defence of adulteration:

It has been urged by some that, under so vast a system of finance as that of Great Britain, it is expedient that the revenue should be collected in large amounts; and therefore that the severity of the law should be relaxed in favour of all mercantile concerns in proportion to their extent: encouragement must be given to large capitalists; and where an extensive brewery or distillery yields an important contribution to the revenue, no strict scrutiny need be adopted in regard to the quality of the article from which such contribution is raised, provided the excise do not suffer by the fraud.<sup>79</sup>

The rule of *caveat emptor*—let the buyer beware—also came into play. If consumers chose to buy falsified foods, that was their lookout—an argument we will return to in chapter 3. To Accum, familiar with the much more interventionist system of Westphalia, such arguments were unconstitutional and unjust. The “true interests of the country” dictated that adulterators, both large and small, be dealt with by the strong arm of the law. As for the supposed loss in tax revenue that would come from exposing them, Accum believed that “a tax dependent upon deception must be at best precarious.” His strongest reasons for opposing this argument, though, were moral. To paint sloe leaves with poison and pass them off as tea was wicked; and far from turning a blind eye, the law should crack down on such activity. His indignation roused Accum to one of his most dramatic statements: “It is really astonishing that the penal law is not more effectually enforced against practices so inimical to the public welfare. The man who robs a fellow subject of a few shillings on the high-way, is sentenced to death; while he who distributes a slow poison to a whole community, escapes unpunished.”<sup>80</sup> This wasn’t quite right; the last British citizen to hang for highway robbery had been

executed in 1783. Accum had made his point, though. Too many swindlers were getting away with it, and the law needed to intervene. Where government revenue was at issue, con men could be prosecuted for adulterating taxable items such as beer or tea. But there was no specific law against adulteration, and little consistency in the way that the existing law was applied. More government action was needed to extend penalties “to abuses of which it does not now take cognisance”; that enlarging the law in this way, Accum argued, would actually benefit ‘the revenue.’<sup>81</sup>

Not everyone shared his opinion, though. Some thought “the revenue” was to blame, in the first place, for much adulteration. If imported goods weren’t taxed so highly by a greedy government, there would be no motive for making cheap imitations from native plants. *The Times*, whose general outlook was favourable to laissez-faire, responded to the fake tea scandals of 1818 in exactly the opposite way to Accum. What was needed was not more government interference but less. It shared Accum’s disgust at the tea counterfeiterers, remarking that many took refuge in the “mild refreshment” of tea because they feared the “deleterious drugs” used in porter. What an injustice it was that “sober men and women are to be poisoned as a penalty for refusing to get drunk.” But unlike Accum, *The Times* was not altogether surprised that nine-tenths of the “tea dealers of the metropolis” sold the “adulterated article in a greater or less proportion.” An anonymous editorial written in March 1818 held that adulterated tea was

inevitable—inevitable, so long as the genuine tea of China shall be taxed very nearly one hundred per cent on its original cost and sold to the people of England, who are the greatest consumers of it in the world, at a higher price than to any of those nations who never send a single merchant ship to sea. We are not so childish to adjure a financier by his regard for the health or enjoyments of his countrymen, to reduce a tax on a simple article of consumption; but we would appeal to the common sense and plain arithmetic of our law-givers, whether it be for their interest to maintain the tea-duties at such a rate as to supersede the demand for this popular article, and to extinguish the revenue desirable from it, by forcing into the market a spurious

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commodity, which is only advantageous to manufacture, because of the exorbitant imposts on tea. Mr Pitt knew better.<sup>82</sup>

This last was a reference to the fact that when Pitt the Younger was prime minister (1783–1801), he had slashed tea duties from 119 percent to 25 percent in order to combat smuggling. It had been a very successful policy, vastly increasing the amount of tea passing through the Exchequer. These were different times, though, with the price of all food at a premium following the wars with France. The Corn Laws, introduced in 1815 to safeguard the livelihood of British farmers, kept the price of wheat, and thence bread, artificially high. Meanwhile, duties on luxuries such as tea, wine, spirits, and tobacco were all extremely high in 1820, which doubtless contributed to the market in counterfeit versions.

Accum himself makes frequent reference to the effects of “the late French war” on food and drink, especially beer. During the Napoleonic Wars, many lines of trade were shut off, pushing up the price of all raw materials. London porter, so Accum noted, was “unquestionably” weaker at this time, except when it had been made “intoxicating” by the addition of “narcotic substances.”<sup>83</sup> He describes the special jackets worn by brewers with many large pockets, each concealing a different adulterating substance—spices, colours, and drugs.<sup>84</sup> During the wars, Accum observed, imports into Britain of a drug called *Cocculus indicus* shot up. This is a convulsive poison, whose active ingredient is picrotoxin, a powerful and bitter narcotic, now used to destroy lice or stupefy fish. In those days, it was added by fraudulent brewers to beer, to make its effects stronger and cover up the fact that not enough malt and hops had been used. Brande’s *Manual of Chemistry*, published in 1819, noted its dangers—a fact seemingly known to the brewers themselves, though it didn’t stop them from using it. In *Every Man His Own Brewer* (1790), Samuel Child admitted that *Cocculus indicus* was “poisonous leading to stupefaction, and unlawful; being of excessive strength to attack the head”; yet he still includes it in his recipe for porter.<sup>85</sup>

The adulteration of beer was not only an attack on drunkards. Since so much water, especially in cities, was undrinkable, beer had

GERMAN HAM AND ENGLISH PICKLES



“Death’s Register” by Richard Dagley from *Death’s Doings* (1826), showing a skeleton plotting various poisonous swindles. Notice the sign on the wall, which reads “Accum’s List” and the barrel of *Cocculus indicus*, which was an adulterant of beer.

the status of a basic family drink, consumed by children as well as adult men and women. This made tampering with it a grave matter, affecting the whole population. The problem was widespread. Accum cites countless prosecutions against brewers and publicans

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for adulterating beer in one way or another, or for mixing strong beer with weaker “table beer.” Between 1813 and 1819, more than thirty brewers were fined vast sums for “receiving and using illegal ingredients in their brewings.” Among them, John Cowell was fined £50 for using Spanish liquorice and mixing table beer with strong beer; John Gray was fined £300 for using ginger, hartshorn shavings, and molasses; Allatson and Abraham were fined £630 for using *Cocculus indicus*, *multum*, and “porter flavour.”<sup>86</sup>

What these prosecutions reveal, though, is that, at least as regards beer, the government intervened more to protect the consumer than Accum allowed. British parliamentary laws safeguarding beer at this time were comparable to the notorious *Reinheitsgebot* of Bavaria, promulgated in 1516. Acts of Parliament prohibited beer from containing any substance but malt, hops, and water (yeast was added to beer only later).<sup>87</sup> Druggists and grocers could be prosecuted for selling adulterating items to brewers, even something as harmless as molasses (a dark treacle used to colour and sweeten beer). Even the use of burnt sugar to add colour and isinglass to clarify beer were prohibited by law.<sup>88</sup> Never again would the standards be so stringent.

Indeed, the standards for British beer now are nowhere near as strict as they were then. Practically all beer sold in modern British pubs would count as “adulterated” in Accum’s view, even if not adulterated with such noxious substances as *Cocculus indicus*. By law British beer is permitted to contain caramel to adjust its colour, potassium chloride to adjust its flavour, phosphoric acid to change its acidity, and numerous other additives and processing aids. Brewers may choose from no fewer than seventeen different preservatives, such as calcium sulphite or sodium benzoate.<sup>89</sup> To Accum, most of these substances would have been needless deceptions; and the law agreed with him. The case of beer shows how inconsistent the British state of 1820 was in its *laissez-faire* attitudes toward food and drink. While it chose not to interfere in cases of food adulteration, even poisoning, it could be very strict in regard to beer, a remnant of older patterns of government regulation of what people ate and drank.

Clearly Accum was writing at a crossroads, as the new, impersonal modern trade in food superseded older attitudes. Urbanization, as

one historian has said, “had deprived millions of people of experiences that had been commonplace for humankind before”—the taste of honey, for example; not long after Accum, a London street sweeper remarked that he had never tasted honey but had heard it was “like butter and sugar mixed.”<sup>90</sup> Accum rightly recognized a new world in which the integrity of most basic foods was constantly under attack; this is the world we still live in today. But, unlike most of us now, Accum remembered enough of the old world to remember what unadulterated food should really be like. He knew the “genuine old . . . beer of the honest brewer” with its “rich, generous, full-bodied taste.”<sup>91</sup> And he knew it was a disgrace that instead of this nourishing drink, so many people were making do with a product that was stale, coloured, or drugged.

### *Accum's Disgrace*

Given the uproar that surrounded Accum's *Treatise*, you might expect that it would have led to some change in British law. It did not do so. The “Death in the pot” campaigners would have to wait another forty years before the first anti-adulteration legislation was passed, in 1860. There were various reasons for this.

The prevailing mood of the British press and government in 1820 was still excessively *laissez-faire*: nonintervention remained the dominant philosophy of the day, and it took several decades for this to change. Only in the second half of the nineteenth century, after years of pressure from socialists, Chartists, and radicals, did the doctrine lose its dominance.<sup>92</sup> Accum was thus something of an anomaly in his day: a man of trade who favoured state intervention.

Another problem was the state of the science: Accum's chemical tests, though advanced by the standards of 1820, were still somewhat limited and would be superseded, first by the more comprehensive chemical tests of French chemistry, and later by the microscopic food analysis of the 1850s. But there was also a third reason, which had to do with Accum himself. If 1820 was the year of his greatest triumph—a year when he was feted by the press and had a glowing profile written of him in *European Magazine* that hailed him

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as the “most popular consulting chemist” in Britain—it was also a year in which he lost everything and was to flee the country with his reputation ruined. As a result, Accum never got the chance to press home the legal questions that his *Treatise* had raised. For Accum, the scourge of swindlers, was caught out in a swindle of his own.

On the 5 November 1820, Guy Fawkes Day, the assistant librarian at the Royal Institution, a Mr. Sturt, discovered that several books in the Reading Room had been mutilated—various leaves and plates had been torn out.<sup>93</sup> Since these books were ones that Accum was in the habit of reading, the finger of suspicion pointed immediately at him. His connection with the Royal Institution had been important to Accum’s career. So highly did he regard the institution that he dedicated his first book on chemistry to its managers. After he gave up working there, he continued to be a subscribing member, which gave him rights to use the Reading Room, with its extensive library of books. For an intellectual magpie like Accum, it must have been an invaluable resource; though, judging by later events, it was one whose limits he failed to understand.

After Accum left the Reading Room on 5 November, the assistant librarian went over to look at the books he had seen in Accum’s hand. Sure enough, some leaves had been torn out. To make sure that the crime really had taken place, the secretary of the institution ordered Mr. Sturt to have peepholes bored in a cupboard adjoining the Reading Room. From there, it was possible to spy on the activities of those using the library. On 20 December, Accum fell into the trap. From the safety of his cupboard, Sturt observed Accum tearing several pages out of a volume of *Nicholson’s Journal*, before leaving the institution in a “hurried and confused manner.” A search warrant was put out. After Accum’s Old Compton Street residence was ransacked, the Royal Institution librarian identified a further thirty torn pages on his premises. Accum’s defence was that he had torn them from his own books; but he was arrested and charged with robbery. This case was dismissed by a magistrate who was clearly on Accum’s side, remarking that once separated from the books, the leaves just amounted to “waste paper,” of no value. Needless to say, this did not satisfy the bigwigs of the Royal Institution. They brought a new

prosecution against Accum of “feloniously stealing and taking away two hundred pieces of paper of the value of ten pence.”<sup>94</sup>

Having been the toast of the town only a month earlier, Accum was now a social embarrassment and on his way to becoming a pariah. The newspapers made fun of him. A feeble verse called “Death in the Pot” circulated in the press:

What is his crime? A trick at most,  
A thing not worth debating.  
‘Tis only what the *Morning Post*  
Would call *Accum*-ulating.<sup>95</sup>

After the scandal, he was dropped unceremoniously by his publishers, Longman, Hurst, Rees, Orme & Browne, despite his astonishingly prolific output and healthy sales. But other friends rallied round. He was accompanied in court by John Papworth, an architect, and Rudolph Ackermann, the publisher, who paid £100 each in “surety” to keep Accum out of jail.

His friend Anthony Carlisle wrote to *The Times* begging Earl Spencer, president of the Royal Institution, to reconsider and stop this “*persecution* against a man of science.” Carlisle did not deny that Accum was guilty of “gross misconduct,” but he argued that Accum had learned the habit of plundering books in this way from the scientist William Nicholson, who would often tear up books “to save time and trouble.” Carlisle insisted that Accum and Nicholson looked on books as no more valuable than “crucibles” or even pots and pans. He pleaded, moreover, that because of his lack of a “refined education” (reading between the lines, this meant because he was un-English, and more particularly of Jewish blood), Accum did not see the full “moral turpitude” in his actions. Carlisle regretted that Accum appeared unable to make “a competent apology” for himself but begged His Lordship to reconsider, praising Accum as a “remarkably ingenious man,” a scientist of “native simplicity, lively intelligence and frankness.”<sup>96</sup>

It was hopeless. The prosecution went ahead on 5 April 1821. *The Times* haughtily commented how generous the Royal Institution had been in allowing Accum to remain “at large on bail.”<sup>97</sup> But Accum

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did not appear at the hearing, having left for his native Germany, unable to bear the shame and loss of popularity any longer. He would never return to England. Aged fifty-three, he was forced to rebuild his life, becoming a professor of technical chemistry and mineralogy at the Royal Industrial Institute in Berlin. He would die in Berlin in 1838 at age sixty-nine, having completed a final work in German not on adulteration but on the properties of building materials. He seems never to have got over the humiliation of being ostracized by English society. After 1820, his English works were published either anonymously or under the pseudonym “Mucca,” a reversal of Accum, whose sound underlined the fact that his name was now muck. Seldom has anyone moved from ubiquity to obloquy so fast. In 1822, in the course of a satire on the press, the poet John Hamilton Reynolds (1794–1852) asked: “Mr Accum—ay, what has become of Mr Accum?”<sup>98</sup> He had become no more than a footnote.

England was the poorer for Accum’s absence, not least because he never got the chance to continue his work on adulteration. One of the most controversial aspects of his *Treatise* had been the way he fearlessly named and shamed individuals for their part in food fraud, using minutes from parliamentary committees of investigation to expose to the glare of publicity “respectable” villains who might otherwise have covered up their activities. In his second edition, he promised to continue these exposés. The book-mutilating scandal put paid to that. Some have been tempted to see a conspiracy in Accum’s disgrace. Was he framed by powerful interests who did not want him pressing home his investigations? The historian of science C. A. Browne wrote of Accum’s “secret enemies,” arguing that “the work of the reformer in all ages has been rewarded with hatred and abuse.”<sup>99</sup> In the second edition to the *Treatise*, which appeared in April 1820, Accum himself hinted at secret battles. His practice of naming and shaming swindlers had given rise to threats against him, presumably from manufacturers. He wrote in reply:

To those who have chosen anonymously to transmit to me their opinion concerning this book, together with their maledictions, I have little to say; but they may rest assured, that their menaces will in no

way prevent me from endeavouring to put the unwary on their guard against the frauds of dishonest men, wherever they may originate; and those assailants in ambush are hereby informed, that in every succeeding edition of the work, I shall continue to hand down to posterity the infamy which justly attaches to the knaves and dishonest dealers who have been convicted at the bar of the Public Justice of rendering human food deleterious to health.<sup>100</sup>

In other words, had Accum not been ruined, he would have devoted his energies to continuing the fight against adulteration. Was he therefore prevented from doing so by malign forces?

Probably not. Even though he had powerful enemies, they were merchants and not scientists; the humble assistant librarian of the Royal Institution seems to have had no motive for lying about what he saw through the peephole. Anyway, the book-mutilating incident seems entirely in keeping with what we know of Accum's character. Even his friends admitted that he was both impetuous and impatient and saw books simply as a means to the end of advancing his own cause. It takes little familiarity with Accum's work to see that he engaged in repeated low-level literary plagiarism. He had a habit of lifting whole passages unacknowledged from other writers. In one instance he even lifted a whole section from one of the reviews of his *Treatise*, to use as his own in writing another book. Sometimes, he would quote a source, then continue the quotation without quotation marks, leading the reader to suppose they were reading Accum's own prose. He did this with Count Rumford's thoughts on coffee in his *Culinary Chemistry*. This seems perhaps less dishonest than clumsy, since Accum did quote from Rumford on the same page. Much of Accum's writing was effectively anthologizing, and perhaps he sometimes forgot where the anthology stopped and his own thoughts began.

The example of Accum illustrates the extent to which literary fraud is endemic, both in science and in cookery. Hannah Glasse, the best-known English cookery writer of the eighteenth century, stole 263 of her recipes from another source, yet her reputation remains high among culinary historians. Accum was not so lucky. The insertion of someone else's ideas into your own is a form of adulteration.

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As much as he hated the adulteration of food, Accum was himself a literary adulterator. Perhaps this was what enabled him to understand the mindset so well.

Then again, it is not clear how much of this literary theft was premeditated, and how much the result of taking on too much work. In 1820, Accum was pushing himself ridiculously hard. That year alone, he had brought out no fewer than three books on three different subjects, not counting revised editions; the previous year, he had published two more; and a further two were in the pipeline. There must have been moments when note-taking by hand seemed too laborious for the task. Easier to tear the pages out for instant reference. Can we blame him? Had he lived in the era of photocopying, or employed a team of researchers, as his modern equivalents do, Accum would surely never have felt the need to vandalize his source books.

Even if no conspiracy, Accum's disgrace undoubtedly set back the battle against the swindlers before it was properly started. Without his energy, the cause stalled. And even in the details of his disgrace, there is proof that he intended to continue his fight against adulteration. The work that Accum was seen stealing from the volume of *Nicholson's Journal* on that fateful day in December 1820 was Parmentier's essay "On the Composition and Use of Chocolate." Chocolate was not included in Accum's original treatise; he was evidently considering its inclusion in future editions. Parmentier, a French scientist, was a man after Accum's own heart, who saw chocolate as both a medicine and a food. In this essay, Parmentier praised chocolate as "agreeable" but warned against the "frauds" committed in its fabrication.<sup>101</sup>

Chocolate—which was taken then as a drink rather than in bar form—was often padded with floury substances or spoiled in some other ways. Parmentier warned against chocolate that left a "pasty taste in the mouth"; chocolate smelling of glue; and chocolate that jellified as it cooled down, for all these were signs that "farinaceous matter" had been added. If it smelt of cheese, animal fats had been added. If it left grainy deposits behind, the cocoa beans had been either badly picked or mixed with poor-quality raw sugar. If it tasted bitter, this was a sign that the cocoa used was too green; if musty, the cocoa was "decayed."<sup>102</sup> We can picture just how interesting this

would have been for Accum; so interesting that he tore it out instead of transcribing it. Had he not been arrested, might he have set to work analysing the chocolate of London, sniffing it for cheesiness, tasting it for bitterness, scrutinizing it for floury deposits? We will never know.

Accum was a huge loss to the fight against swindling. He was not just the first systematic campaigner against adulteration, he brought a range of personal qualities to the cause that have never been matched. He may have been a flawed scientist and a plagiarist, arrogant and messy in his methods, but his many achievements dwarf the scandal that ended his career. As well as chemical brilliance, he had enough charisma to carry the public along with him (unlike later scientists, who have sometimes had difficulty persuading consumers that cleaning up the food supply is important). As well as a sense of fun, he had a great moral seriousness—a proper disgust at “death in the pot” that made him politically fearless. By focusing on swindles that were poisonous rather than those that were merely cheats, he gave the cause urgency. Above all, Accum had a great passion and feeling for food. Most of the “pure food” evangelists who came after him got mixed up in sterile notions of purity. Accum never made this mistake. He never threw out pleasure along with poison. He never forgot that adulteration was an attack, not just on people, but on good food: on pure fragrant coffee, fresh wholesome bread, thick apricot jam, Westphalian ham, and malty beer.

The world of swindling described by Accum is, in many ways, still our world. There is the same reluctance of governments to upset the wheels of commerce, the same ability of science to invent fiddles as well as methods for exposing them, the same long and circuitous chains between consumer and producer, the same reckless willingness of the worst swindlers to sacrifice the health of others to turn a quick buck. That is why the story begins with him. Before Accum, no one had given a complete picture of how adulteration could affect every layer of society, knitting everyone together in a web of falsehood, ignorance, and poison. Then again, before Accum—and the restless, industrializing London he lived in—food swindling had not always been so bad.