A KIND OF CHEMISTRY

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The author explains that 'A kind of chemistry' was the way the authors of The Gifts of Comus *(1739) described the new cookery of the European courts, a cookery that had begun to take shape a century earlier with Pierre de la Varenne's* Le Cuisinier François *(1651). This essay takes their metaphor at face value. It was indeed chemistry, a chemical cookery inspired by a radical group of chemical physicians who treated and advised the aristocracies of northern Europe.*

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In 1705, Martin Lister, physician to Queen Anne, published a Latin edition of the greatest recipe collection surviving from Antiquity, Apicius's *Art of Cookery*. His self-confessed aim was to defend Apicius from the commonplace but 'sinister and unfavorable censure' that his recipes yielded nothing but 'strange medlies, disgusting and preposterous messes.'[1]

What was going on here? Who was censuring whom? Was this just a matter of antiquarian claims? I think not. Lister was an old curmudgeon. He was also, like Isaac Newton and Christopher Wren, both of whom had coughed up a subscription for one of the 120 copies of his *Apicii*, a member of the Royal Society of London. In retrospect, we think of these scientists as harbingers of a new age. Nevertheless, many of them, including Newton himself, saw themselves as restorers of ancient wisdom. It was to that camp that Lister belonged, arguing against fossils as remains of living beings, against modern medicine in favor of Galen, against the new cuisine in favor of the old. He intended his edition of Apicius to defend the cuisine of Antiquity and its updated reinterpretation in the courts of late medieval and Renaissance Europe. Against what? Against a new orthodoxy according to which traditional dishes were 'preposterous messes'.

That European court cuisine underwent a sea change in the mid seventeenth century was not just Lister's imagination. His contemporaries agreed and so do the historians who, since the 1980s, have been poring over cookbooks and memoirs to reconstruct the history of European food.[2] In practice, the transition was gradual though it was none the less real for being gradual. Fresh, often raw, fruits and vegetables and fresh herbs became more popular while most spices were edged out. Sugar was demoted from a presence throughout the meal to an appearance at dessert alone. A new range of fat-based sauces replaced earlier sour (and often sweet) sauces. Warm, spicy wines gave way to cool, sometimes sparkling wines. Thin meat bouillon gained popularity at the expense of thick purees. Why? If 1650 marked the beginning of modern European food, what caused the change?

The answer, I believe, is that time-honored notions about how diet affected health were overturned. Worries about how what we eat changes how we feel are well-nigh universal. Today we trim our diets to fit the latest reports from nutritionists, at least when we have the strength of will. The Chinese have never drawn a sharp line between food and medicine, nor the Hindus, nor the peoples of Mexico. Similarly in Europe, from Antiquity on, diet has been part of medicine as the common linguistic root of recipe and the Rx of the doctor's prescription show. So might not a change in eating habits be occasioned by a change in dietetics? To establish this, we need to remind ourselves of the continuum between food and medicine prior to 1650.

As culinary historians are well aware, patrons, chefs, physicians, and apothecaries in the courts of late medieval and Renaissance European agreed that right eating meant good health.[3] Not the least of a chef's duties, therefore, was the care of his master's health. 'A good coke is halfe a physycyon,' said Andrew Boorde in his *Breviary of Health* (1547). He went on 'For the chefe physycke (the counceyll of a physycyon excepte) dothe come from the kytchyn; wherfore the physycyon and the coke for sycke men must consult togyther for the preparacion of meate for sycke men.'[4] The physicians in question were the official physicians without whom no court was complete. Louis XIV's court, for example, patronized about thirty physicians, carefully arranged in ranks.

The kitchen mattered so much because physicians had so few resources. To avoid resorting to purging, bloodletting, and other unpleasant therapies, the physician constantly monitored his patron's regimen: exercise, emotional state, air and baths, sleep, evacuations, but above all food and drink (or diet in our narrow sense). He aimed to maintain good health by making sure that the bodily fluids were correctly balanced. Although the precise balance varied depending on age, sex, temperament, and geographical location, in general what was wanted was a body that was slightly warm and slightly moist. Hot-blooded individuals needed to be cooled down, menstruating women to be dried out, and the chilly, shriveled elderly warmed and moistened. Bravery and cowardice, intelligence and stupidity, energy and slothfulness could also be manipulated by the correct diet.

This theory derived from the Ancient World, from the writings of the Hippocratic corpus, from Aristotle's scientific works, from Dioscorides' pharmacopeia, and from Galen's medical writings.[5] Refined by Arabic physicians, particularly Avicenna, it had become current among educated Europeans in the thirteenth century, after members of the School of Salerno in southern Italy translated Arabic versions of classical texts. During the fifteenth century, when the Humanists began editing and translating texts directly from the Greek and the Latin, the material was reworked yet again, and information from the culinary and agricultural texts of Antiquity was incorporated. This compacted and systematized medical theory, including substantial amounts of nutritional and dietary information, formed the curriculum of the major medical schools in Bologna, Montpellier, and Paris.

For a patron who wanted to check his doctor's advice, self-help was readily available. Jingles from one of the many versions of the *Regimen Sanitatis Salernitanum*, a Latin poem purportedly addressed to the King of England by a member of the School of Salerno, summed up medical wisdom:

Peaches, apples, pears, milk, cheese, and salted meat,
Deer, hare, goat, and veal,
These engender black bile and are enemies of the sick.[6]

For those who wanted something a little more formal, handbooks by the dozen laid out sample diets and analyzed foodstuffs. Typical was the fifteenth century *Booklet on All Common Foodstuffs (Libreto de tutte le cosse che se magnano)* that the Paduan doctor, Michele Savonarola, compiled for his patron, the Marquis Boso, the Duke of Este.[7] One notch closer to gastronomy was the tract *On Right Pleasure and Good Health (De Honesta Voluptate)*, by the papal historian, Bartholomeo Sacchi. Originally published in 1475, it was widely translated and republished. The subtitle of the French translation drove the message home: 'On . . . all meats and things which man eats, their virtues and how they are harmful or beneficial to the human body.'

Physicians and their patrons agreed that cooking (coction) drove the cosmic cycle that sustained the life of minerals, plants, animals and man.[8] The sun warmed the earth so that fertilized seeds cooked into crystals, baby animals, and tender young plants. Above ground, the sun continued cooking the latter into ripe fruits and grains. Cooks took the grains and over fire cooked them into porridges and breads. Once these dishes had been ingested, the internal fires of the human body cooked (digested) them into chyle, and then into blood, semen, and excrement. The new blood sustained the bodily fire and replenished the bodily fluids. Semen created provided seeds for new human life. Excrement (cinders or ashes) was expelled to form a matrix (with the putrefying corpses of animals and decaying plants) for a new life cycle. It was a vision of the cosmos as a giant kitchen, fires roaring away, and of humans as tiny versions of this macrocosm.

The foodstuffs that were cooked in the human ovens were given form by the four Aristotelian elements, earth, air, fire and water, and were thus hot, dry, cold, and wet. Galen had hinted that the degrees of hotness, dryness, etc might be quantified. The first degree of intensity could hardly be felt. The third was so strong as to be potentially dangerous. In the 13th and 14th century, doctors such as Aldebrandin of Sienna, author of the *Bodily Regimen (Régime du corps)* and Arnald of Villanova, member of the medical faculty at the University of Montpellier and (for a while) physician to James II of Aragon, leapt on the suggestion.[9] Soon the educated could rattle off the qualities of foodstuffs – pepper was hot and dry in the second or third degree, sugar, almonds, and chicken were hot and moist in the first degree, fish and leafy green vegetables were cold and wet in the first or second degrees, mushrooms and melons were pushing the third degree of coldness and wetness – just as today we can identify proteins, fats and calories. New foodstuffs, such as the exotic chocolate from the New World, had to be assigned places in this scheme.[10]

Armed with their facts and figures, physicians could design diets for every person and every season. Bodies varied but the ideal was usually that they should be warm and moist in the first degree. Eating pepper would clearly pep up a wet, chilly body, while eating mushrooms might produce an alarming increment in coldness and wetness.

As nutritionist, the chef had to select, prepare and cook readily digestible dishes carefully adjusted to the diner's temperament. He combined his ingredients to balance hot and cold, wet and dry. He pulverized foodstuffs in a pestle and mortar to force hot spices and cold vinegar into close contact. He favored cooked (partially predigested) dishes over raw foods. He boiled dry foodstuffs, and roasted or fried moist ones to bring them to a properly balanced state.

The popular dish, blancmange, which came in many versions but was often a thick puree of ground rice, ground chicken, and almond milk, sprinkled with white sugar, was an example of a perfectly balanced dish. The main ingredients were slightly warm and moist, matching the qualities of a well-tempered body, and their reduction to a puree eased digestion. The sugar was 'warm and damp so that it is of good nourishment, is good for the stomach, and soothes whatever discomforts there are . . . nothing given us to eat is so flavorless that sugar does not season it.'[11] Sugar was so soothing, so beneficial, and so expensive that apothecaries sold it as a medicine and the stewards of great houses, palaces and monasteries kept it under lock and key, doling it out only as needed.[12]

Root vegetables and legumes were dry and cold, better suited to the coarse constitutions of peasants than the delicate stomachs of nobles. A chef who decided to serve them nonetheless would make sure they were stewed to add warmth and moisture. Chard and other leafy green

vegetables, marrow and onions, which were wet and cold, could be redeemed by frying. Mushrooms, though, were so wet and so cold that they should be avoided completely, or so said Guy Patin, Galenist doctor at the University of Paris, in his *Treatise on the Conservation of Health*, published in 1632.[13] Not surprising, an observer noted that in the reign of Henry VIII, Englishmen either ignored vegetables or treated them 'as food more meet for hogs and savage beasts to feed upon than mankind'. And given that all these ideas stemmed from Antiquity, the sentiment echoed that of the many Greek and Roman authors who divided the civilized who ate cooked grains from the savage who, like the ox and the horse, ate raw greenery.[14] Fruits, so moist that they putrefied easily, were not much better than greens. Physicians recommended eating them dried (raisins) or cooked, preferably with added sugar (quince paste), unless their cold wetness was needed for medicinal purposes.

Sauces, often with a sour base of verjuice or vinegar, had to be tempered with spices and sugar to ensure that they were balanced. Wine was close to an ideal nutrient, provided, of course, that it was not taken in excess. Besides being good for flatulence, infertility and brainpower, it 'fortifies the brain and the natural strength . . . causes foods to be digested and produces good blood . . . marvellously useful for the cough and for the heart', enthused the author (widely believed to be none less than Arnald of Villanova) of the *Book of Wine* written around 1320, and widely circulated in manuscript before it was printed a hundred and fifty years later.[15] Even so, red wine tended to be cold and dry (earthy), and benefitted from heating and from a judicious addition of sugar and spices, to make the popular drink, hypocras.

Given that the rules were known to all, the chef could hardly be blamed if his masters frequently flouted the regimen prescribed by their doctors. The Aragon nobility regularly ordered their bailiffs to send melons, peaches or grapes. The French were wont to cook hot, dry beef without the correct tempering, and to indulge in cold, wet pike.[16] Maybe these treats were just too delicious to be resisted, or maybe they doubted the efficacy of their doctors' confident prescriptions

In the mid seventeenth century, though, beginning with Pierre La Varenne's *Le Cuisinier François* (1651), chefs started to deliberately break with conventional wisdom, abandoning safe old recipes, moving peripheral menu items to center stage, and inventing dishes that earlier generations would have found scandalously dangerous. They played down carefully balanced purees of food moistened with almond milk; they left warming spices and sugar out of the main dishes and sauces; proffered cold, wet oysters, anchovies, mushrooms and salads; delighted in fresh fruit; began experimenting with new fat-based sauces; served chilled, sparkling wines; and emphasized meat essences, juices, and bouillons. Presumably they had

not thrown dietary caution to the winds. That would have been professional suicide. So the obvious question is whether their patrons were looking to a new medicine.

The answer is yes. As early as 1604, Henry IV of France's head physician, Joseph Duchesne had crowed that he and his cronies had already shouldered the old-fashioned Galenists out of the courts of the King of France, the Holy Roman Emperor, the King of Poland, the Duke of Saxony, the Elector of Cologne, the Margrave of Brandenburg, the Duke of Brunswick, the Landgrave of Hesse and the Duke of Bavaria. After a temporary setback, the advance continued. In 1658, the young Louis XIV opted for a dangerous experimental cure (antimony) offered by the new camp. It worked. Sylvius de la Boë took up where Joseph Duchesne had left off. In the Low Countries and elsewhere, Johannes Baptista van Helmont attracted a host of followers, while in England, Thomas Willis, the country's most successful and prestigious doctor, represented the new ideas in the Royal Society of London. By the end of the seventeenth century, the new medicine, although it had not entirely displaced the traditional scheme, was no longer controversial.[17]

The radical physicians were all indebted in one way or another to Paracelsus (the common name of the wandering lay preacher and doctor, Theophrastus Bombastus von Hohenheim). A century earlier in the 1560s, Paracelsus had mocked the whole structure of Classical medicine. The revered humors and qualities were so much nonsense, was his line, and a new chemistry had to replace the old system. But Paracelsus's flamboyant lifestyle, extravagant claims, dangerous new chemical cures, and radical religious beliefs made him a figure to be feared. Guy Patin, the orthodox Galenist doctor at the University of Paris, snarled that Paracelsus was a 'master at murdering folk with chemistry'.

Not surprisingly, his intellectual heirs were reluctant to own up to being Paracelsians. They were rarely welcome in the traditional universities but found new niches in the courts of Europe and in the academies attached to those courts. Quite why is not clear. However, we may speculate though that emperors, monarchs and princes were as scared as the common man of new diseases such as syphilis and much better able to pay for novel medical advice. The men to whom they turned went by a variety of names, most commonly iatrochemists, but I shall simply call them chemical physicians. Their ambitious agenda included replacing the natural philosophy and the medicine of the ancients with a new chemical philosophy. This was to be a truly Christian philosophy, more specifically, a truly Protestant philosophy, rooted in the Bible, not the Classics.

Trying to make sense of the writings of the chemical physicians can drive the modern scholar to distraction.[18] In their rambling, obscure tracts, they would commonly dismiss the four Aristotelian elements, introduce three

new ones, decide that five might be better, give each three or four alternative names, and then slip back into Aristotelian terminology. Perhaps that is only to be expected from men determined to shake a tradition stretching back two thousand years, to forge a Protestant science in a Europe shaken by bloody religious wars, often at the courts of rulers who supported the Catholic cause, and genuinely confused by the phenomena they were studying. What follows is as straightforward a version as I can manage of their new chemical physiology and its implications for court cookery.

Digestion, van Helmont, Sylvius de la Boë and Willis all agreed, was not a matter of cooking foodstuffs but of fermenting them. Instead of roasting fires, they turned to 'the Bakers Oven, and the Brewers Furnace' to solve 'the Phenomena, which are met with about the swelling up of the mealy Mass, and the working of Wine, and of other Liquors.'[19] There, gazing at bread and wine, they came to some tentative conclusions about fermentation. It seemed to simultaneously need and generate a gentle heat. In the case of wine and beer it led to the separation of grapes and grain into alcoholic fumes (spirits), solid dregs or lees, and flammable wine and beer. This made fermentation much the same as putrefaction. 'Vegetable putrefaction resembles very much Animal Digestion,' stated John Arbuthnot, well-known wit, member of the Royal Society, and physician to Queen Anne, in a popular handbook on foodstuffs published in 1732.[20] 'Vegetable Putrefaction is produced by throwing green succulent Vegetables in a Heap in open warm Air, and pressing them together, by which all Vegetables acquire, First, A Heat equal to that of a Human Body. Secondly, A putrid stercoraceous Taste and Odour, in Taste resembling putrid Flesh, and in Smell Human Foeces.' What Arbuthnot did not mention was that beside the warmth, the smell (spirit again), putrefaction of animal matter left salty saltpeter deposits. This in turn linked both fermentation and putrefaction with the new chemical technique of combining acids and alkalis (they would have used the word salts). This too produced gentle heat and bubbles that were variously called air, spirit, or gas (a word coined by van Helmont).

In their laboratories, chemists fermented and putrefied rich brews of animal and plant materials as a preliminary to distilling them. Grapes fermented into wine could be distilled into an essence or eau-de-vie, a liquid of great concentration and power. Other plants, animals, and minerals, treated the same way, would also yield up their spirit, essence, or quintessence (again the name varied) of different substances. That, at least, was the hope of the chemists in the search for new drugs.[21]

If digesting was fermenting, it will come as no surprise that for the chemical physicians, fermentation, not cooking, drove the cosmic life cycle. Seeds were transformed into plants by 'ferments of the earth,' as John Evelyn explained to the Royal Society in 1675.[22] Grains and fruits were fermented in bread, beer and wine. When bread, beer and wine were

swallowed, sharp acid saliva and gastric juices turned them into chyle. Once in the digestive tract, the now acid chyle encountered alkaline bile, 'fermented', and fizzed. The resulting salty liquid was the source of blood and nutritious juices so rich that in the laboratory they could be set to gelatine. 'It is a fact,' recorded the future physician and philosopher John Locke from Willis's lectures at Oxford in the 1660s, 'that the greater part of the body is nourished by the *succus nutritius* [the nutritive juice] conveyed through the arteries . . . a juice so nutritious that with gentle cooking over a fire it thickens into gelatine.'[23] The bubbles of air, spirit or gas were carried through the arteries to the brain. The dregs or lees were excreted. Still a kitchen, the cosmos was now equipped with brewers' vats and the human body with miniature copies.

Foodstuffs, the ingredients for these vats, said the chemical physicians, consisted of salt, oil (or sulfur), and mercury.[24] Occasionally they added water and earth but that need not concern us here. Salt, oil, and mercury were not the substances encountered in everyday life, but their pure elemental forms. The chemical physicians chose these three elements because of their experience in distilling and fermenting. Salt was the dry, solid, earthy stuff left after distillation, the dregs deposited during fermentation. The presence of salt in a foodstuff gave it taste and body. Oil was the oily flammable stuff that did not spontaneously evaporate. Oil in a foodstuff made it moist and sweet. Mercury, named after the anomalous metal, quicksilver, was sharp, acid and responsible for those fascinating airs, spirits and gases. It gave things their smell.

This overhaul of physiology and chemistry challenged the alert chef. The same dish that his powerful patron had once praised as healthy and delicious might be dismissed as unhealthy when a prince accepted that digestion was fermentation, and foodstuffs were oily, salty and spiritous. The chef now had to think of himself as a vintner (Willis's analogy), making sure that the blood and humors fermented under the right conditions and fever (an out-of-control fermentation of the blood analogous to wine going bad) did not result.[25] To ease digestion he had to prepare dishes that would ferment readily, that would produce rich gelatinous nutritious juices, and that would convert into revivifying spirits, airs, or quintessences. To achieve balance, he had to work with salty, oily and spiritous substances, not with the old earthy, watery, earthy, fiery, and airy ones.

Simultaneously, the new medicine provided the ambitious chef a splendid opportunity. He could make a reputation by inventing dishes to fit his patron's new demands. This was no easy task. He had to think them up, try out new techniques, find the often rare and expensive materials to make them, train the kitchen staff, and ensure that his noble patrons perceived the result as so delicious that they did not send them back to the kitchen in disgust. And rise to the occasion the chefs did, introducing more fresh and

(often) raw fruits and vegetables and replacing spices with herbs, displacing sugar to the dessert course, inventing new fat-based sauces, and filling the menu with spiritous or gelatinous essences. It is no surprise that the book that heralded the new cookery, la Varenne's *Le Cuisinier François*, originated in the French court. Swedish, English, German, Dutch and Italian translations quickly followed, free translations that cheerfully added and subtracted dishes.[26] Other books followed apace, equally cheerfully plagiarizing their precursors and their competitors, and frequently announced themselves as a yet newer version of the new cookery. Their authors did not mention the new dietary orthodoxy. They did not need to, just as chefs today do not need to rehearse nutritionists' results as they reduce the quantities of fat in their recipes.

The ready putrefaction of green vegetables, mushrooms, and fruits was now perceived as a blessing not a curse. It meant they did not need to be predigested. They were quickly accorded much greater importance. To supply the gastronomic and medical demand, horticulture and botanic gardens became quite the thing.[27] Guy de Brosse, physician to Louis XIII, campaigned throughout the 1630s for the founding, under royal sponsorship, of a botanical garden that could rival those of the medical schools of Padua, Pisa, Florence, Leiden and Basle. It was to supply fresh, exotic plant materials for apothecaries to distill.[28] Classes were to be given in chemistry and chemical pharmacology. The plan was not fully carried out until the turn of the century. Meanwhile amateurs, such as John Evelyn, keen horticulturalist and member of the Royal Society, traveled to Paris to attend classes offered by chemists such as Anibal Barlet.[29]

Gentlemen engaged in a brisk exchange of seeds and translated horticultural texts. They tracked down plant remedies, such as rhubarb, imported dried from somewhere in the east, which Thomas Willis and John Evelyn swore by as a purge.[30] They acclimatized exotic plants, developed hothouses for tender vegetables, cultivated mushrooms. The best 'grow up in one Night upon a Dung-bed, where Gardeners have found the Art to make them grow all the Year round,' declared Louis Lemery, physician, member of the Paris Academy of Sciences and son of the famous chemist, Nicholas Lemery, in his *Treatise of All Sorts of Foods* (Paris, 1702).[31] They were not dangerous at all, but contained 'much Oil and essential Salt,' (though Lemery could not resist recounting the tale that Nero called mushrooms 'the Victuals of the Gods: because the Emperor Claudius, whom he succeeded, died with eating of Mushrooms and was afterwards deify'd.')

Old injunctions were re-examined. In his *Treatise on Melons (Traité de Melons*, 1583), Jacques Pons, physician to Henry IV, weighed the likelihood of cholera and even death from overindulgence in this luscious fruit, noted that some Ancients had grown and consumed melons without adverse effects, and offered hints on how to repeat the trick in France.[32] The

classical aspersion that savages, not civilized men, ate vegetables was dismissed in a thoroughly Christian manner by turning to the Book of Genesis. Was it not written there that fruits and vegetables, the foods of the first peoples, came from a lost Garden of Paradise, not from a savage wilderness? At the end of the seventeenth century, the same observer who had noticed the earlier English disdain for vegetables could report that fifty different types of 'herbs' (including green leafy vegetables) were known in England, and that the well-to-do put even such previously distasteful dishes as aubergines and mushrooms on their tables.[33]

If fruits, herbs and vegetables were promoted in the meal, sugar, formerly lauded as a panacea, came in for rough treatment at the hands of the chemical physicians. Some wanted to banish it altogether. 'Under its whiteness,' hissed Joseph Duchesne, 'sugar hides a great blackness [it was known to blacken the teeth] and under its sweetness a very great acrimony, such that it equals agua fortis [nitric or nitric and sulfuric acid].'[34] Thomas Willis, who had noticed the sugary urine of patients suffering from what was later to be called diabetes, concurred. 'Sugar, distilled by itself, yields a liquor scarcely inferior to aqua fortis [nitric acid]. . . . Therefore it is very probable that mixing sugar with almost all our food, and taken to so great a degree, from its daily use, renders the blood and humours salt and acrid; and consequently scorbutic.'[35] How competent physicians could believe that distilling sugar produces agua fortis [nitric and/or sulfuric acid] is something of a mystery. Perhaps, since sugar was normally clarified with egg whites, remnants of these remained in the substance to be distilled. If so, it would be possible to get such acids. The moral was clear: sugar was dangerous, perhaps even a poison. Such dire warnings would surely have given any chef second thoughts about sprinkling it over the main dishes of the meal, leaving the diner no choice but to eat it. It went to the periphery of the menu, served only for dessert, prepared in a separate kitchen, and the subject of a distinct genre of books now dedicated to its decorative, not its medical properties.[36]

'Oil' went right to the center of the new cookery, as the basis of a new repertoire of sauces. The chemist had described a particularly interesting property of 'oil,' the ability to bind and homogenize the other two, normally antagonistic elements, salt and mercury. Joseph Duchesne used a metaphor from the construction business: 'a man can neuer make a good closing morter, of water and sand only, without the mixture of lime, which bindeth the other two together like oile and glue.' In the same way, 'Sulphur as the oily substance, is the mediator of Salt and Mercurie, and coupleth them both together: neither doth it onely couple them to death but it also represse and contemperate the acrimonie of Salt, and the sharpnesse of Mercurie.'[37]

In the kitchen, the closest equivalents to the element 'oil', were fats such as butter, lard, or olive oil. The element salt was to be found in salt itself or

in ingredients that gave body, such as flour. The best examples of mercury were vinegar, wine, spirits, and meat or fish essences. Translating Duchesne's mediating and homogenizing oil into culinary terms, chefs found they now had a scientific justification for melding salt and vinegar into a homogenous sauce by the use of olive oil. A vinaigrette, in short, turned out to be a health food. Salads, which John Evelyn defined in his *Acetaria: A Discourse on Sallets* (1699) as 'a composition of certain crude and fresh herbs, such as usually are, or may safely be eaten with some acetous juice, oyl, salt, etc.' took on new importance as appetite-stimulating combinations of well-balanced sauce and readily digestible greens.[38] It was la Varenne's genius to be the first (to the best of our knowledge) to dream up the roux. The base of lard or butter joined and harmonized the jarring flavors of salt and spiritous essence (wine or stock) to produce a single delicious taste. What more could be wanted of a sauce that was also good for you? The old vinegar-based sauces began to cede as chefs invented ever more variations of the new fat-based sauces.

Distilled essences, cordials and eau-de-vie, were fine as medicines or for the occasional sip but they were too strong for everyday use. Less pure and powerful extractions, though, foodstuffs whose nutritive properties had been enhanced and concentrated by boiling or fermenting, for example, were perfect, easily digestible foods. Sometimes the concentrated goodness even showed up as those desirable bubbles of airs or spirits that nourished the brain. Sparkling mineral waters, did nothing but gain in popularity as spas opened across Europe.[39] At the table, hot, spicy hyocras began to yield to cool wines, even to sparkling champagne apparently first produced in the late seventeenth century.[40]

Meat and fish were enhanced when they were simmered to make stock, bouillon, and the jellies that set from these liquids. Meat essences were made from 'musculous Flesh, which is of all [parts of the animal] the most nourishing, that which produces the best juice.'[41] Of the animals, land animals had juices more nourishing than fish or birds, and of the land animals, beef was the one that produced the most nutritive juices.

Beef essence, however energizing, was expensive. Denis Papin, who realized that on long sea voyages 'victuals' were the 'greatest inconveniency', proposed a cheap way to keep sailors healthy.[42] Meat that had been salted and kept a long while lost its 'volatile and spirituous parts, so that the remaining gross and terrestrial ones are apt to make a gross and terrestrial blood which causeth the Scurvy.' But with his 'new' digester, an apparatus that he proudly displayed to the Royal Society of London, bones could be softened and the jelly extracted. 'The Gellies being made of volatile parts, and easie to be digested,' could be taken on board ship to correct the diet of salt meat. According to Samuel Pepys, another member of the Society, the learned audience downed helpings of crumbled bones and beef jelly

prepared by Papin in his digester. Louis Lemery passed on the discovery to the French.[43] Even with this support, the scientists' dream never seems to have turned into commercial reality.

In the meantime, the aristocracy sipped their fortifying beef bouillon. By 1735, Vincent la Chapelle was offering a couple of dozen recipes for delicately garnished beef bouillon to nourish the delicate constitutions of the nobility in *Le Cuisinier Moderne*. Before long, entrepreneurs saw an opportunity. 'Restaurants' (restoring broths) could be sold to those who could not afford their own chefs.[44] 'It looks,' said the literateur, Baron Melchior von Grimm, 'as if we were out to quintessentialize everything, to put everything through a sieve; we *must* get at the quiddity, the rock-bottom of things.'[45]

Not everyone welcomed the new foods. As we have seen, Martin Lister published Apicius to wave the flag for the old guard. Similarly Robert Boyle, the natural philosopher and chemist who spent his life trying to mediate between the old and new chemistry grumbled that 'sallads and sauces . . . though they yield some nourishment, excite more appetite than they satisfy, and . . . reduce us to an unwelcome necessity of always rising hungry from the table.'[46] Old dishes and Galenist medical ideas alike lingered on until the end of the eighteenth century and often longer. Even so just as little copies of Versailles popped up across Europe, the new techniques and the new dishes made their way out of courtly circles to set the standards for sophisticated cookery.

Through all the specific dishes of the new European court cookery and through the techniques needed for their construction, ran the theme of refinement: not refinement as the ineluctable emergence of standards of good taste but refinement in the chemical sense as the preparation of the most enhanced form, the essence. The authors of *The Gifts of Comus*, published in Paris in 1739, had it right: 'Modern cookery' they said, 'is a kind of chemistry. The cook's science consists today of analyzing, digesting, and extracting the quintessence of foods, drawing out the light and nourishing juices, mingling and blending them together, so that nothing dominates and everything is perceived. . . . And making them homogeneous, so that from their different flavors result only a fine and piquant tastes, and if I dare say it, a harmony of all the tastes joined together.'[47] This was not hyperbole but a precise description of the new courtly food: a chemical cookery.

NOTES

1. *Apicii coeli de opsoniis et condimentis sive arte coquinaria* (London, 1705). Lister based his edition on an earlier one by the humanist Humelberger. The translation is by Samuel Pegge (1704-1796) in the introduction to his edition of *The Form of Cury, A Roll of Ancient English Cookery* (London, 1780), xiii.

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