Introduction

When we say, in the ordinary way, that in the modern period science has become immensely powerful, we are not referring to theoretical developments within scientific institutions. We mean instead that our daily lives are nowadays shaped by scientific claims about the natural world, and the material manifestations of those claims, in ways inconceivable a few centuries ago. Everyday life has commanded little attention from historians of science, while within the historical mainstream, it tends to be viewed as a trivial topic, unworthy of sustained scholarly interest. Yet, from watches to central heating, from health foods to potatoes, many aspects of quotidian material culture as we know it today were developed in the eighteenth and nineteenth centuries by individuals laying claim to scientific knowledge. This book considers a crucial and much neglected aspect of that thorough-going scientific reform of everyday life: the attempt by scientific practitioners to explain and manage food consumption in the decades around 1800. It begins in a period when certain phenomena which are often taken as defining features of modern Western culture, such as a consumer society, large-scale manufacturing and public scientific authority, were either non-existent or very new; it ends at a time when many fundamental features of the bureaucratised, industrialised world we inhabit were already apparent, particularly in cities.

In *A History of Private Life*, a work that has become a landmark study within cultural history, the late Jean-Louis Flandrin took one particular publication as evidence for the claim that such a thing as 'private life' existed in the eighteenth century. This was *Histoire de la vie privée des Français* ('History of the private life of the French'), written by Pierre-Jean-Baptiste Legrand d'Aussy, ex-Jesuit, mediaevalist and man of letters, and published in 1782. Legrand d'Aussy remained outside the learned institutions of the Old Regime, only entering the history section of the Institut National des Sciences et Arts in 1795.[1] Originally planned as part of a longer work on the history of private life, the three

[1] Flandrin 1989; see also Csergo 1999a; Staum 1996: Chapter 8.

volumes he eventually published were all devoted to the question of food and diet. Much of the book addressed French eating habits prior to the eighteenth century. However, when he reached his own time, Legrand d'Aussy's interest turned to the manufacture of the most up-to-date food products: goods such as luxury liqueurs, exotic drinks, vinegars and mustards, health foods and experimental breads, whose production and value was legitimated by appealing to scientific and medical principles. He was evidently personally familiar with the artisanal world of urban food entrepreneurs, for he mentioned conversation and correspondence with several famous manufacturers, such as the vinegar-maker Antoine-Claude Maille, whose company still thrives today.[2] His account of the key transformations in eighteenth-century French food history embraced kneading machines, imitation Italian pasta, economic soup, gravy powders, sugar refineries, restaurants, and the latest flavours of ice-creams, liqueurs or mustards. What he had to say about the reasons for including such information in his book is summarised in his comment on the fifty-five new types of vinegar contributed by Maille to French culinary resources. 'I have entered into such detail,' he explained, 'because one day it will be epoch-making for our Nephews, & because nowadays the objects about which you have just read have become, at the hands of their inventor, the subject of a very considerable trade.'[3] For Legrand d'Aussy, it was these themes – invention, commerce and mechanisation – that were the key developments of his own century. They guaranteed that food *had* a history, that it too participated in the progress of knowledge towards modernity through reason. It is ironic, therefore, that precisely these aspects should have gone largely overlooked in later histories of French food in the eighteenth century. In discussing Legrand d'Aussy's work, Flandrin made absolutely no mention of alimentary entrepreneurship, science or invention. Such themes are indeed absent from his entire *œuvre*, otherwise so comprehensive in its coverage of early modern eating practices, from table manners to dietetics. Precisely such omissions have allowed the early modern world to be portrayed as a utopian age of artisan-produced foods, at odds with today's mechanised, processed, standardised comestibles.

[2] On Maille, see Watin-Augouard 2000; Martin 1996, 1999, 2009: 45–48; on liqueurs, see Spary 2012: Chapter 4.

[3] Legrand d'Aussy 1782, II: 152. The few studies devoted to alimentary entrepreneurs in the eighteenth (as opposed to nineteenth) century are almost all of comparatively recent date. See Spang 2000; Martin 1996, 2003; Davis 2013; Coquery 2011. One earlier source, Forbes 1958, pays no attention to entrepreneurial culture, only to inventions; while the classic Franklin 1887–1902, XIII mentions numerous alimentary entrepreneurs, but is predominantly anecdotal.

Flandrin's reading of Legrand d'Aussy may reflect the overwhelming hegemony of *gastrohistoire* in the historiography of French food. Properly speaking, *gastrohistoire* commences with the writings of early nineteenth-century gastronomes such as Alexandre-Balthazar-Laurent Grimod de La Reynière. Historians of French food still devote themselves to ransacking this literature for past culinary practices and recipes. Yet even as they memorialised a lost age of fine dining, the first gastronomic authors, writing in the immediate aftermath of the French Revolution, also commented upon the rise and growing political importance of scientific and industrial food production for French eaters circa 1800. One of the main purposes of this book is to construct that lost history of French food; to argue, as Claude Fischler has done for a later period, that gastronomy and industrialisation, connoisseurship and chemistry, proceeded in parallel – more, in dialogue with one another.[4] Gastronomy has been celebrated as a peculiarly French form of resistance to the mass industrialisation of diet, and as the direct heir to Old Regime culinary traditions.[5] The claim made by this book is that eighteenth-century cuisine in fact developed in two different directions after 1760: into a scientifically-informed and industrialised practice on the one hand, and an elitist connoisseurial handicraft on the other. Which of these trends most faithfully represents the lost alimentary past that some would seek to recapture? Though gastronomy is widely taken as accompanying the rise of a French middle class, the Royalist nostalgia evident in early gastronomic writings shares little common ground with the programmatic concerns and political affiliations of the economic authors discussed in this book, who also developed self-consciously middling agendas after 1800. To which programme of alimentary knowledge should we turn as definitive of modernity and the 'rise of the middle class'?[6] Perhaps, instead, we need to recognise that authoritative discourses about food embraced the emergence of both industrial foods and the gastronomic canon. Scientific and medical pronouncements about dietary requirements, healthy eating and nutrition can be understood as knowledge-claims emerging out of debates over the political implications of taste and nourishment as food production industrialised.[7] The relationship between food production as innovation

[4] Fischler 1993: 196–197.
[5] Csergo 1997; Capatti 2007; see also Shapin 2003b; Pitte 2002.
[6] On cuisine and gastronomy as exemplary of an emergent middle class or of modernity, see Ferguson 2001; Bourdieu 1994; Aron 1967.
[7] The history of industrial foods has received most attention in the cases of Germany and Britain, though few studies address the period before 1840; see especially Teuteberg and Wiegelmann 1972; Teuteberg 1990; Burnett and Oddy 1994; Oddy and Miller 1976; Geissler and Oddy 1993; Fenton 2000; Mennell et al. 1992; Goody 1997. For a recent attempt to reconcile cuisine and science, which invokes eighteenth-century debates, see This 2002: 1–18.

and food writing as commemoration – between the alimentary future and the alimentary past – is thus a complex one.

Today's cuisine is the heir to this dual tradition. One way of illustrating this is via the history of connoisseurship. Throughout the period covered by this book, entrepreneurs, consumers and government experts shared connoisseurial standards. Early gastronomic publications advertised food entrepreneurs from all over the First Empire, who met quality standards to which other producers might aspire. In celebrating regional excellence in this way, gastronomic authors helped to constitute alimentary patrimonialism, a key focus for today's debate over French food.[8] The 'slow food' movement and other pressure groups view regional specialities and local resources as a counter to the predominance of industrial foods in the Western diet.[9] However, those regional foods that first entered the gastronomic canon did so precisely because they travelled from their place of production to their place of consumption – in the case of the first gastronomes, the city. After all, it was only by virtue of possessing a Parisian, and therefore urban, central and modern, vantage-point that gastronomes were in a position to compare alimentary products from all over the nation. The gastronomic project itself depended upon the very processes of centralisation and rationalisation that its nostalgic regionialism would seem to be attacking. Grimod de La Reynière himself acknowledged this in dubbing Paris 'the Capital of the Gourmand Empire'.[10] Gastronomy signalled the increasing tensions between regional autonomy and administrative centralisation during the First Empire.[11]

The very notion of provincial specialities was partly invented by gastronomic writers in order to resist contemporary programmes for the standardisation of nourishment, supported by centralising regimes on the basis of scientific advice. But most did not view industrial foods as objectionable in and of themselves. Gastronomic literature, in fact, is a valuable resource for constructing the early history of industrial foods in France.[12] The writings of Grimod de La Reynière, in particular,

[8] On alimentary patrimonialism and the construction of national and regional identity, see Trubek 2008; Meyzie 2007: esp. 350–366; Leynse 2006; Abramson 2003; Csergo 1997, 1999b.

[9] One 'slow food' manifesto explicitly names Grimod de La Reynière as an ancestor of this programme, opposed to globalisation and industrial mass-production of foods (Petrini 2001: 9, 15). See also, e.g., Pollan 2008; Mennell et al. 1992: Chapter 9; Jacobs and Scholliers 2003; Abramson 2003; Mintz 2006: 7; de Certeau et al. 1998: Chapter 11.

[10] Quoted in Abramson 2003: 119; see also Croze-Magnan year XI/1803. Coulon 1999: 316 asks 'Which are the major sites at which the culinary city encounters the political city?'

[11] On these tensions, see, e.g., Woolf 1991.

[12] *Almanach des Gourmands* year XI/1803: 159–211; Gourarier 1985c: 477. On the relationship between industrial food production and local consumption, see Stanziani 2003, 2007a; Wilk 2006; Garval 2001: 61–64; Csergo 1997: 188.

constituted not only gastronomic literary entertainments, but also shopping guides to the specialist food products of Parisian entrepreneurs. As Garval notes, this was a case of 'the "founding father of gastronomy" … praising the forerunner of canned peas'.[13] The space devoted in Grimod's publications to reviewing food products was a form of product placement, differing little in tone from pre-Revolutionary newspaper advertisements masquerading as letters to the editor.[14] As the proprietor of a Lyon wholesale business selling fabrics, foodstuffs, books and fashion items in the Revolutionary period, Grimod was indeed complicit in the commercial world which he celebrated in writing. His Jury Dégustateur, which met weekly to evaluate food products sent in by entrepreneurs around the country, bore more than a passing resemblance to the panels of juries appointed to judge the products submitted to the new industrial exhibitions. Among the prepared foods it evaluated were liqueurs, pâtés, vinegars, chocolates, canned goods and preserved fruits. In this sense, the history of gastronomy is in fact continuous with the early history of industrial foods.[15] Gastronomes and artisans themselves courted industrialisation, contributed to it, and profited by it. The industrialisation of foods was a continuum, not a radical transformation; the artisanal small-scale chocolate-maker and the large chocolate factory of today are the end result of different paths from the same origin.

One question to be asked, therefore, is why certain artisans came, in the early nineteenth century, to react against the embrace of mechanisation, large-scale production and the generation of standards of uniformity and quality which are the characterising feature of industrial food production. For today's celebration of slow food is prone to silence on the question of how to create reliable standards of quality – indeed, how even to *measure* quality – in the absence of the mechanisation and rationalisation which first raised questions of comparability and replicability within the public domain. The uniformity of standards afforded by industrial production techniques was viewed by savants and gastronomes alike as a means of improving food quality. Past debates over issues such as quality or adulteration thus usefully highlight the fact that there were distinct constituencies of expertise and agency surrounding food. As John Coveney notes, histories of nutrition 'typically … take as their starting points people and events in the eighteenth and nineteenth centuries'.[16] The rise of scientific

[13] Garval 2001: 58.
[14] It is highly probable that product descriptions in works like [Grimod de La Reynière and Coste d'Arnobat] 1803–1810 were based on advertising material submitted by the entrepreneurs themselves.
[15] See Rival 1983: 88–91; Garval 2001: 59, 65–67; Rambourg 2005: 167–168; Brillat-Savarin 1801.
[16] Coveney 2006: xiii. On quality, see Abad 2006; Sleeswijk 2004.

definitions of nourishment at this particular time was neither inevitable nor self-evident. Rather, it accompanied the emergence of a new group of authoritative public food experts. Prior to 1750, French physicians issued dietetic recommendations which might find their way into print, but their elite clients were expected to be self-determining in matters of medical treatment, food and lifestyle.[17] By the 1810s, a group of alimentary experts, acknowledged as such by the public, but, more crucially, also by successive governments, offered public advice on all questions about the production, circulation and management of food in society. Many of these experts were chemists.[18] Physicians continued to provide dietetic advice for private clients, but chemists now penetrated every domain in which food became a matter of public interest, from advising on the nourishing powers of institutional diet to offering their services in industrial food manufacture, from pronouncing upon the benefits and dangers of new foods to inventing such foods themselves, from questions of food preservation to debates over adulteration. In government, in print, in city workshops and manufactories, this new group of authoritative practitioners was highly active during the course of the nineteenth century, as industrial chemistry became the principal science of materials and the most important source of transformation of everyday life.[19]

Rather than taking sides in the debate over industrial versus patrimonial foods, therefore, this book asks which aspects of food culture and consumption were conquered by chemical experts, how their public authority was constituted, and where and why it failed. As Stanziani and others have shown for the nineteenth century, disputes over food quality rapidly became disputes over the public authority of participant groups.[20] Modern wines, to take one example, are products of a programme of chemical reforms pursued in the name of economy, science and improvement from the 1760s onwards. One such process is Chaptalisation, the addition of sugar to unfermented grape must in order to increase the alcohol content of the resulting wine. Today this practice is deemed perfectly legitimate, even within the mythology of French wine production,

[17] Jewson 1976; Coleman 1974.
[18] On chemistry as public culture, see especially Bensaude-Vincent 2007; Bensaude-Vincent and Blondel 2007; on chemists as public experts, see especially Collins 1993; Atkins et al. 2007: part B; Simon 2002; Teuteberg 1994; Stanziani 2007a. My own use of the term 'expert' throughout this book refers to those appointed by institutions or governments to make public statements about the natural or social world. For further discussion, see pp. 162–165, this volume.
[19] Belhoste 2003: 98 dubs chemistry around 1800 'the first industrial science in the modern sense'.
[20] See especially Stanziani 2003, 2005, 2007a; Ashworth 2010; Sleeswijk 2004.

the domain where connoisseurship, craftsmanship and regionalism are perhaps most frequently invoked in conjunction. The practice of adding sugar to must was of long standing, and was not invented by the chemist Chaptal. But, as J. B. Gough argues, endorsement by institutional chemists gave it 'a respectability not accorded most other forms of adulteration'.[21] Its acceptability as an intervention in food production occurred at a key juncture in the industrialisation of wine, just before chemists came to view cane and grape sugar as chemically distinct, as discussed at the end of this book. During that period, Chaptalisation was represented by chemists not as a process of adulteration, but as a scientific compensation for nature's shortcomings in providing inadequate sugar to the grape: in other words, as one of many instances where chemical expertise could enhance daily life. As one contemporary put it:

> It is a mistake to believe that, as long as good proportions are observed, the sugar and brandy added to weak wines will produce a compound which is different from those wines which nature might have rendered just as sweet or spirituous. One need only give these added principles the time to combine, and the properties of these wines will be the same as those of good analogous wines to which nature has given everything that makes them generous wines: the bouquet and the *goût de terroir* are the only things that the chemist imitates imperfectly.[22]

Chemists' interventions in wine production could be defended by presenting them as identical to natural phenomena. There are two assertions implicit in this manoeuvre: firstly, that chemists possess expertise which qualifies them to make claims about the identity of two food substances; secondly, that chemists are also, and simultaneously, competent to pronounce on the question of quality – even if they cannot always reproduce it perfectly. Chemists not only copy nature, they improve upon it.

Just such chemical claims were consistently challenged from the eighteenth century onwards, however. The formalisation of standards of connoisseurship and patrimonialism allowed chemists' claims to possess particular skills uniquely qualifying them to intervene in food production to be challenged.[23] Take the 1847 satire on a merchant who, having taken up different trades with little success, ended by opening a wine-shop: 'Sadly, I did not know how to handle this liquid … I would have had to abandon my new establishment, had not an intelligent

[21] Gough 1998; see also Mazliak 2011: Chapter 7. On wine as the chief counterexample to the view that industrialisation has destroyed connoisseurship, see Pitte 2002, epilogue; on the changing definitions of adulteration in wine production, see Stanziani 2005: Chapter 4.

[22] Cadet de Vaux 1814: 225; Chaptal year X/1801; *Journal d'économie rurale* 6 (1804): 22–24; Plack 2009: 141–142. On *terroir*, see Trubek 2008.

[23] Shapin 2003b, 2005.

assistant come to my aid and taught me the useful art of making wine out of water and chemicals.'[24] The emulative, synthetic project upon which the claims to social utility and epistemological expertise of chemists and food entrepreneurs rested was neither politically neutral, nor a secure resource for self-presentation. Rather, it could become the object of ridicule and satire, for example in gastronomic literature. The main difference between the gastronomes and economic chemists discussed in this book was not disagreement over the proper means of food production. Rather, it was that gastronomes were men of letters who had to make their way in the unstable and transforming literary market of the post-Revolutionary years.[25] Chemists were more likely to benefit from direct state support throughout the period, even if at times that support took a covert form. That close relationship was one of the reasons why, over these decades, chemists were able to enter the public domain, as well as the world of large-scale manufacturing, in the guise of experts.

One central question this book sets out to resolve is how such alimentary experts emerged and who they were. For we know very little about such figures prior to the mid nineteenth century, by which time their authoritative position vis-à-vis government, society and commerce was already well established.[26] Why did Western cultures come to rely on such individuals? How did they achieve positions where they commanded public authority? As Frank Fischer observes, 'Expert knowledge is indeed one of the most distinctive features of modern society; it is tightly woven into the very fabric of our existence.'[27] Nikolas Rose and Peter Miller have developed Michel Foucault's account of governmentality to argue for the importance of experts as mediating figures standing between governments and those who are governed, the brokers between centralising bureaucracy and individual action.[28] This valuable argument nonetheless relies upon the assumption that expert status is stable, whereas one concern of *Feeding France* is to explore its historical construction. To lay claim to authority over the nature and proper use of food was controversial in the eighteenth century, and continues to be so today. This book explores the problems and constraints of expert action within the public domain by considering expert endorsements of health

[24] Quoted in Sibalis 1988: 718. See also Sleeswijk 2004.
[25] See, in particular, Hesse 2003.
[26] On the European chemical industry, see especially Fox and Nieto-Galan 1999; Nieto-Galan 2001; Klein 2005a, 2005b, 2007, 2012b; Klein and Spary 2010; Brock 1992; Clow and Clow 1952.
[27] Fischer 1990: 13; Broman 1998: 124–129; Smith and Phillips 2000.
[28] Miller and Rose 2008: 35; see also Saar 2011; Lemke 2011; Skornicki 2011: 213–220.

foods in late eighteenth-century Paris, asking what role public scientific experts played in the development of a consumer society and the beginnings of industrialisation.[29]

Economic expertise

The decades between 1760 and 1815 spanned the active working lives of a group of practitioners who associated with one another in major metropolitan institutions before, during and after the Revolution, and whose programme of enquiry and experimentation I characterise as 'economic' throughout this volume. The economic chemists, agronomists and philanthropists addressed here form a constituency distinct from the physiocratic school, a loose-knit group of political economists and reformers in the middle decades of the eighteenth century with ties to the minister Anne-Robert-Jacques Turgot. It was this latter group whose members were termed '*économistes*' in the middle decades of the eighteenth century. As Catherine Larrère notes, 'there has been a tendency to make the term "physiocracy" synonymous with the economic and social thought of the pre-Revolutionary period'.[30] The uses of the term *économie* and its cognates, whether in government, commerce, private life or the sciences, were, however, much broader, and the physiocrats' fall in no way terminated public discussion of matters economic. A continuous stream of 'economic' commodities, projects and inventions featured in newspapers such as the *Avantcoureur*, *Affiches* and *Mercure* after 1750, and several specialist economic periodicals flourished.[31] Numerous eighteenth-century French authors and entrepreneurs, few of whom had direct ties to physiocrats, but many of whom had commercial interests, pursued this broader programme of *économie*, proposing reforms and inventions suitable both for private households and for governments.

Where the history of political economy has concentrated upon free trade initiatives pursued by physiocrats and *laissez-faire* economists such as Vincent de Gournay, this wider economic project addressed the maximisation of resources: both the initial exploitation of new resources and

[29] An issue explored in a range of recent literature, including Bret 2002; Rabier 2007a; Engstrom et al. 2005a; Ash 2010.

[30] Larrère 1992: 5; Perrot 1992. See also Weulersse 1950, 1959, 1968, 1985; Fox-Genovese 1976; Meek 1962; Livesey 2001; Salvat 2003; Shovlin 2006a; Skornicki 2011; Vardi 2012.

[31] On economic and commercial publications, see Coquery 2011: part 1; Shovlin 2006b; Théré 1998; Steiner 1996; Perrot 1984, 1992: 64–95; Skornicki 2011: 63–74. Théré shows that economic literature increased sevenfold between 1750 and 1789.

the better management of old ones.[32] Waste and unused resources were the two main political vices against which such authors railed, in language that was at once moralising and rationalising. *Économie* was to be exercised over issues ranging from self-conduct (the management of personal and household finances) to farming (the improvement of soils and the profitability of estates) to politics (the management and increase of state finances). It is this continuity which explains the patriotic agenda of economic writings from the 1750s onwards.[33] The collective practice of *économie* enabled patriarchal households to reform the nation as a whole. But *économie* was also a set of virtues and/or skills which turned individuals into good citizens. Reformers urged economic priorities and lifestyles among a literate public that was just starting to become familiar with the neologism 'consumer'.[34] *Économie* thus construed meant far more than thrift, and encompassed far more than political economy. At issue here was the early modern version of œconomy as a system of circulating resources or principles, also invoked by French medical chemists accounting for nutritive matter.[35]

To many contemporaries, the physiocrats appeared to address only one facet of this larger enterprise for resource management, a programme at once moral, political and scientific. Writing in 1794, the pharmacist and journalist Antoine-Alexis Cadet de Vaux divided *économie* into several branches: 'animal, rural, domestic, public'.[36] Similarly, for Jacques-Philippe-Martin Cels, a tax official who advised successive regimes on agronomic issues throughout the Revolutionary decade, *économie* had four branches, which, taken together, constituted a science of society: public, commercial, industrial and rural. The last of these, he said, translated into English as 'husbandry', and included 'all that falls within the scope of household or estate management; it is the science which covers all the knowledge a Cultivator and the father of a family should possess;

[32] Perrot 1992: 67 dates familiarity with the expression 'économie politique' to Jean-Jacques Rousseau's eponymous *Encyclopédie* article of 1758; see also Spary 2003. On new forms of political economy appearing from the 1770s onwards, see Skornicki 2011: esp. Chapter 2; Shovlin 2006a: esp. Chapter 4; Whatmore 2000; Staum 1987. On *laissez-faire*, see especially Meyssonnier 1989, 1995; on economy as resource management, see Meyer and Popplow 2004; Popplow 2010.

[33] Shovlin 2006a; Skornicki 2011: 116–142; see, similarly, Kwass 2000: Chapter 5 on financial literature.

[34] As, for example, in the short-lived *Feuille du Marchand et du Consommateur*, which reported on deliveries of fresh foods to the city of Paris (*Avantcoureur* 1765: 288–289). No copies of this newspaper are apparently extant.

[35] Here I follow Schabas and De Marchi 2003 in their call to study œconomy as a conceptual whole. See also Chapter 3, this volume.

[36] ANP, F[11] 435–436: Antoine-Alexis Cadet de Vaux, 'Rapport au Comité de Salut public', Frimaire year III/November–December 1794; F[12] 2247, Cadet de Vaux dossier: Letter, Cadet de Vaux to the head of the ministry's manufactures division, Franconville, 13 July 1812. For similar comments by André Morellet, see Salvat 2003.